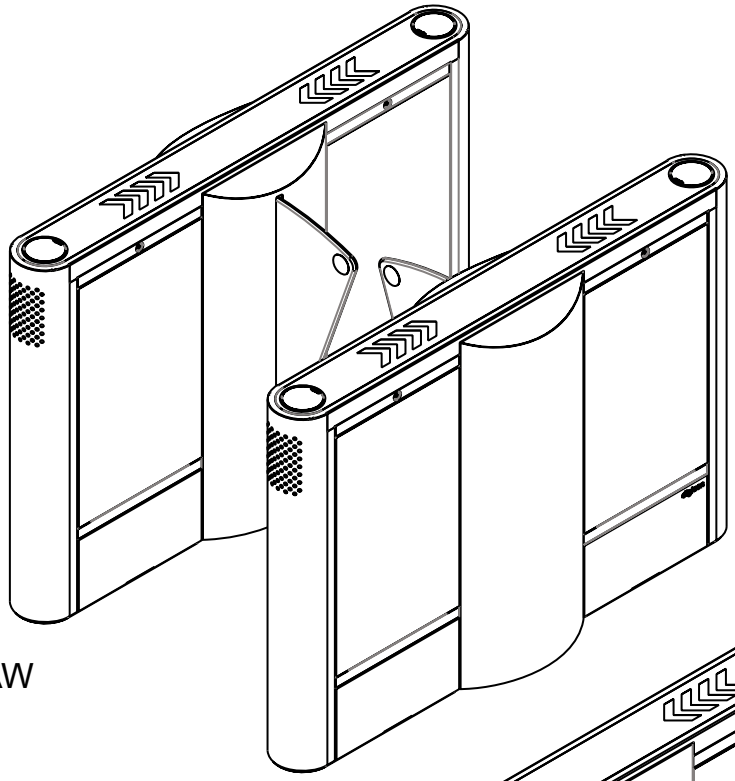
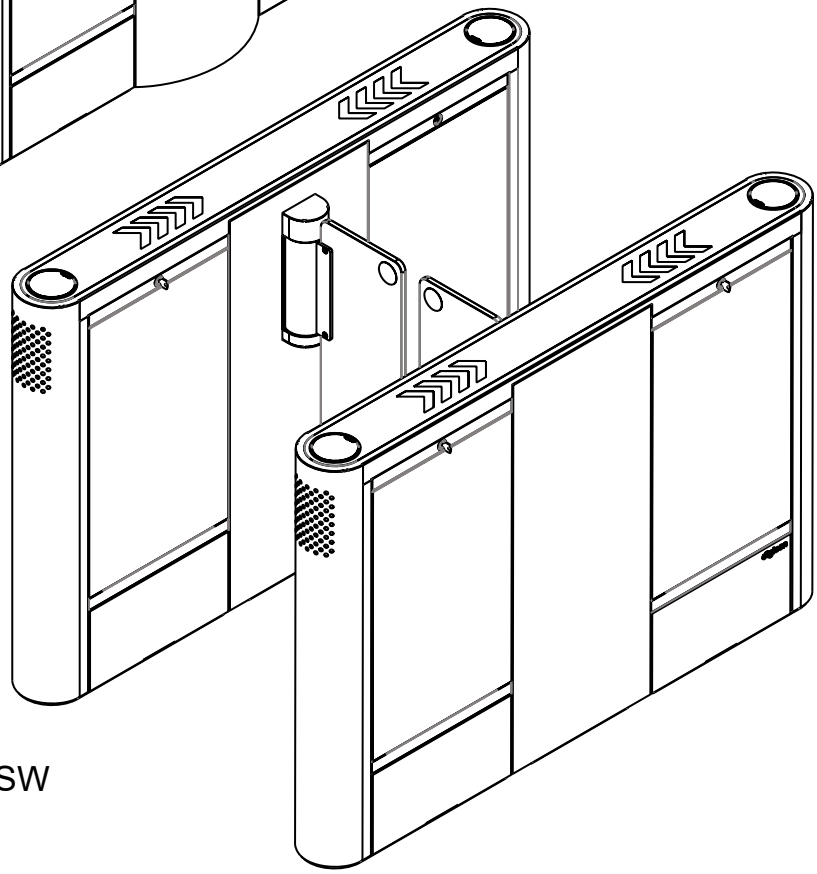
dGate



dGate AW



dGate SW

digicon

Code: 069.31.278

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Manual elaborated by: Digicon S.A. Controle Eletrônico para Mecânica

Department of documentation - EDS

“At the end of the product’s life cycle, dispose of it according to National Waste Policies”.

Revision	Date	Reviser	History
09	06/mar/2020	• Theo Souza; • Vinicius Duarte; • Nicholas Hahn; • Cledisson Escobar; • Jorge Grass; • Leandro Dandolini.	• New manual layout; • New chapter on features of dGate; • Update of Images.
10	05/jun/2020	• Nicholas Hahn; • Vinicius Duarte; • Leandro Dandolini; • Diogo Zarth. • Jorge Grass	• New format of the manual; • Update of information on interconnections of ; • Door calibration; • Review of chapter on safety; • Review of chapter on installation; • Update of warranty term.
11	16/nov/2021	• Peter Elbling; • Leandro Dandolini; • Juliana Dietrich; • Jorge Grass; • Nicholas Hahn.	• New chapter on security; • New instructions on risk; • New document layout.

Note: If you want to get the history of all the versions of this manual, get in contact with your representative or with Digicon.

⚠ ***ATTENTION!*** *Digicon reserves the right to modify the characteristics of its products at any time to adapt them to latest the technological developments.*

.

⚠ ***ATENÇÃO!:*** *Digicon reserves the right to change the information contained in this manual without prior notice.*

Índice

1. Introduction

When we combine innovation with robustness, design, and reliability, we find the best solution in access control. Digicon presents a solution thought in the smallest details to bring innovation, quality, and design to the access control market. From an intense research process on world trends and an exhaustive engineering work, the dGate equipment was born.

Learn more about our gates by accessing our website, using the QRCode below:

2. Safety instructions

2.1 Symbols

You will find the symbols below in the Product Manual. They indicate important Attention and Caution notices regarding the safety, installation, operation, and maintenance of the equipment.

⚠ ***ATTENTION!:*** *Describes something important that should be the knowledge of* **qualified technical professional** *and the user.*

⚠ ***CAUTION – RISK OF HARM/INJURY!:*** *Describes situations of risk that can lead to harm and/or injuries.*

⚠ ***CAUTION – RISK OF DEATH!: !*** *Describes high-risk situations that can lead to death. These cases are related to interaction with the inside of the equipment and it is advised that you use a* ***qualified technical professional.***

Read and keep this manual: Read and keep this Product Manual for future reference. Read carefully all the instructions of safety, unpacking, installation, operation, and maintenance prior to operating this equipment.

Follow the instructions and the attention and caution warnings: Follow all the instructions for installation, operation/use, and maintenance. Pay attention to all the warnings of attention, caution, and precautions in the operating instructions as well as those that affixed to this equipment. Attention and caution warnings are essential to protect the user and the qualified technical professional, as well as the longevity of use of the equipment.

2.2 Terminology

The terms defined below are used in this document. The definitions are based on what is found in the safety rules:

Qualified Technical Professional: The term **qualified technical professional** applies to persons trained and qualified by Digicon who are permitted to install, replace, or service your equipment. It is recommended that the **qualified technical professional** use their experience, technical skills, and good practice to prevent possible injury to themselves and others, due to risks that exist in areas of restricted access. This posture must be taken to mitigate risks and to increase the useful life of the equipment.

⚠ ***ATTENTION!*** Installation and/or maintenance provided by unqualified technician can nullify the warranty term of the equipment.

User: The term **user** applies to persons who are not **qualified technical professionals** and who use the equipment.

2.3 Risks ⚠

The following safety information and warnings are available to protect you against injury and prevent damage to the equipment.
Children and people in need of assistance may be unable to assess the risks associated with the use of equipment and may injure themselves or put themselves in situations that involve risk of life.
Special attention must also be given to animals that are close to the equipment.

Below, we will mention risks that must be addressed in different situations:

2.3.1 Risk when unpacking the equipment:

⚠ ***ATTENTION!:***

- Always use the proper tools
- Always wear the necessary PPE (gloves, shoes, and safety goggles)

⚠ ***CAUTION - RISK OF HARM/INJURY!:***

- Be careful when handling the packaging of equipment; it is made of wood and can splinter;
- The package is heavy; take care that it does not tip over, as it can cause injuries and also damage to the equipment;
- In the construction of the packaging there are fine blades of steel, which can cause cuts and injuries;
- Take care to remove the lid of the container, as it may fall causing injury and damage to equipment;
- To remove the screws that secure the equipment to the base of the package, the side glass doors must be removed. Handle them with care, leaving them in a safe place;
- Beware of hands and feet when removing the equipment from the base of the packaging and placing it in the place of installation.

2.3.2 Risks when installing the equipment:

⚠ ***ATTENTION!:***

- All the stages of installation should be performed by a qualified technical professional who should use the appropriate tools and PPE;
- Prior to connecting the electric power, make a detailed inspection of the installation.

CAUTION - RISK OF HARM/INJURY!:

- Be careful when placing this equipment on-site, as due its size and weight it can cause injuries;
- During the initial phase of operation the doors may move. Leave the area of passage free, avoiding collision with objects and people.

CAUTION - RISK OF DEATH!:

- This equipment works with dangerous electrical voltages. To avoid the risk of electric shock, the installation must be carried out exclusively by a qualified technical professional;
- Before carrying out any procedure, make sure that the power is turned off.

2.3.3 Risks when using the equipment:

CAUTION - RISK OF HARM/INJURY!:

- Beware, this is an access control equipment and its doors may close in certain situations. The impact of the doors with the human body can cause bruises and even fractures;

CAUTION - RISK OF DEATH!:

- Children and people who need of assistance should be constantly supervised, as they may be unable to assess the risks associated to the use of the equipment, and may injure themselves or put themselves in situations that involve risk of life.

2.3.4 Risks when servicing the equipment:

ATTENTION!:

- All the steps of maintenance should be carried out by a qualified technical professional who should use the appropriate tools and PPE.

CAUTION - RISK OF HARM/INJURY:

- Be careful with hands and fingers during the process of maintenance, since the mechanisms of the door movement can cause serious injuries.

CAUTION - RISK OF DEATH!:

- The equipment has several glass pieces. Always wear safety goggles;
- Prior to performing any procedure, make sure that the power is turned off;
- Non-compliance with the recommendations above can result in severe injuries and risk of death.

2.3.5 Risks when cleaning the equipment

ATTENTION!:

- Wear necessary PPE during all the cleaning process (gloves and safety goggles).

AUTION - RISK OF HARM/INJURY!:

- Take care during the cleaning process as the doors may close in certain situations. The impact of the doors with the human body can lead to bruises and even fractures;
- The side doors of access to the equipment and the top covers are made of glass, so be careful during cleaning not to force them too much;
- The chapter on cleaning of this manual lists the products suitable for cleaning the equipment. The use of the correct products protects the equipment and the skin of those carrying out the cleaning.

3. Characteristics of dGate

1. The dGate has a motorized system for opening and closing the access doors that are activated after identification and authorization of access of the authorized user. A sensor system is used to identify and prevent the passage of unauthorized people or an attempt to tailgate, as well as to maintain the personal integrity of the users of the gates.
2. Available in stainless steel and carbon steel painted in epoxy powder.
3. Models are available with AW doors (Angel Wings Doors - retractable doors) and SW (Swing Doors - pivoting doors) in polycarbonate with 12 mm of thickness;
4. Side doors with combination key opening for access to the interior of the equipment, facilitating access to configuration and maintenance;
5. Specific micro processed controller that allows configuration of a series of operating parameters to optimize the passage flow, asset security, and personal security;
6. High-performance brushless dPower motor allow silent and efficient door movement;
7. Acoustic alarm (Beep) for configurable access control;
8. Detection System: 10 infrared sensors for detecting passage and features of asset security and user integrity;
9. Anti-crushing system: doors open when detecting an obstacle;
10. Anti-fraud system with acoustic warning and detection of attempted tailgating, attempt to passage in the opposite direction, and attempt to pass without validation;
11. Direction control. It allows the following modes of access:
    - Controlled access in the entry and exit directions
    - Controlled access only in the entry direction, exit free or blocked
    - Controlled access only in the exit direction, entry free or blocked
    - Blocked access in the entry and exit directions
    - Free access in the entry and exit directions
12. Emergency opening: automatic opening in case of power failure or emergency alarm activation;

13. Interior space built specifically to integrate access control devices, identification systems (badges, biometric, etc.), and others;
14. Full range power (from 100 to 240 Vac);
15. Low consumption of energy in standby mode;
16. Upper operating pictogram expandable to up to two cabinets of high-brightness RGB LED with color control (request the desired configuration when purchasing);
17. Frontal guidance pictogram with RGB LED;
18. Microcontroller dedicated to controlling the motor;
19. Control of door positioning monitored by magnetic encoder, free of mechanical wear;
20. Side doors in glass or, optionally, in stainless steel;
21. Allows installation of proximity reader to the ends;
22. Available with optional 2D bar code reader;
23. Available with optional biometric reader;
24. Model available with passage width of 520 mm and of 920 mm to serve people with special needs (PNE).

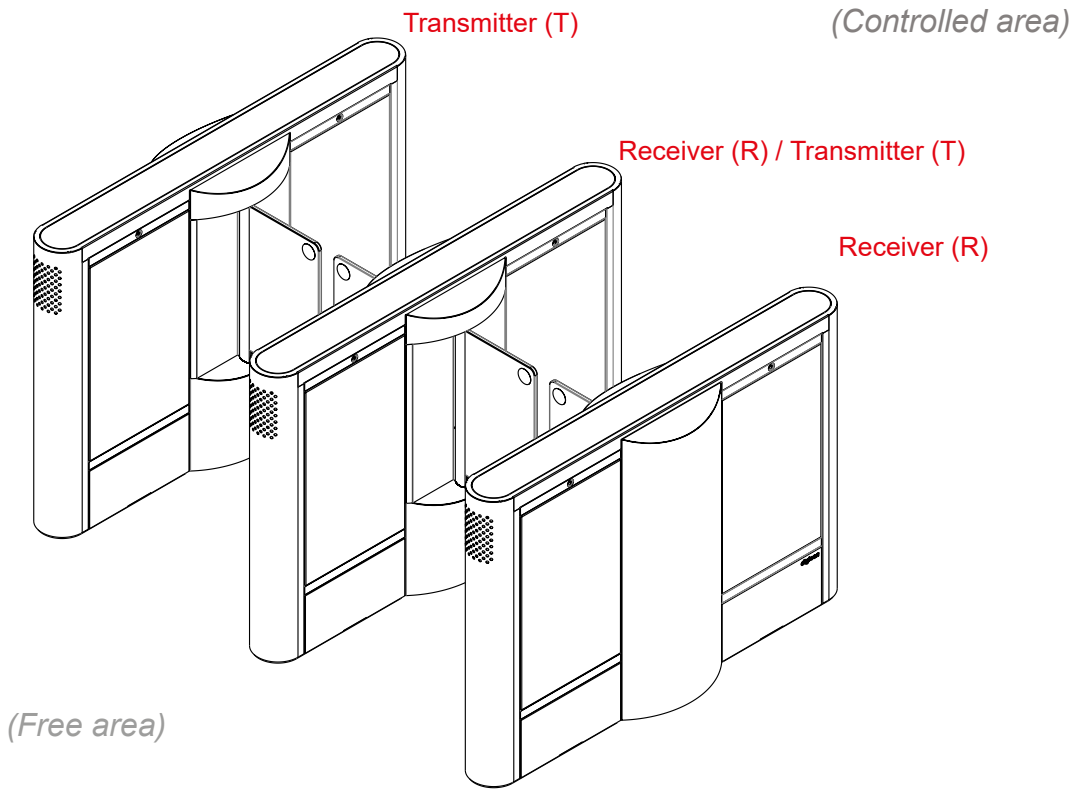
3.1 Functional description

The dGate has a motorized system for opening and closing the access doors that is triggered after user identification and access authorization. A system of sensors is used to identify and prevent the passage of unauthorized people or attempted hitchhiking. These sensors also serve to protect the user.

The equipment has an operating mechanism driven by permanent-magnet brushless engine.

As the engine does not use a set of brushes for electrical drive, there is no mechanical wear of electrical contacts, prolonging the engine life.

For the formation of a passage, two cabinets will always be needed. On the right side, observing the passage from the free area to the controlled area, there will be a **Receiver** cabinet; on the left, it is necessarily a **Transmitter** cabinet or a **Receiver / Transmitter** cabinet for more than one passage.



Receiver (R): Is the side that concentrates the receiver sensors and the electrical panel, where are installed the interconnecting board, the passage control cabinet (MCP), the terminal block (BN1), and the source cabinet. All the cables are set up in the factory on the Receiver side.

Transmitter (T): Is the side that concentrates the transmitter sensors and the interconnection terminal block (BN2).

> ⚠ ***ATTENTION! -*** To form a complete layout with more than one passage, there are hybrid gate cabinets called RT (Receiver + Transmitter).

Receiver and Transmitter (RT): Is a cabinet that contains a Receiver side and a Transmitter side. In this cabinet, all the sets listed above under R and T are installed.

4. Unpacking, fixing, and power connection

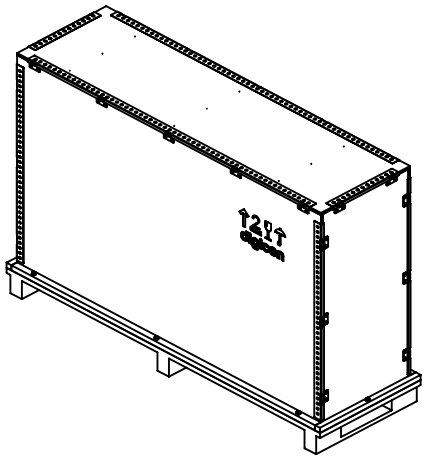
⚠ ***ATTENTION! –*** *Allow only qualified technical professionals to install this equipment. The installation must be in compliance with all the standards and local regulations.*

4.1 Opening the package

As the items contained in the package can vary (depending on the customer request), it is extremely important that a careful visual inspection is made prior to the start of the installation process and assembly. All Digicon packages are accompanied by a checklist, which serves as a guide for this inspection.

⚠ ***ATTENTION! -*** *Upon receiving the equipment, check that there is no damage to the packaging. If there are any, take photos and send to the carrier responsible.*

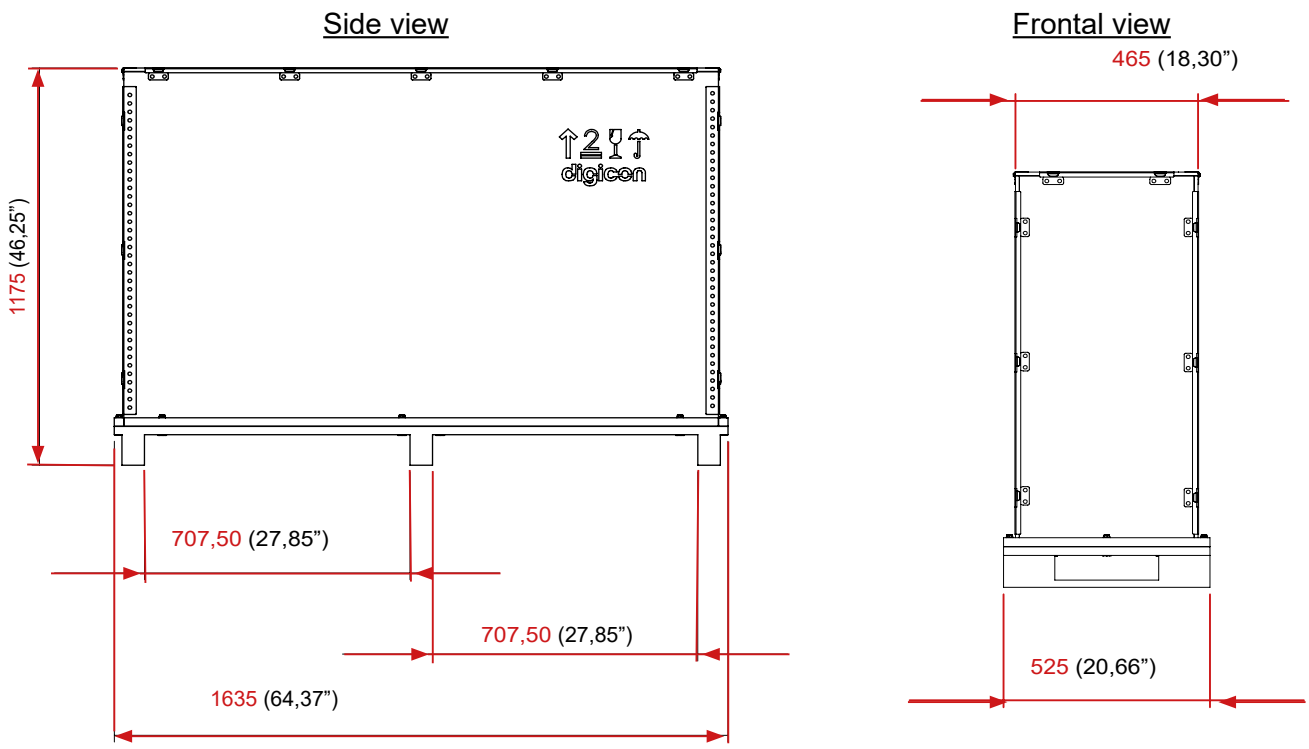
Isometric view of the package



⚠ ***CAUTION - RISK OF HARM/INJURY!:*** *The package is heavy, weighing around of 140/150 kg and to transport it is necessary the appropriate transport equipment, as for example, a pallet truck.*

⚠ ***CAUTION - RISK OF HARM/INJURY!:*** *Always use the necessary PPE (gloves, shoes, and safety goggles).*

4.1.1 Package dimensions:



⚠ ***ATTENTION! -*** *The measures of the dGate are shown in millimeters and inches.*

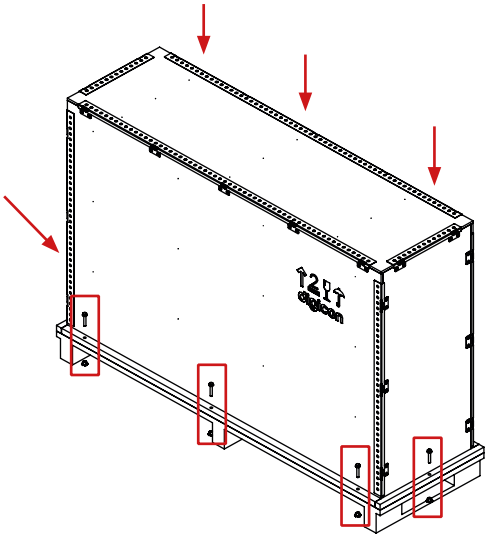
4.1.2 Necessary tools:

- 1 mid-sized screwdriver (for disassembling the package);
- 2 17 mm combination wrench (or ratchet);
- 1 13 mm combination wrench (or ratchet);
- Protective gloves (PPE)

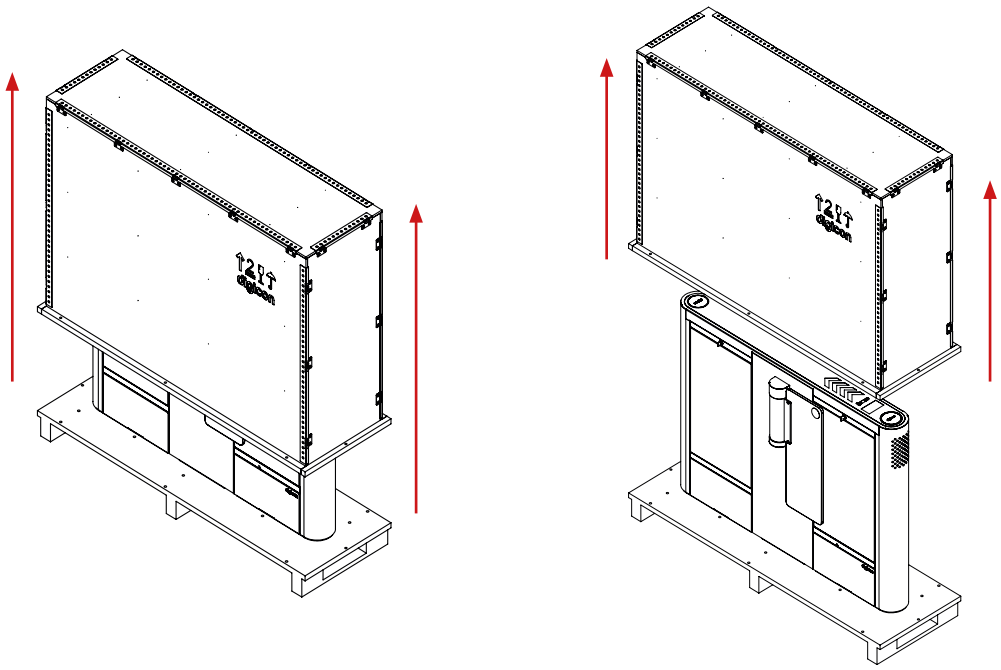
⚠ **CAUTION - RISK OF HARM/INJURY!** *The metal parts of the packaging can cut who is handling the package.*

4.1.3 Step-by-step for opening the package:

1. Remove the screws on the outside of the box, there are three screws on each side, one screw on the front side, and another screw on the back side; in total eight hexagon screws.

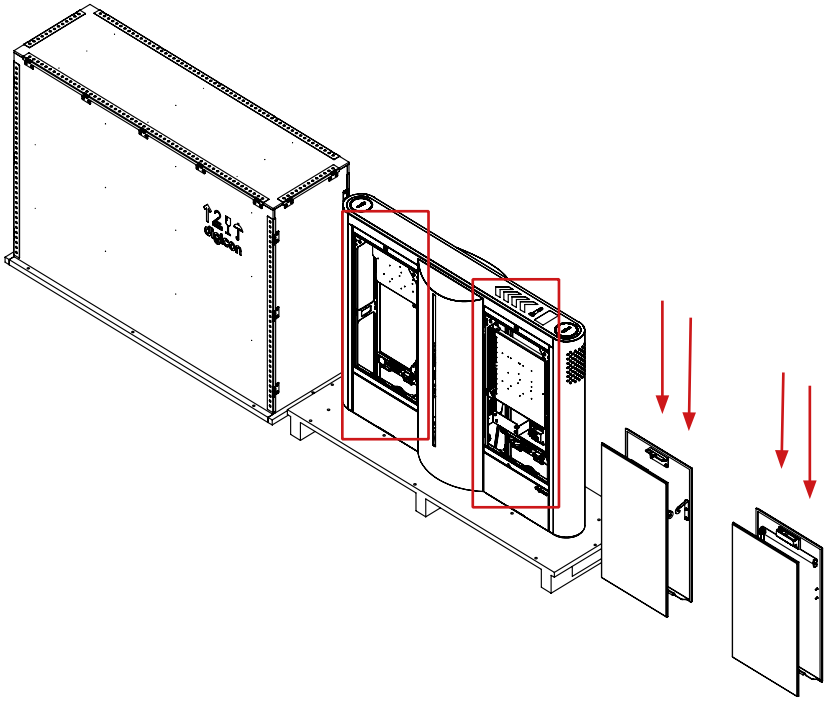


2. Lift the lid of the box in the vertical direction, ideally with two people; lift up until the lid is above the cabinet.

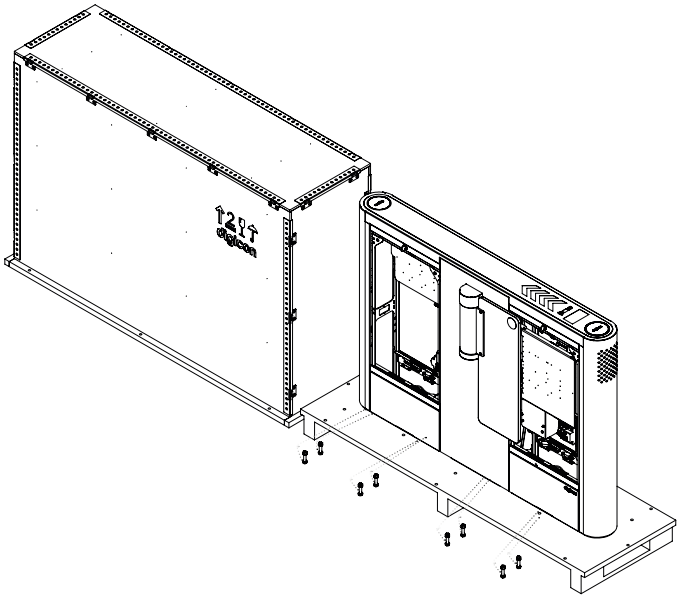


3. After removing the lid, it is necessary that the side doors of the cabinet be removed to gain access to the screws holding it to the bottom of the packaging (pallet). The door keys are in a package along with the guidelines and user information manual.

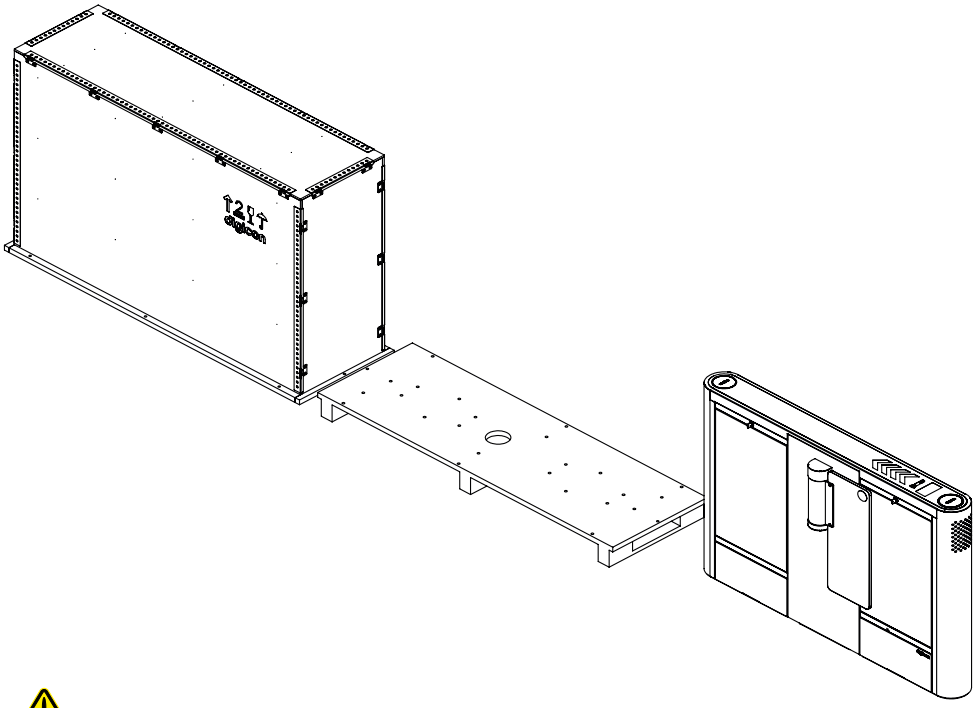
⚠ ***CAUTION! -*** The side doors can be made of glass, so be very careful with them so as not to break them and injure the technician or the user



4. Remove the 8 screws that secure the cabinet to the pallet (use the two 17 mm wrenches).



5. Remove the cabinet from the pallet and place it in the desired place.



⚠ ***CAUTION - RISK OF HARM/INJURY!*** Two people are necessary, at least, to move the cabinet.

⚠ ***ATTENTION! -*** Do not discard the lid of the packaging, as this can be used as protection of the equipment after the installation.

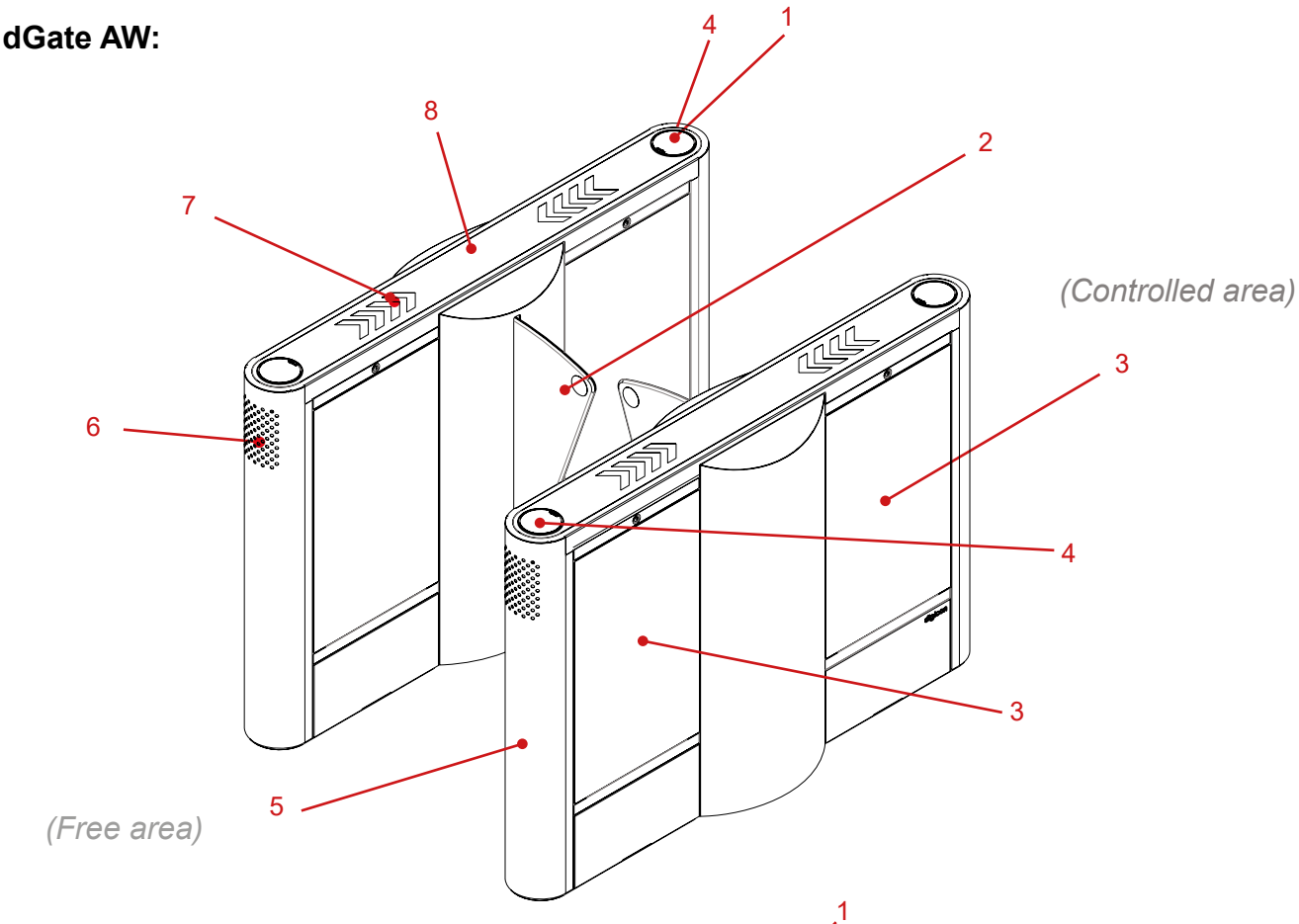
4.1.4 Main parts of the product

The external parts of the equipment are listed below and identified by numbers in figures 09 and 10.

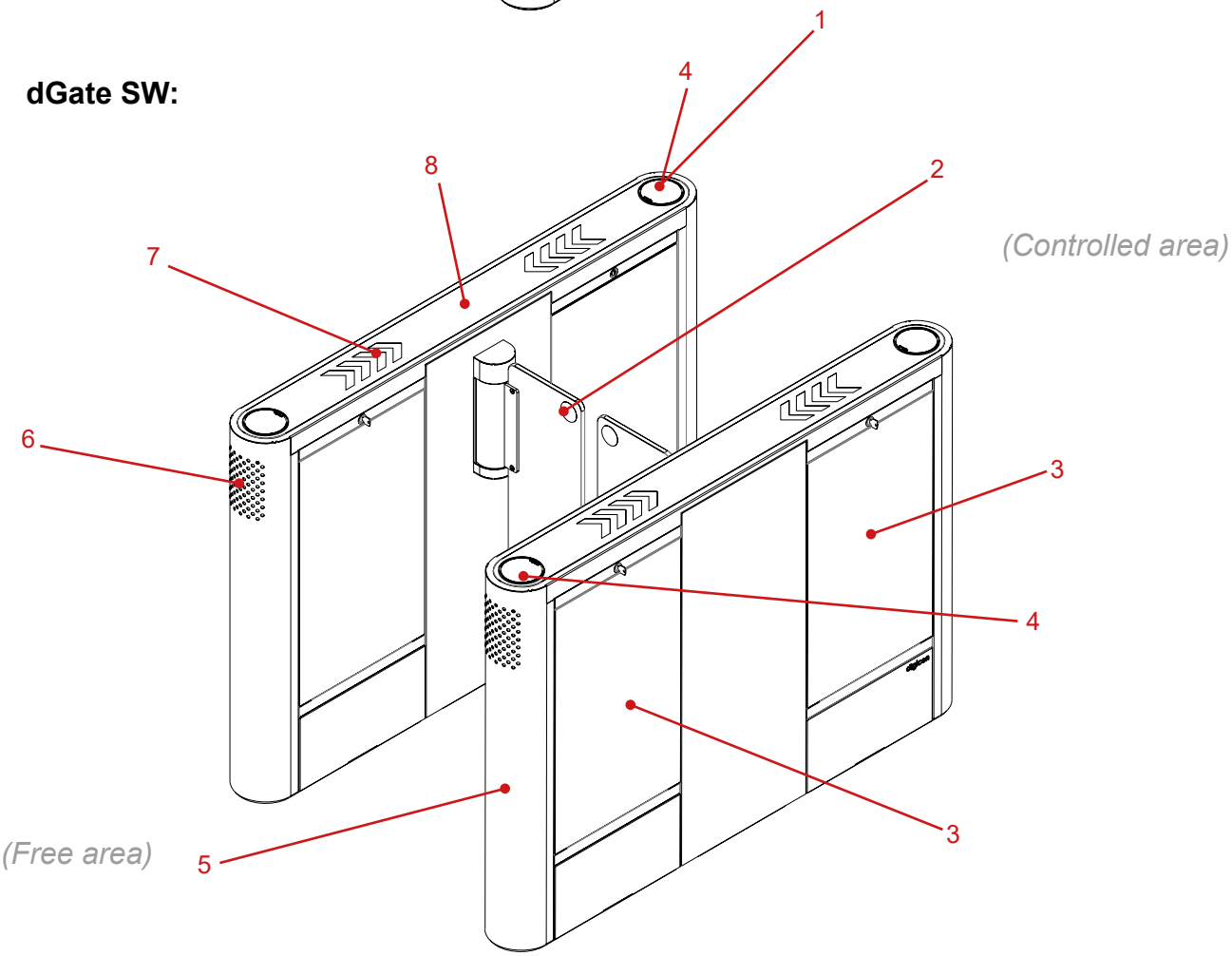
1. Card collecting set (optional);
2. Polycarbonate door;
3. Access side doors to electronics and gate mechanism (glass or stainless steel);
4. Location for optional reader (Biometry, bars, mifare etc.);
5. Front or rear column;
6. Orientation pictogram (front);
7. Operation pictogram (top);
8. Top cover (glass or stainless steel)

The difference of the dGate AW to the dGate SW is the model of the doors.

dGate AW:



dGate SW:



4.2 Fixing

4.2.1 Prior to installing the dGate, check:

- If the location chosen for the installation of the equipment is firm and level. It must meet the following flatness and leveling requirements respectively: (Standards: ASTM E 1155-96 and ACI 117-90.")

  PP ≥ 25 (Floor flatness)

  NP ≥ 20 (Floor levelness)
- If there is a power source close to the location, compatible with the consumption of the equipment;
- If the chosen location is suitable for installing the access controller (roofed environments);
- If the floor is able to receive anchor bolts (minimum of 4 cm of FCK15 M.PA concrete or equivalent). Digicon recommends the HILT bolts;
- If the embedding boxes and conduits for the electric and data cable are installed properly;
- If all the necessary tools are available;
- If all the PPE required for installation are available.

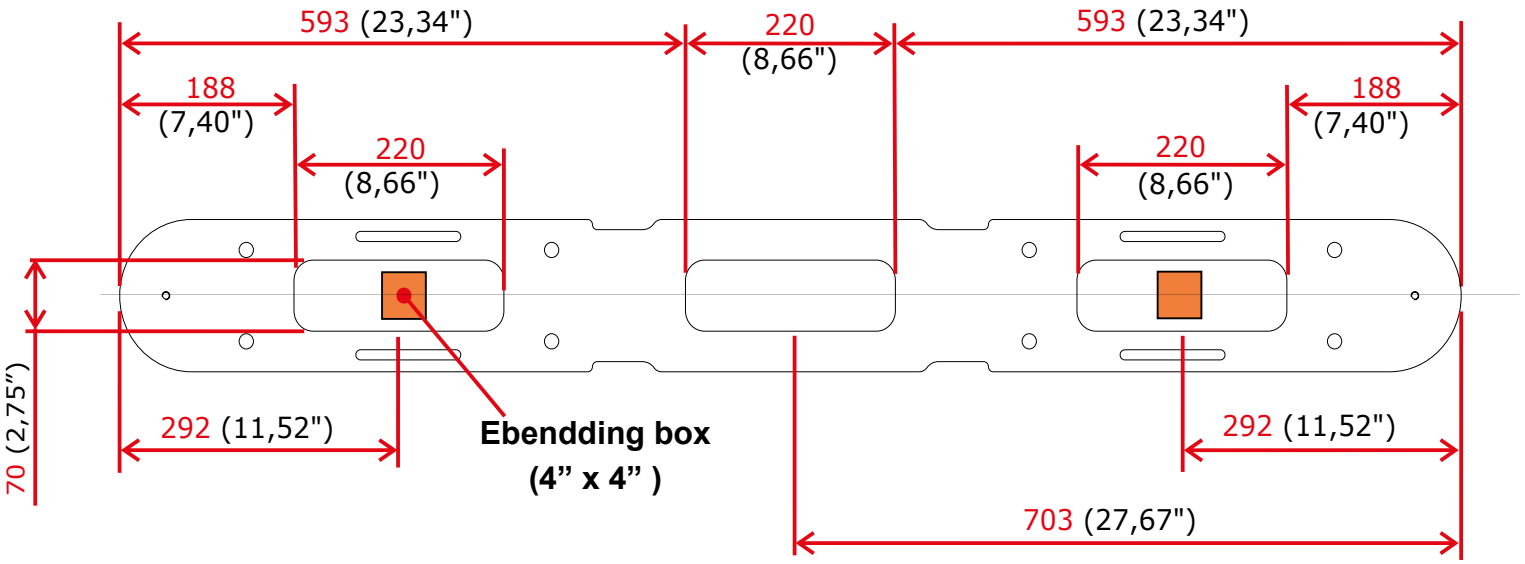
⚠ ***ATTENTION! -*** Since installing the dGate requires drilling the floor, it is extremely important that the installation location be chosen carefully

4.2.2 Positioning and fixing to the floor

The images below show the positioning of embedding boxes that must be pre-installed before attaching the gate to the floor and the disposition of the fixation points.

The surface must be strong and be leveled to ensure good alignment of the sensors.

Embedding boxes:

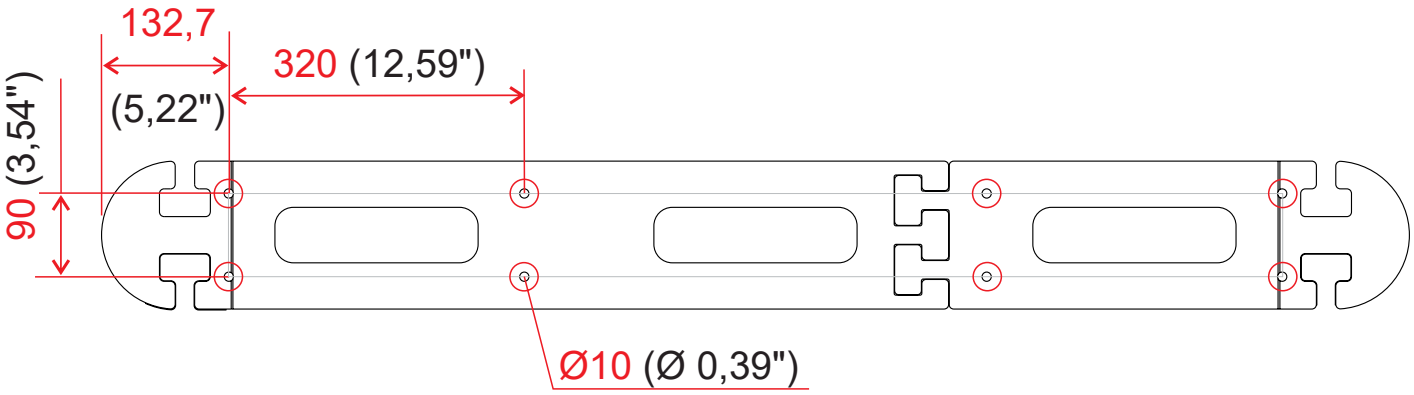


⚠ ***ATTENTION!*** **-** The the measures of the dGate s are shown in millimeters and (inches)

Fixing points:

The fixing can be made through mechanical bolts, also known as parabolts, or by chemical fixation (which we recommend). To facilitate the floor drilling, Digicon can provide templates according to what was purchased. These templates must be purchased separately.

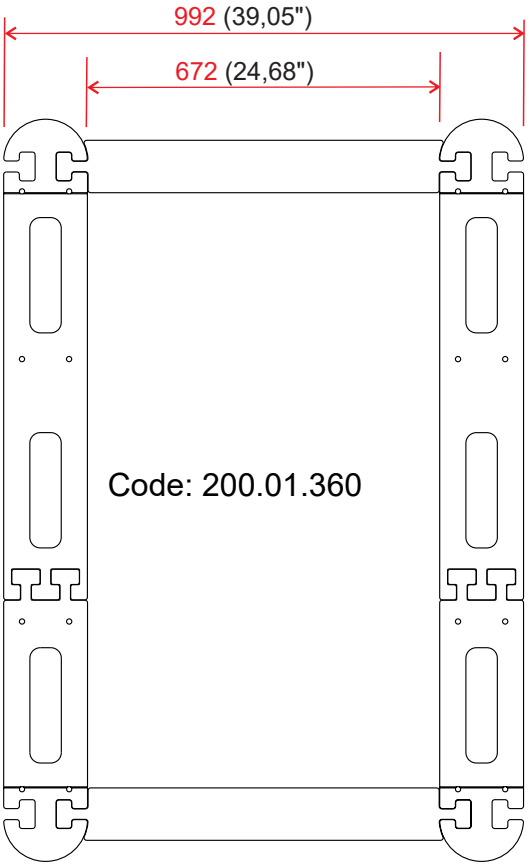
Drilling template for dGate AW and SW:



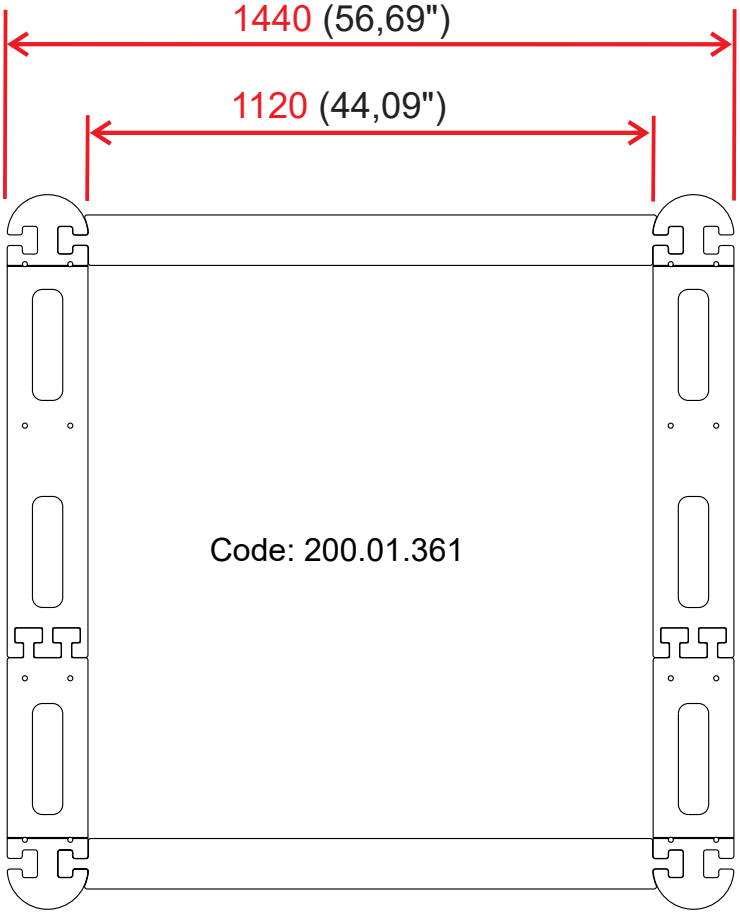
⚠ ***ATTENTION!*** - For tightening the screws, use of tool with a long extender.

⚠ ***ATTENTION!*** – Measures of the dGate are shown in millimeters and (inches).

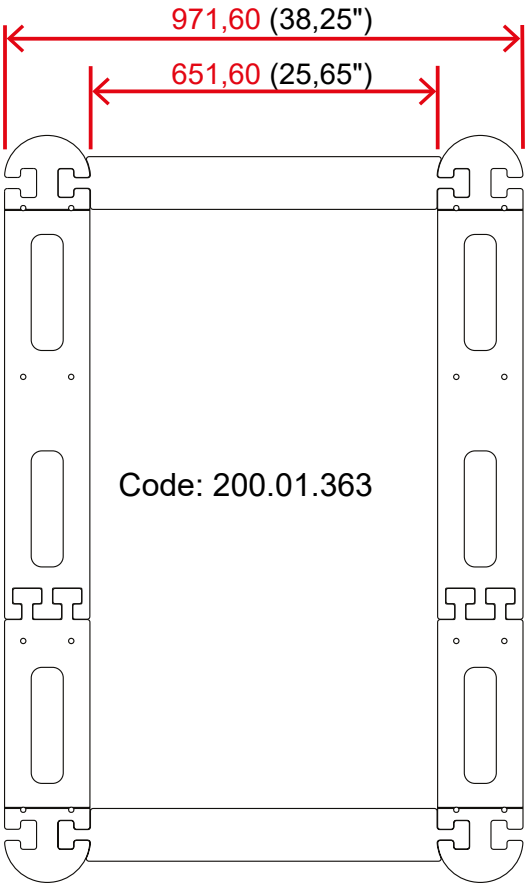
Template for dGate AW 500:



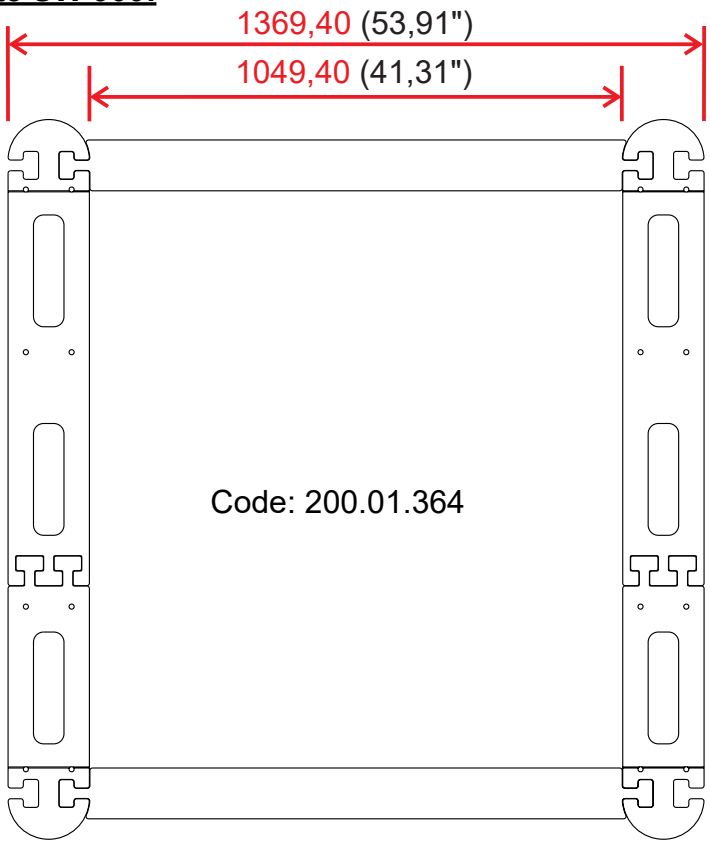
Template for dGate AW 900:



Template for dGate SW 500:



Template for dGate SW 900:



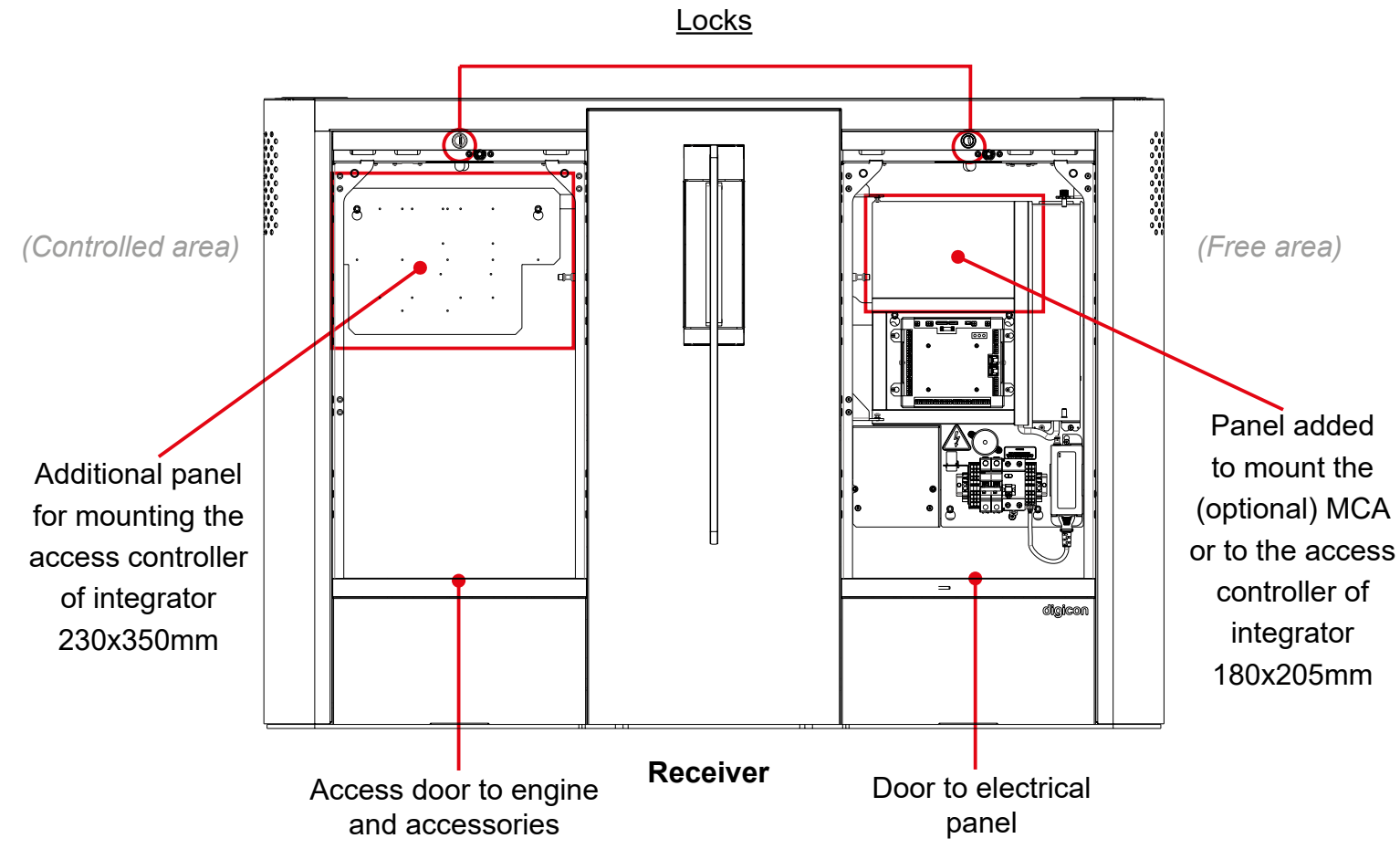
4.3 Access to the dGate after fixation

⚠ ***CAUTION – RISK OF DEATH!***

- Avoid electric shock! Opening or removing the doors of this equipment may expose you to dangerous voltages.
- To reduce the risk of electric shock, before accessing the inside of the equipment, turn off the power by changing the key switch to the OFF position. Qualified technical professionals only must perform all services where it is necessary to access the equipment.

After the dGate is installed and assembled, access to the internal part of the equipment can be done with the key that comes with the equipment, in two ways:

1. Through the door that gives access to the electrical panel;
2. Through the door that gives access to the engine or any accessory that has been added, for example: box kit.

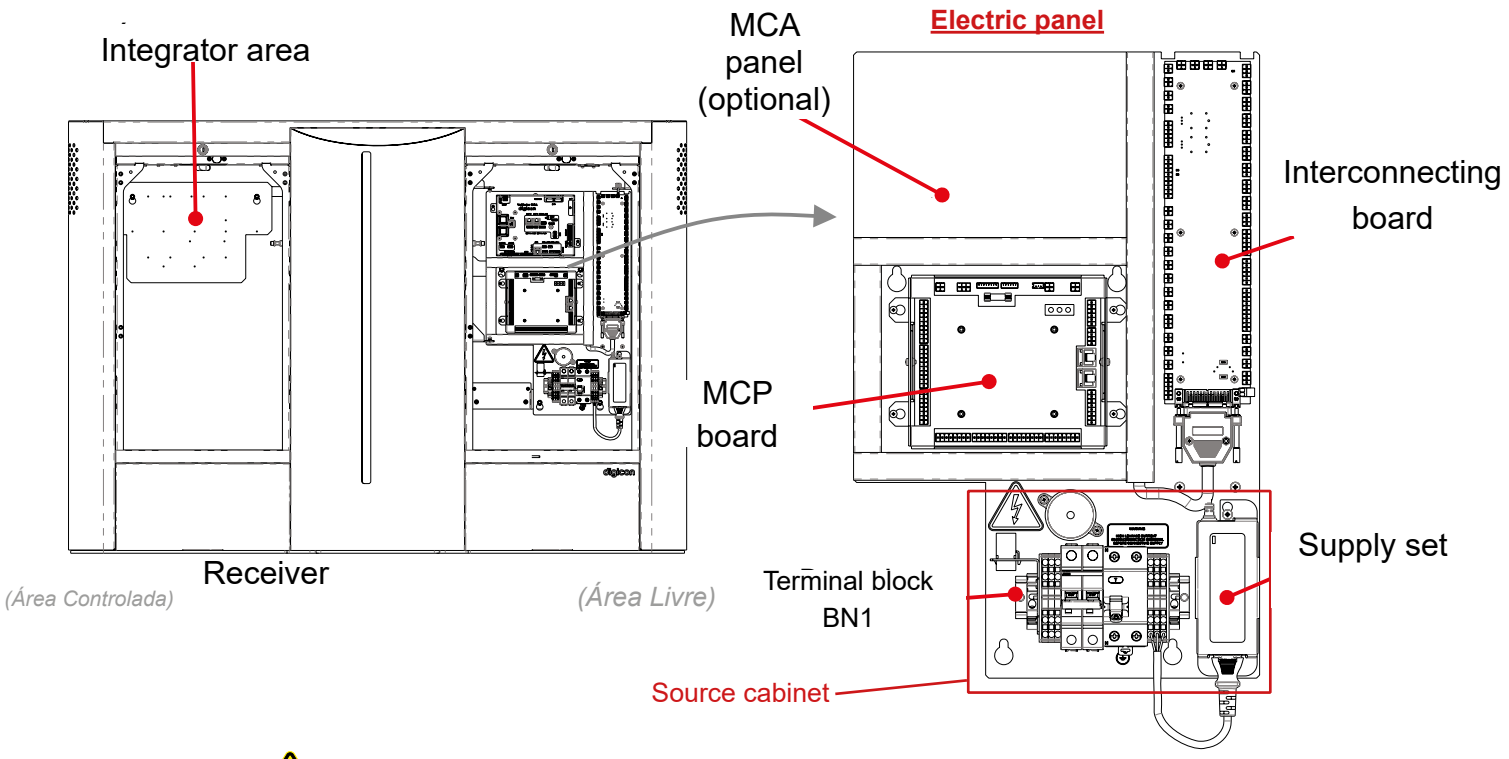


4.4. Power connection

⚠ ***CAUTION - RISK OF DEATH! -*** To reduce the risk of electrical shock, before accessing inside the equipment, turn off the electric power changing the key of the circuit breaker to the OFF position. Only qualified technical professionals must carried out all services where it is necessary to access the equipment.

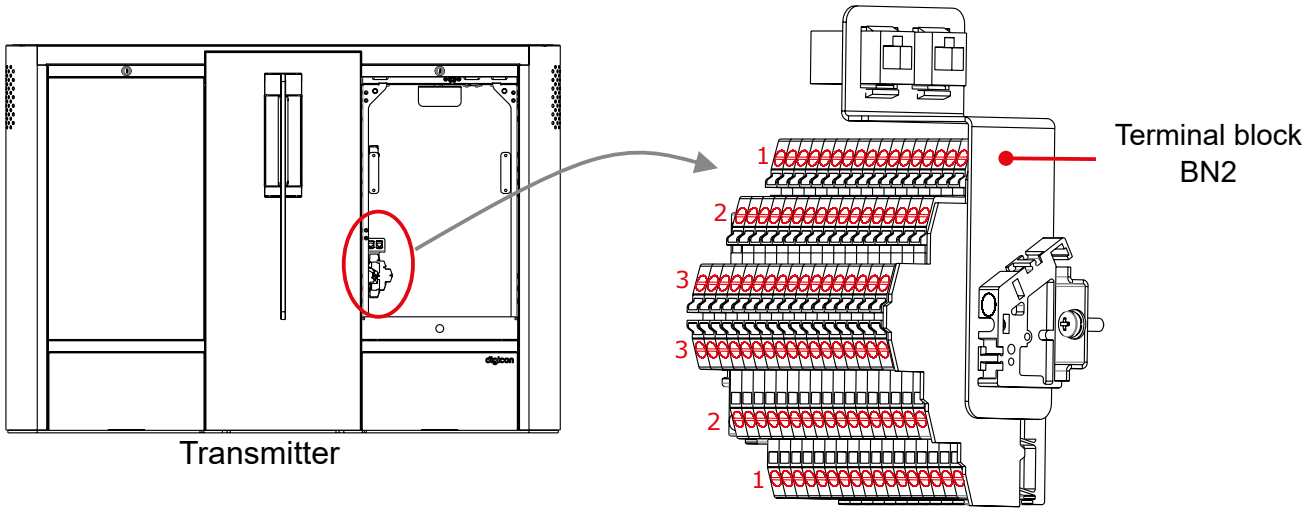
4.4.1 Electric panel

The electrical panel is installed in MCP cabinet (Passage Control Cabinet), the supplies (12 VDC), and the interconnection board. If the integrator needs more space, the dGate contains another area for this function. It also contains the connections for the passage sensors and electrical power. The electric panel will always be the Receiver dGate .



⚠ ***CAUTION - RISK OF DEATH! –*** Risk of electrical shock on the panel.

The terminal block BN2 is on the other side of the passage, on the Transmitter dGate .

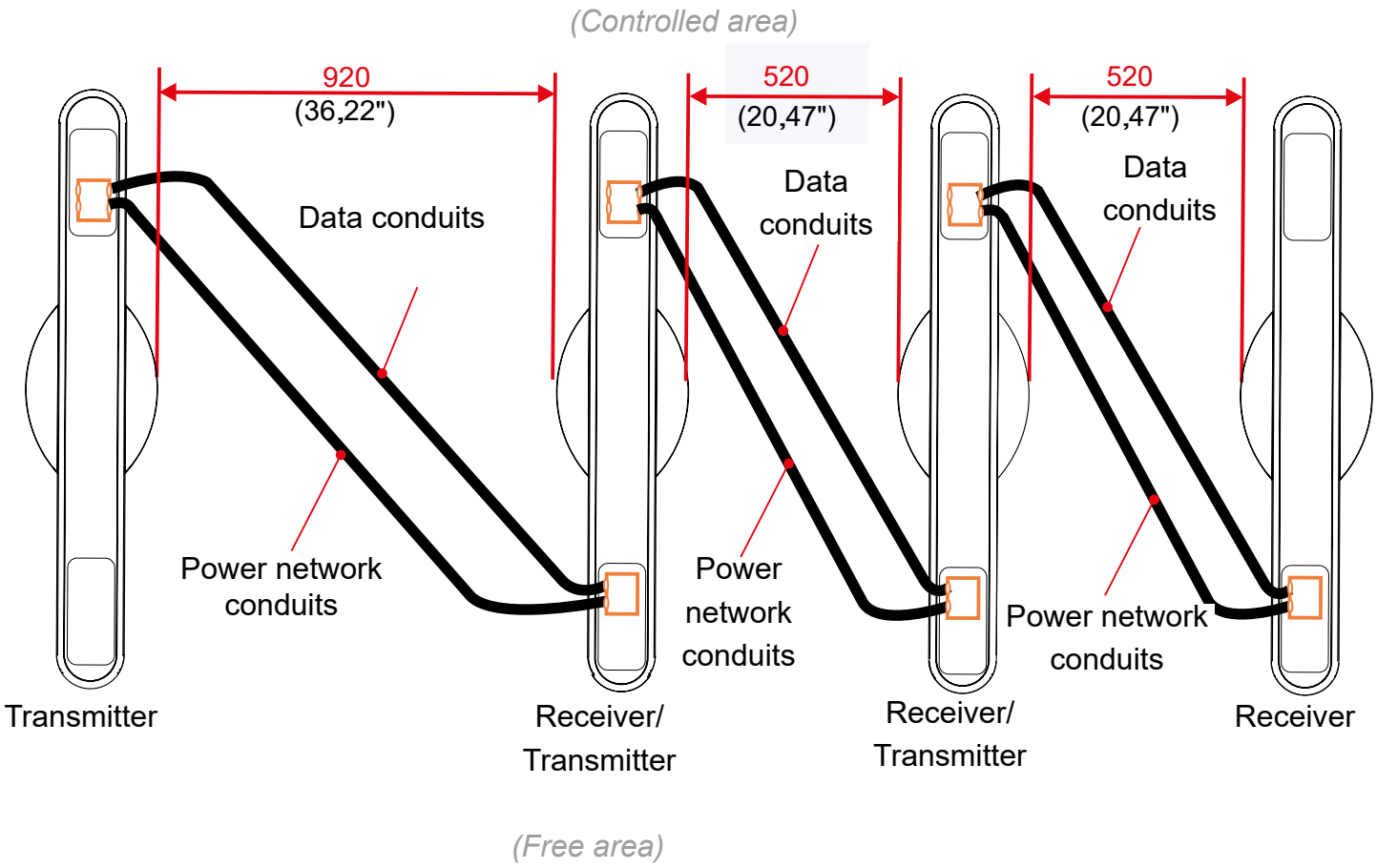

Transmitter
Terminal block
BN2
1
2
3
3
2
1

5. Interconnections

⚠ ***ATTENTION! -*** Only qualified technical professionals are authorized to install this equipment. Installation must comply with all local rules and regulations.

To form a passage, two cabinets will always be needed. The correct interconnection of these two cabinets is essential for the proper functioning of the equipment.
The interconnection of the equipment is carried out through power cables and data and control cables.
It is important that these cables are conducted in separate conduits, ensuring the correct functioning of the equipment.

Example of layout with three passages:



The ducts for passing the cables must be flexible with 2” (50 mm) in diameter.

⚠ ***ATTENTION! -*** This infrastructure is only a suggestion of Digicon, the conduit of the power network and the data network must be separated to a distance of at least ten centimeters (10 cm).

⚠ ***ATTENTION! -*** Measurements for dGate are shown in millimeters and (inches).

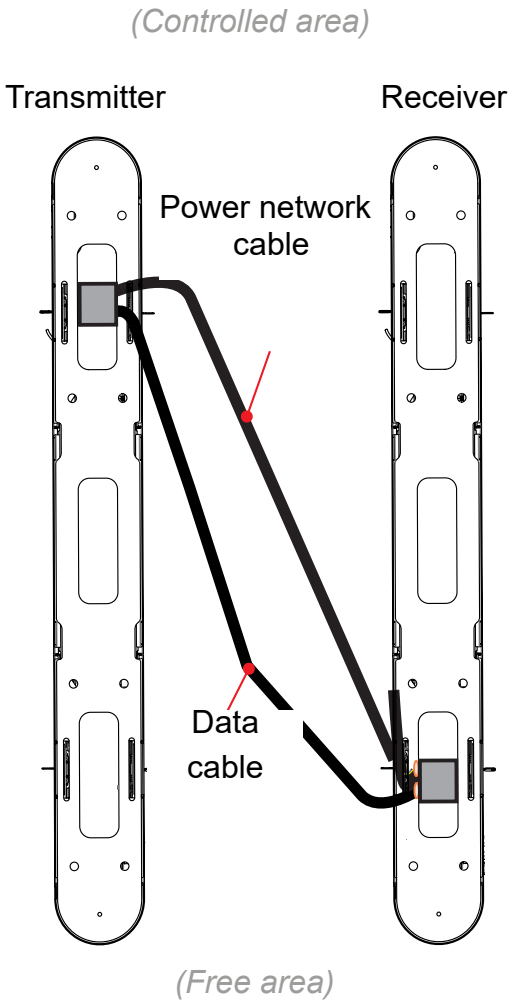
5.1 Basic cabling

Data pipeline:

1. 037.12.210 Signal cable for exit orientation pictogram (5 m);
2. 037.12.357 Communication cable for RS 485 engine 2 (5 m);
3. 037.12.352 Power cable for emitter barrier sensors (5 m).

Power network pipeline:

1. 037.12.356 Power cable for AC supply of engine 2 (5 m).



ATTENTION!

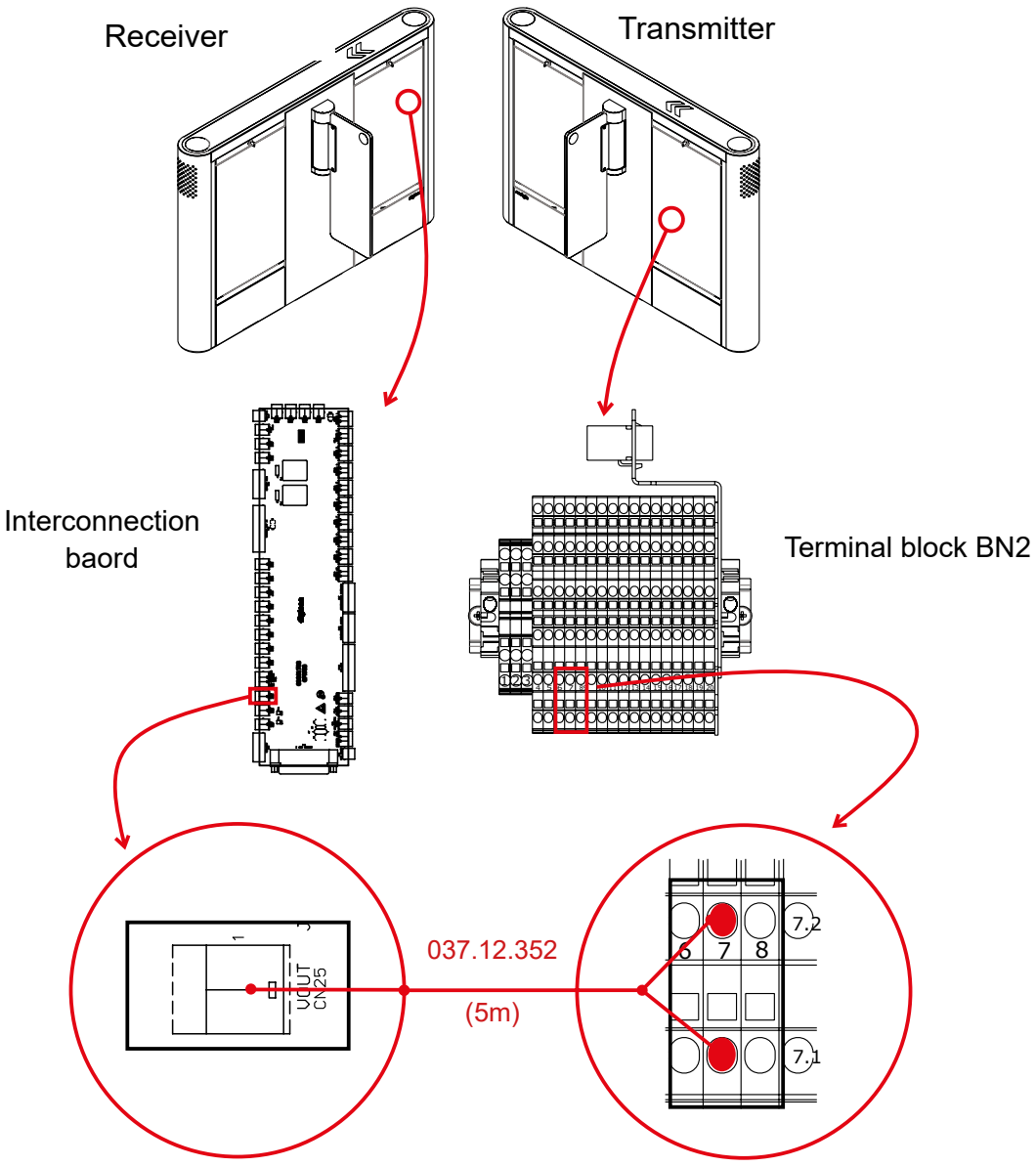
- Digicon provides cables for interconnection with length of 5 meters.
- The depth of the ducts must be dimensioned so that the cables are sufficient.
- If longer cables are necessary, get in contact with Digicon.

a) Interconnection cable supply emitter barrier sensors (037.12.352):

⚠ ***CAUTION - RISK OF DEATH! -*** To reduce the risk of electrical shock, turn off the electrical power to the equipment; move the circuit breaker switch to the OFF position. Reserve all maintenance services to qualified service personnel only.

1. On the dGate Receiver, connect the power cable to the interconnecting board at the connector Cn25, according to the identification rings;
2. On the dGate Transmitter, connect the power cable on BN2 to terminal 7, according to the identification rings.

(Free area)

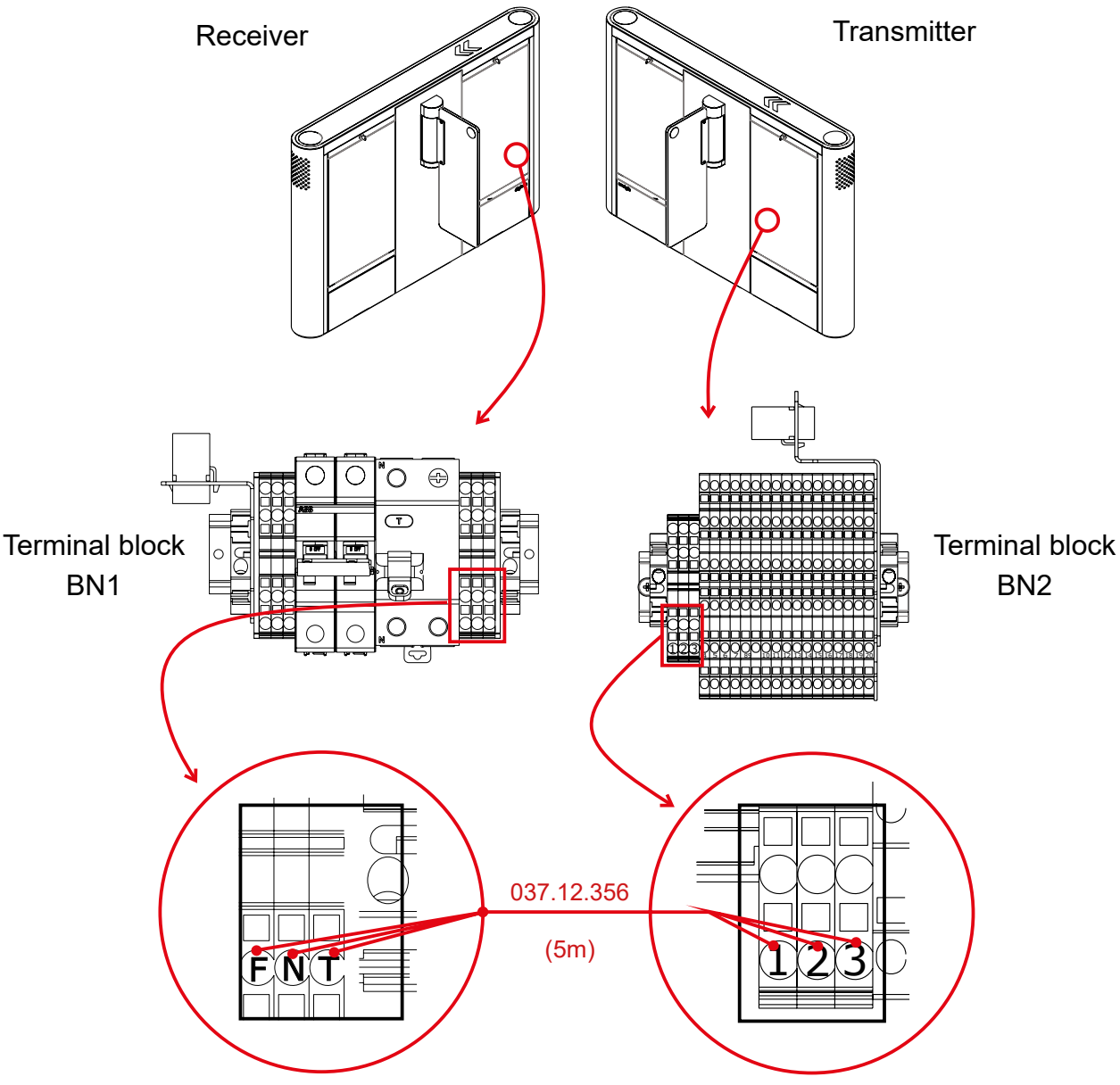


b) Interconnection power cable AC supply engine 2 (037.12.356)

⚠ ***CAUTION - RISK OF DEATH! -*** To reduce the risk of electric shock, turn off the electrical power to the equipment; move the switch to the position OFF. Reserve all maintenance services to qualified service personnel only.

1. On the dGate Receiver, connect the power cable on BN1 to the FNT terminals, according to the identification rings;
2. On the dGate Transmitter, connect the cable to BN2 to terminals 1-2-3, according to the identification rings.

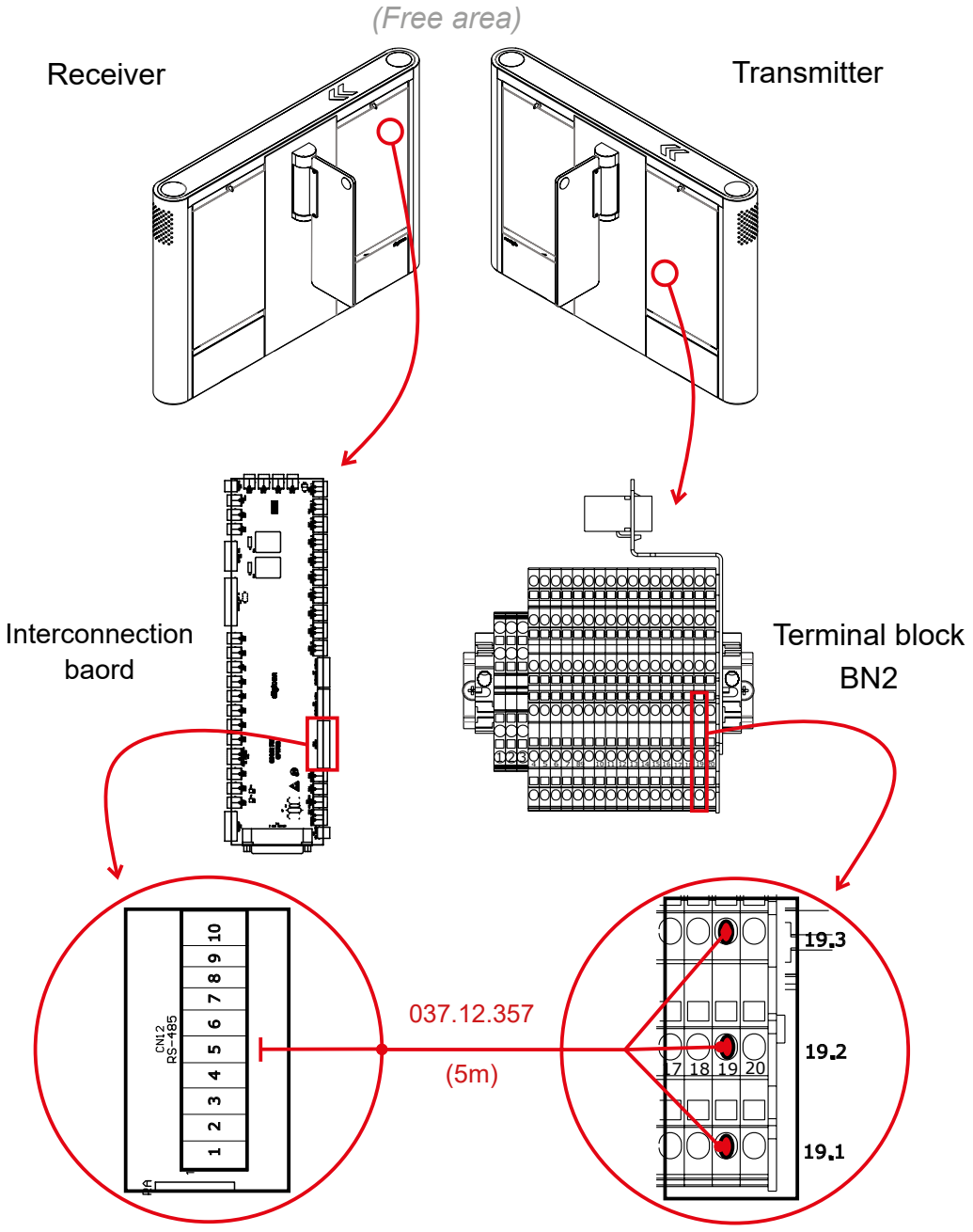
(Free area)



c) Interconnection communication cable RS 485 engine 2 (037.12.357):

⚠ ***CAUTION - RISK OF DEATH! -*** To reduce the risk of electric shock, turn off the electrical power to the equipment; move the switch to the position OFF. Reserve all maintenance services to qualified service personnel only.

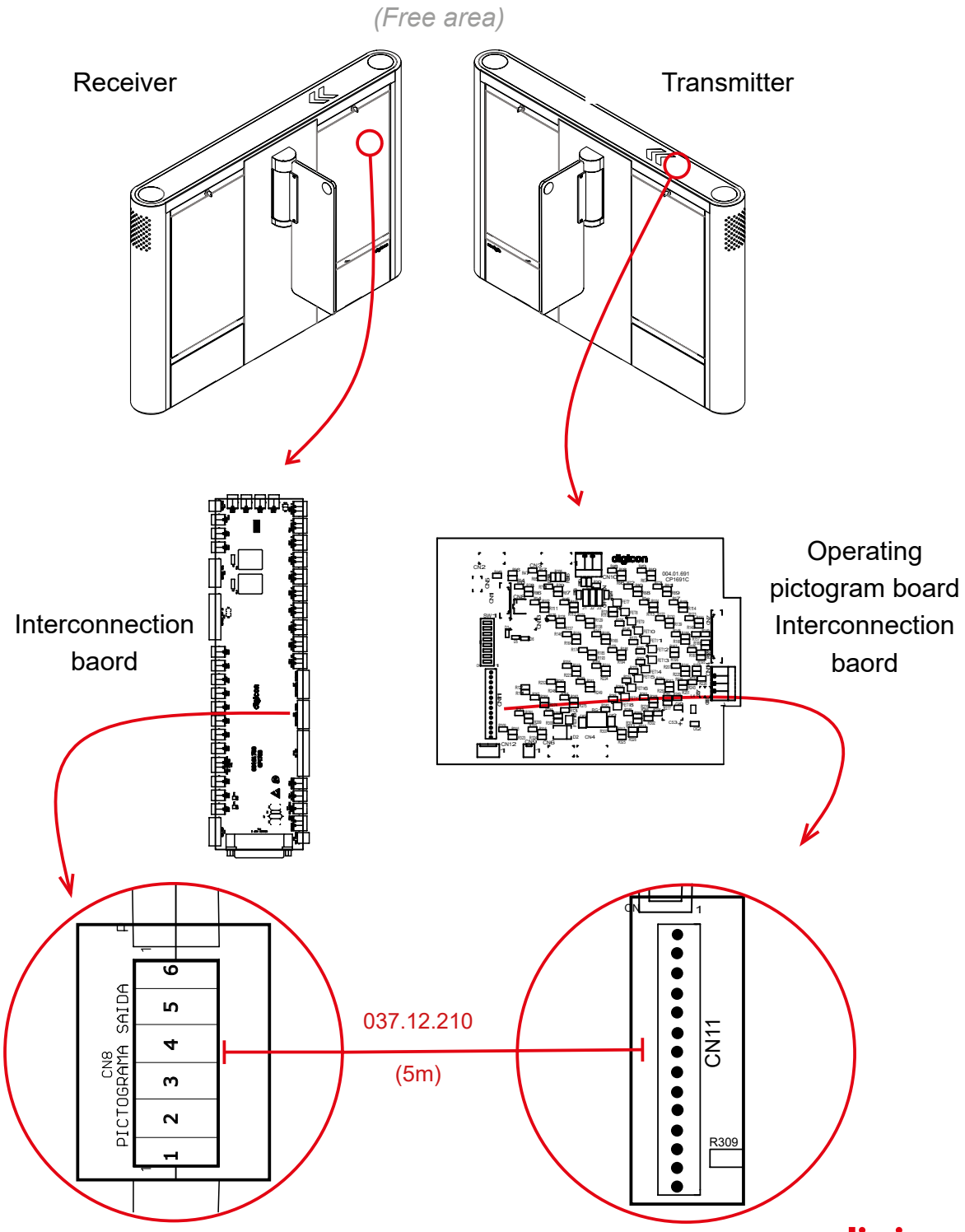
1. On the dGate Receiver, connect the communication cable to the interconnecting board to the connector CN12, according to the identification rings;
2. On the dGate Transmitter, connect the communication cable to BN2 to terminal 19, according to the identification rings.



d) Interconnection cable signals orientation pictogram exit (037.12.210):

On the dGate Receiver, connect the operating pictogram cable to the interconnection plate to the connector CN8, according to identification rings;

1. On the dGate Transmitter, connect the operating pictogram cable to the pictogram board to CN11, according to identification rings.

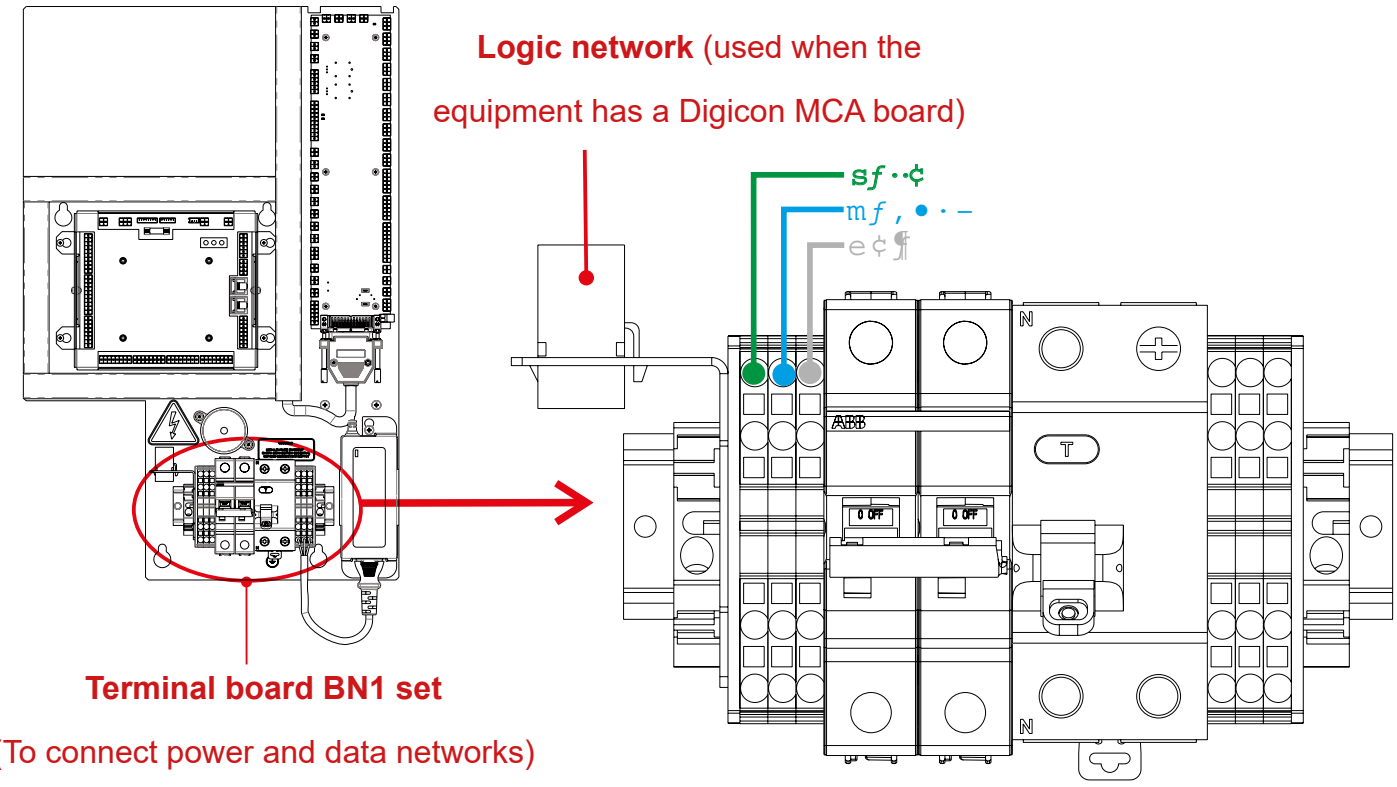


5.3 Connection to power network

The dGate is powered with voltage from 100 to 240 Vca. The NBR 5410 standard must be used as a reference for the electrical installations of the equipment.

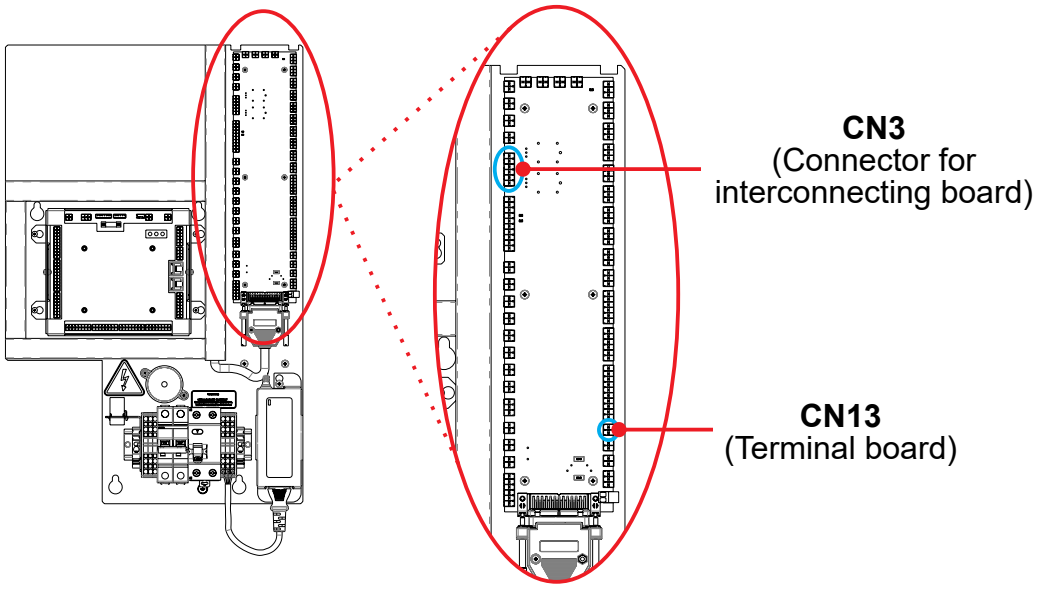
The dGate has an electrical panel with a terminal block where the power cables must be connected (phase and neutral) and the cable for grounding.

⚠ ***CAUTION - RISK OF DEATH! -*** To reduce the risk of electric shock, before the maintenance, turn off the power of the place where the equipment is installed and ensure that the power network conduits are de-energized. Reserve all the maintenance services for qualified technicians professional only.

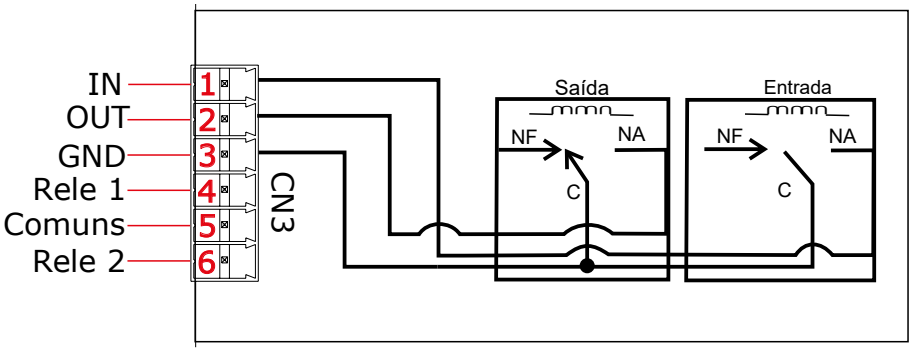


⚠ ***ATTENTION! -*** *We recommend that the AC and grounding cables are of good quality and with dimensions compatible with the distance to the distribution framework. The data cable must be CAT5E.*

5.2 Connection of control signals



Enabling passage via dry contact

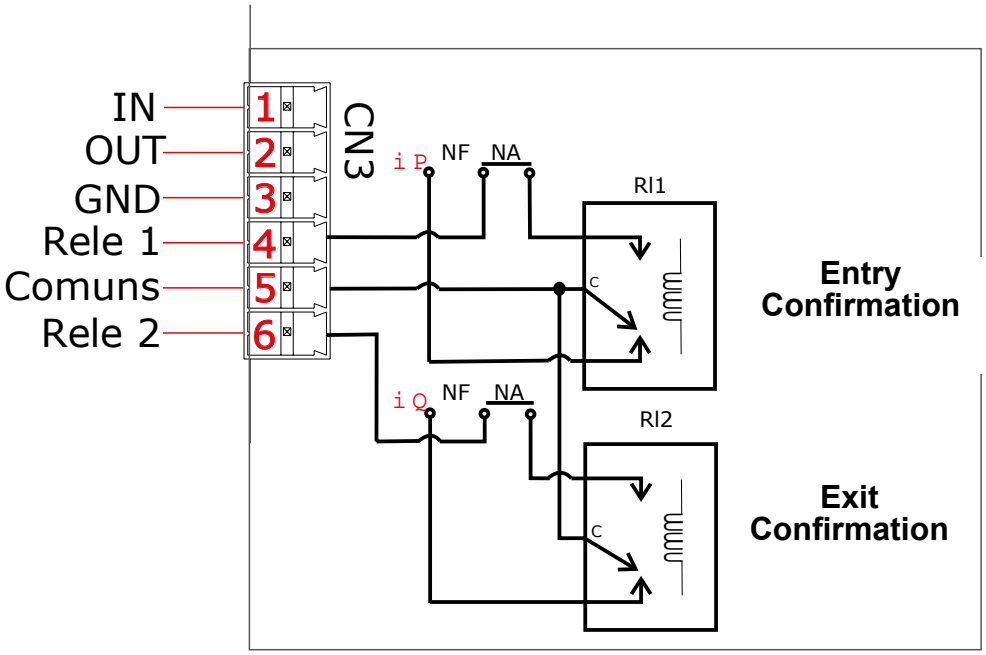


The dGate has the functionality of enabling passages by dry contact in the entry or exit direction. Enabling of entry happens from the contact of the pin IN (pin 1 of connector CN3) to the GND pin (pin 3 of connector CN3). On the other hand, enabling of exit is performed by contact of the OUT pin (pin 2 of the connector CN 3) with the GND pin. The illustration below shows the electrical diagram for enabling the passage, where the contacts are made by two relays external to the dGate.

Confirmation of passage by dry contact:

The dGate also has dry contact for confirmation of passage to inform another system integrated to lock when the user finished their passage. At the end of a complete passage in the entry direction, Relay 1 makes contact of the Relay 1 and Common terminals of connector CN3 (pins 4 and 5, respectively). Similarly, if there is a complete passage in the exit direction, the dGate signals to the integrated systems this completion through the contact of terminals Common and Relay 2 of the connector CN3 (pins 5 and 6 respectively). By default, the Relay 1 and Relay 2 terminals have their normal state in NO mode (normally open) in relation to the Common pin, but each terminal can be configured, separately, to operate in NO or NC (normally closed) mode in relation to the Commons terminal through the positioning of jumpers J1 and J2, respectively placed beside the CN3 connector.

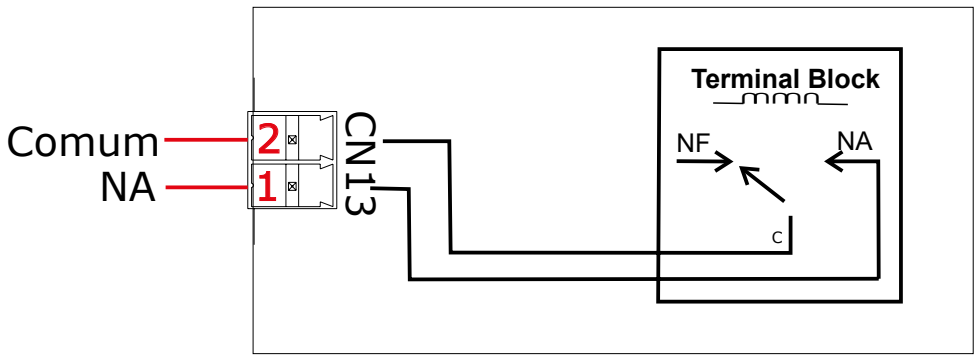
The power connection present in the CN3 connector is shown in the figure below.



Emergency activation:

The connector CN13 enables the integration of one contact to situations of emergency. When performing a connection between its two terminals (pins 1 and 2), dGate opens the doors in the exit direction, leaving the passage free in both directions, as long as the pins of connector CN13 remain in contact.

The figure below illustrates the connection of a contact of emergency; in this example, the contact is made by a relay external to the dGate.



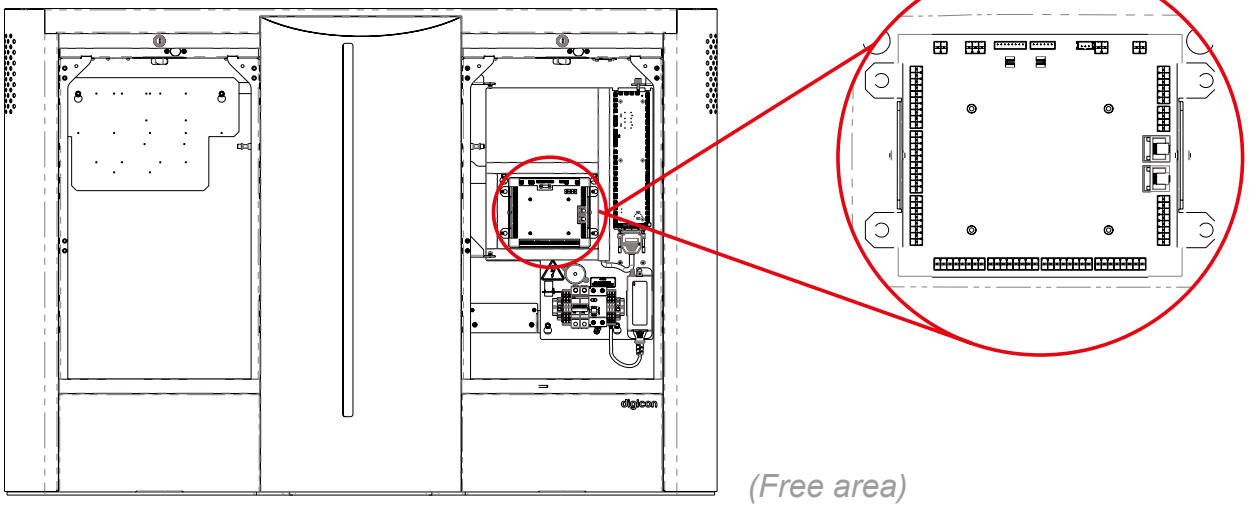
6. Identification of internal parts and features

6.1 MCP controller board

The MCP controller board has a feature for controlling user passage, pictograms indications, sensor readings, and all processing of the system's logic according to signals received from an access control system. The MCP controller can be accessed through the inner side door, in the entry direction, on the R .

MCP board

(Controlled area)



(Free area)

6.2 Pictograms

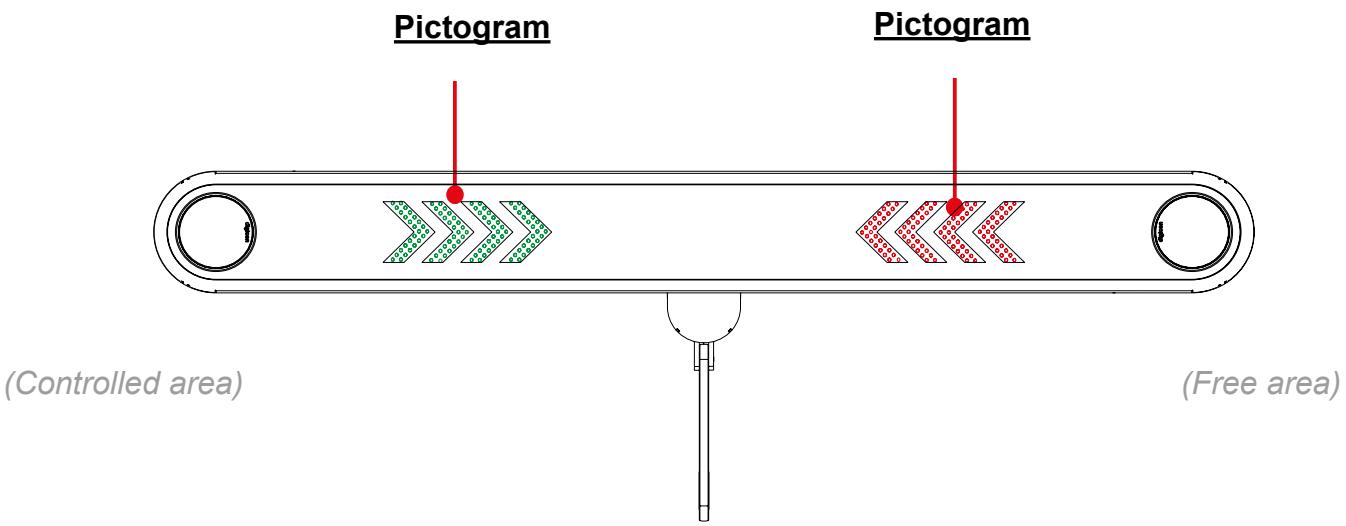
The dGate has four pictograms, which differ in type and positioning: two frontal pictograms for orientation (one for entry and another for exit) and two upper for operation (also being one for entry and one for exit). The operation of both kinds of pictograms is described below.

⚠ ***ATTENTION! -*** The dGate pictograms are identical for both the cabinets. The cabinets also contain the engines responsible for moving the doors.

Operation pictogram (upper):

The operation pictograms are installed at the top of the equipment, being placed to the right of the user who approaches the gate, both in the entry and exit directions, and can be colored green (access allowed) or red (access denied), directing the flow through the equipment. The flashing red pictogram on either side means passage not allowed.

The green pictogram, flowing in the direction of passage, means access allowed.



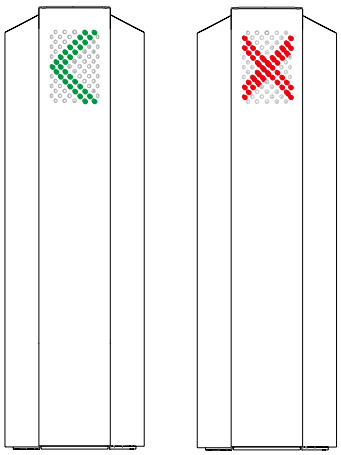
Orientation pictogram (frontal):

The orientation pictogram is installed in the ends of the machine and is represented by a green arrow or a red ‘X’.

The red pictogram informs the user that the dGate is not operating in this direction or that, at the time, their passage not is allowed.

The green pictogram informs the user the direction in which dGate is operating.

- Direction enabled or disabled, for example, the gate can be configured in only one direction of passage (entry only).



- Direction allowed or denied, for example, when a user clears passage in the opposite direction, the flow is denied.

6.3 Orientation pictogram (frontal):

They are intended for detection of direction of passage, protection of users, and detection of improper passage.

The dGate uses infrared sensors (IR) for controlling the passage of the user through lane.

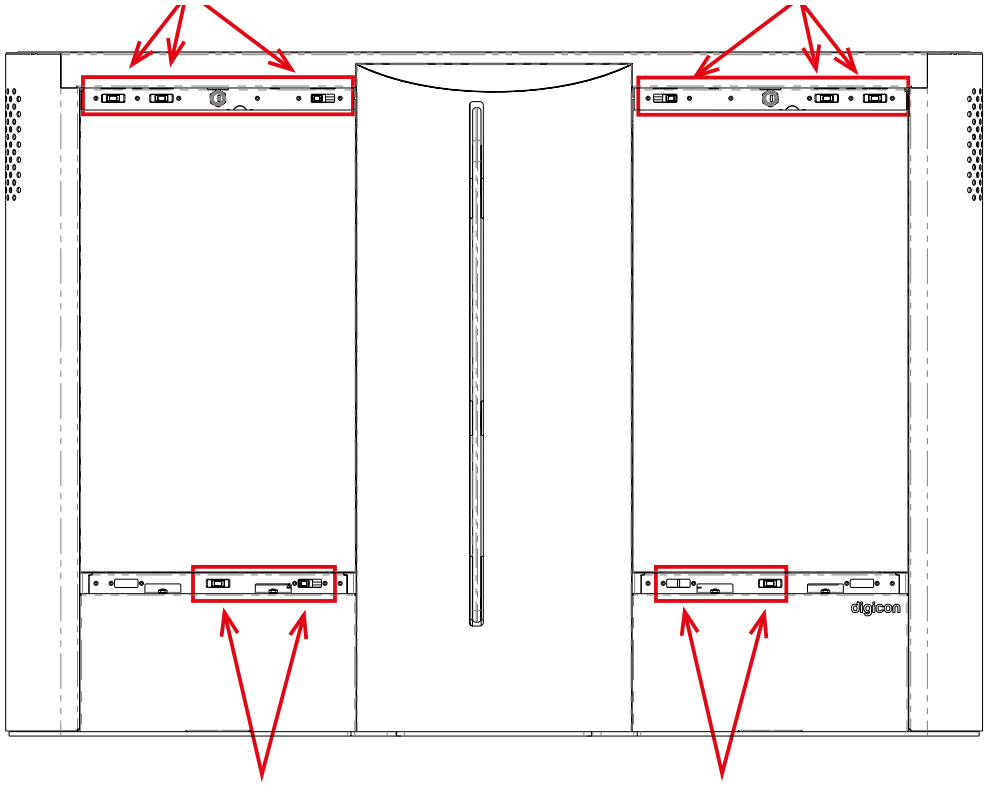
The dGate has ten IR sensors forming barriers that tell the MCP cabinet about the position of the user within the passageway.

In the central part, there are sensors responsible for the security system (anti-crush).

In conjunction with the sensors, the MCP cabinet manages the setting of various modes of operation of dGate, allowing the control of the direction of passage (bidirectional operation), control of the desired level of security (prioritizes asset security or user safety), and the operating mode (free, controlled, blocked).

Location of passage and safety sensors.

(Controlled area)



(Free area)

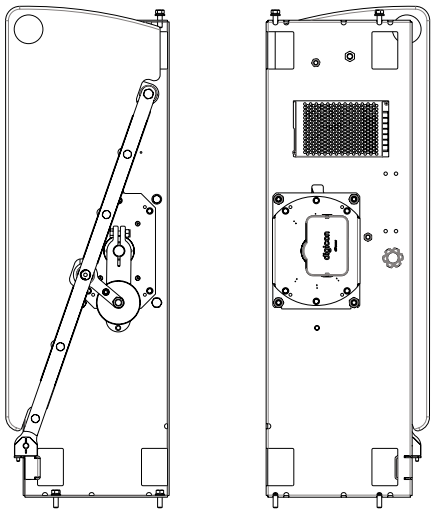
Location of passage and safety sensors.

6.4 Anti-panic

dGate AW mechanism:

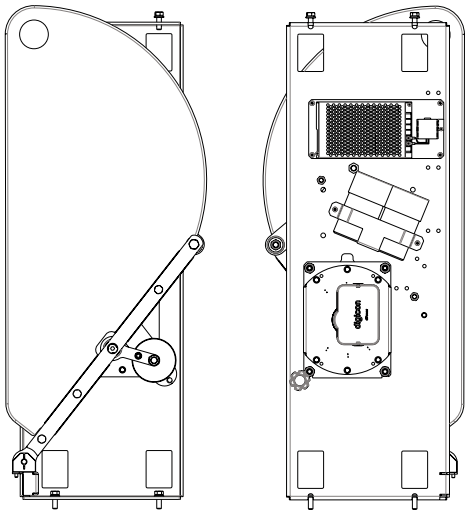
The mechanism simply uses gravitational energy accumulated in a counter weight to de-energize the gate and the doors open. In the model for people with special needs (PNE), the opening occurs by an electronic system of temporary energy storage; when the gate is turned off, the control board of the engine opens the wings.

Simple



FRONT REAR

PNE

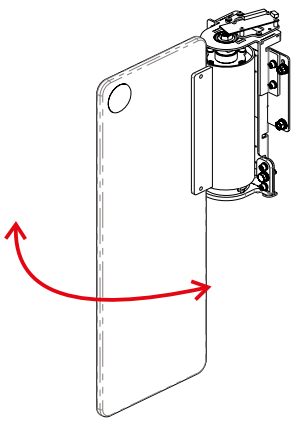


FRONT REAR

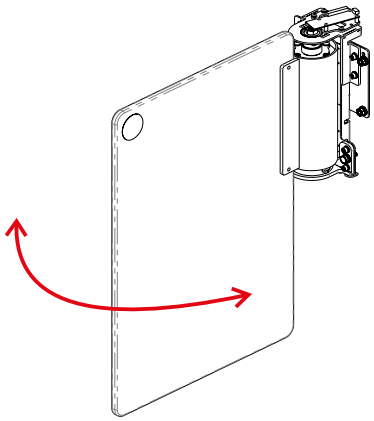
dGate SW mechanism:

When the model SW is de-energized, the door is in the resting state (closed doors), but unlocked: the user simply pushes the door to be able to pass.

Simple



PNE



6.5 Features

The dGate has several features to customize its operation. These features are configurable, via software, by a trained technical professional, and are detailed below.

- Selectable passage control modes, independent for passages in the entry or exit direction;
- Setting the speed of doors independently for opening and closing;
- Configuration of access control with doors open;
- System of anti-crushing protection;
- Passage timeout;
- Detection of direction of passage;
- Detection of return of the user;
- Detection of stationery users;
- Detection of invasion of the gate;
- Detection of tailgating;
- Asset security mode;

Accumulation of passage enabling;

6.5.1. Passage control modes.

The dGate system allows configuration to control entry or exit passages in different modes, independently for each direction of flow. Each direction of passage can be configured to operate in three different states: Cleared, Blocked, and Controlled. When operating in the state of cleared passage, all and any passage in this direction is permitted, with the user enabled or not. In the blocked passage mode, the contrary occurs, where all and any attempt of passage will be blocked, regardless of the user enabled or not. With the direction of passage operating in the controlled mode, the clearing of passage only occurs for duly authorized users. With the arrangement of the different possibilities of configuration for each direction of passage, dGate can be configured to operate in the following ways:

Operation mode	Passage in entry direction	Passage in exit direction
Mode 1	Blocked	Blocked
Mode 2	Controlled	Blocked
Mode 3	Blocked	Controlled
Mode 4	Controlled	Controlled
Mode 5	Cleared	Blocked
Mode 6	Blocked	Cleared
Mode 7	Controlled	Cleared
Mode 8	Cleared	Controlled
Mode 9	Cleared	Cleared

Factory standard:
Operation mode = Mode 4 (Entry Controlled / Output Controlled).

6.5.1 Setting door speed

The dGate allows the selection of the speed of door movement in 5 different levels; level 1 means slow movement and level 5 means fast movement.

The configuration of door speed is independent for each movement allowing the selection of different speeds for opening and closing the same doors. The dGate opens the doors always in the direction of the authorized passage, i.e., from the entry towards the exit when an entry is enabled and from the exit towards the entry when an exit is enabled. The speed settings selected for opening and closing will be the same for enabling passage in the entry direction and in the exit direction.

Factory standard:

- Opening speed = Level 3.
- Closing speed = Level 3.

6.5.2 Configuration of access control with doors open.

For a more friendly and responsive access control, dGate allows the configuration of the state of rest with doors open. In this state of rest, the access control is done in reverse logic, barring the not enabled users.

After the presentation of a user's valid passage authorization, dGate remains with its doors open regardless of the user's direction of passage, allowing entry or exit from the controlled environment. Conversely, when detecting the advance of a user who is not authorized to go through any direction, dGate closes the doors and prevents the transposition of environments.

Factory standard:

- Access control with doors open = Disabled.

6.5.3 Anti-crush protection system

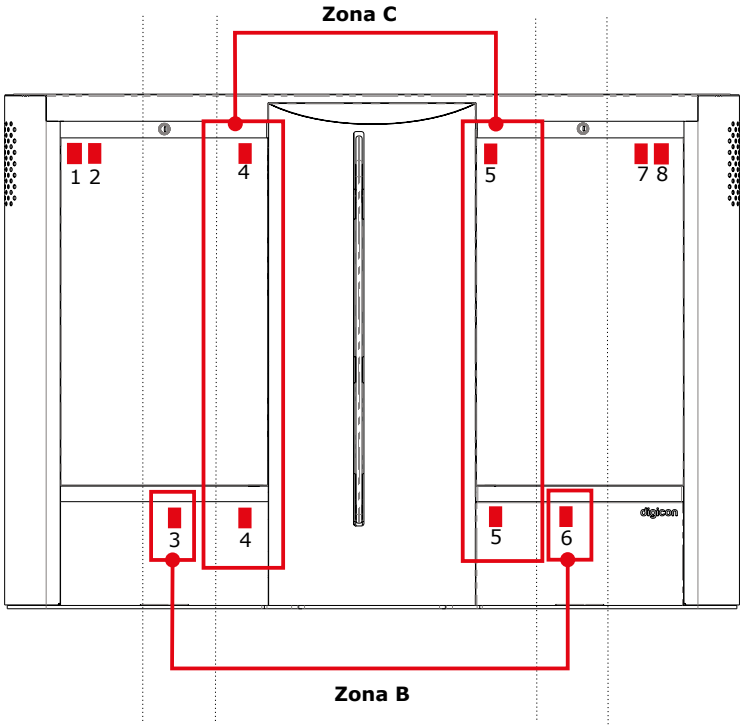
The anti-crush protection feature aims to increase the safety of dGate users. By enabling this feature, the system does not perform the opening movement or closing of doors if the sensors present in the regions in which the doors would move present indication of obstruction by users or objects.

If the obstruction is performed before the system starts moving the doors, this action will be postponed until the user or object clears the course of movement.

If the movement of the doors already has been started before the moment of obstruction, the system stops the movement of the door and returns to its previous position, postponing execution of the movement until its course has been released.

The region roofed by the anti-crushing system comprises, initially, the sensors closest to the doors' moving shaft (Zone C), but can be configured to comprise also the sensors of the central entry and exit courses (Zone B).

Once the anti-crushing system is enabled, it will act in all the movements of the engines, either opening or closing, both for cleared entry and exit passages.



6.5.4 Passage timeout

Passage timeout is the maximum time interval in which the gate will keep the passage enabled for the validated user. This time interval can be configured in fractions of 100 ms.

If no passage timeout is set, dGate remains open indefinitely, waiting for a passage in the enabling direction.

After the passage timeout occurs, the dGate system cancels the enabling passage and closes the gate doors (if there is no impediment due to the anti-crush feature).

The accounting of the timeout can also be set so that its count is reset when the system detects the entry of a user in enabling passage direction or in the opposite direction, even if the user does not complete the pass. Restart timeout countdown can be enabled separately for each of the above cases.

When only 3 seconds remain for the system to reach the configured value of timeout, dGate will indicate so to users until it reaches the timeout value by means of acoustic alarm (beep), warning light alternating in red and green in the upper operation pictogram, and bright red flashing alert in the upper pictogram of direction contrary to the enabling.

Factory standard:

- Passage timeout = Enabled.
- Timeout = 7 s.
- Restart counting via user user detection = Enabled.
- Restart counting via user detection in opposite direction = Enabled

6.5.5 Detection of passage direction

Passage timeout is the maximum time interval in which the gate will keep the passage enabled for the validated user. This time interval can be configured in fractions of 100 ms.

If no passage timeout is set, dGate remains open indefinitely, waiting for a passage in the enabling direction.

After the passage timeout occurs, the dGate system cancels the enabling passage and closes the gate doors (if there is no impediment due to the anti-crush feature).

The accounting of the timeout can also be set so that its count is reset when the system detects the entry of a user in enabling passage direction or in the opposite direction, even if the user does not complete the pass. Restart timeout countdown can be enabled separately for each of the above cases.

When only 3 seconds remain for the system to reach the configured value of timeout, dGate will indicate so to users until it reaches the timeout value by means of acoustic alarm (beep), warning light alternating in red and green in the upper operation pictogram, and bright red flashing alert in the upper pictogram of direction contrary to the enabling.

Factory standard:

- Allow passage in opposite direction = Enabled.
- Timeout = 7 s.
- Restart counting via user user detection = Enabled.
- Restart counting via user detection in opposite direction = Enabled.

6.5.6 Detection of user return

With the detection of direction of passage of the user, it is possible to configure the functionality of permission to user return. With this feature enabled, the gate will allow that one user who has completed the movement of passage via gate zone can return to the point of origin of the movement. With this function disabled, the equipment will close the doors when it detects the return (if there is no impediment due to the anti-crush feature).

Factory standard:

- Allow user return= Enabled.

6.5.7 Detection of stationery users

The constant scan of sensors for monitoring the movement of the user, together with the timing in which the user occupies each region of passage of the equipment, allows the functionality of stationery user detection and the choice of action of dGate in these cases. The status of stationery user is defined when, after a passage enabling, the user remains in the same internal region of the gate without movement forward or backward through a certain interval of time. The maximum time of permanence of the user in the same region without being considered a stationery user standing is configurable.

Upon detection of the user, the dGate system allows a smooth closing of doors and/or the emission of audible warnings to be enabled.

The closing of doors by detecting the stationery user is done smoothly, valuing the safety of the equipment and the user. In this functionality, it is not possible to set the door closing speed, with the slow movement always being performed. This functionality is not activated when the anti-crush function is active and the user is within the configured protection zone.

The warning sound after the detection of the stationery user standing on the gate is a standard functionality, but it can also be disabled via configuration. Intermittent whistles (beeps) give the warning.

Factory standards:

- Time to consider user stationery = 5 s.
- Close doors when detecting stationery user = Disabled.
- Issue warning sound when detecting stationery user = Enabled.

6.5.8 Detection of gate invasion

The invasion of the gate is characterized by the entry of the user in the internal area of the gate sensors without a cleared passage. dGate presents the functionality to configure the actions in case of an invasion.

When the invasion of the gate is not allowed, dGate sends sound alerts and bright red flashing lights indicated in pictograms as soon as the intruder enters the area of the monitoring sensors.

Another configuration allowed is to not enable passages when there is an invasion in any direction of the gate, be it in the typical direction of passage or in opposite direction of the attempted clearance. When operating with this functionality, dGate will only enable the user passage if no sensor is detecting obstructions inside the equipment when the user presents a passage credit. The functionality of not clearing the passage when the invasion is verified refers only to invasions during the credit validation attempt. In these cases, passage credits not are discounted until there is a clearance.

Factory standard:

- Allow gate invasion = Enabled.
- Not allow enabling when invasion detected = Disabled.

6.5.9 Detection of tailgating

The tailgating user is defined as a second, non-enabled user who tries to make a passage immediately behind an enabled user. The dGate has a system of tailgating detection. The feature makes it possible to configure the gate against the fraudulent user (tailgating), allowing only the passage of the enabled user. The closing of the doors occurs in the interval between the two users, considering the closing speed set on the equipment, and is accompanied by indication lights in red in the pictograms and intermittent warning sounds.

This functionality is conflicting with the anti-crushing system and will not act closing the doors if this action can hit a user who is in the security area set up; however, the warning sound and lights are emitted normally.

Factory standard:

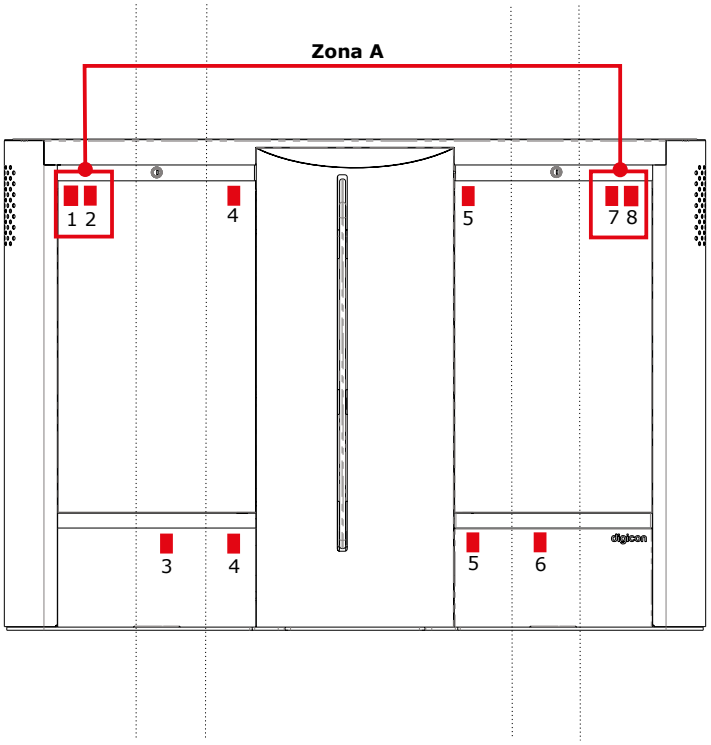
- Allow tailgating user = Enabled.

6.5.10 Definition of asset safety zone

Aiming to increase the safety in the access control to the environment, dGate has the functionality of defining an asset safety zone in which, when configured, dGate only acts at the opening of the doors after the enabled user enters the security zone.

With the functionality active, the passage credit is deducted from the user upon presentation of the clearance, along with the visual and audible indications of passage clearance. The opening of the doors, in turn, will only take place when the user enters the asset safety zone (Zone A).

The asset safety zone has as objective to reduce the period of opening of doors, reducing the possibilities of fraud to the access control system.



6.5.11 Accumulation of passage clearances

The accumulation of passage clearances is defined by the possibility of a user to enable more than one passage without having finished (successfully) the first passage enabled. When activated, this feature has effect both on movements of entry and exit and can be used by any user who has more than one passage credit.

In practical terms, this feature allows a user with multiple credits enable more than one passage in the same direction, clearing the access to other users not enabled.

Factory standard:

- Accumulation of passage clearances = Disabled.

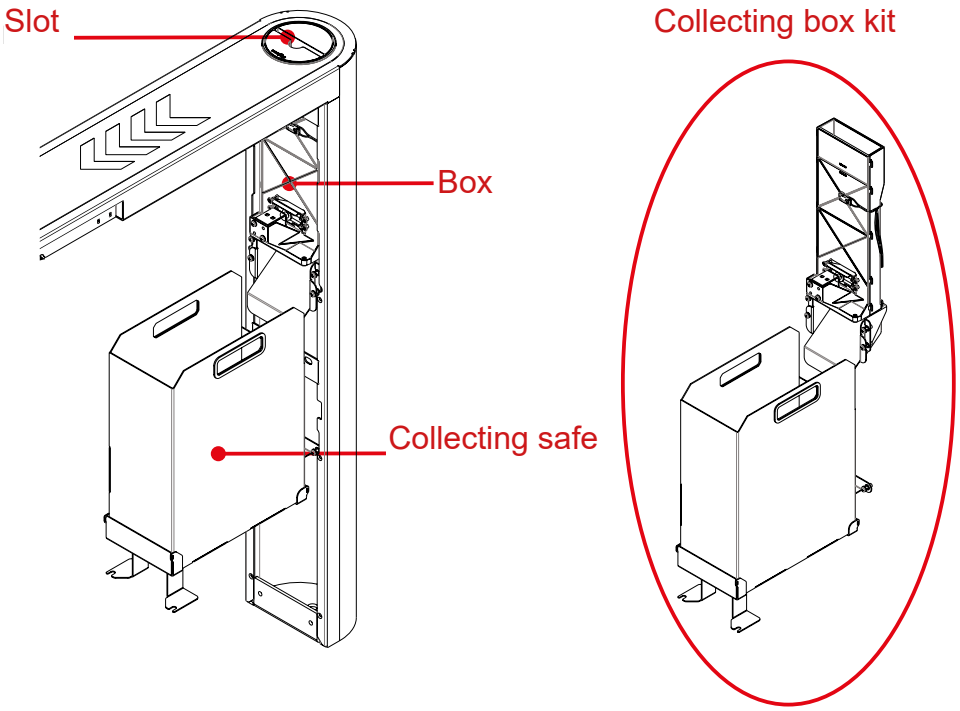
7. Optional items

Despite the compatibility with the majority of the access control technologies currently available, Digicon also offers a series of optional items that allow enhancing and tailoring the dGate operation to the needs of the customer. See the below a description of each of these items.

7.1 Kit Card collecting set

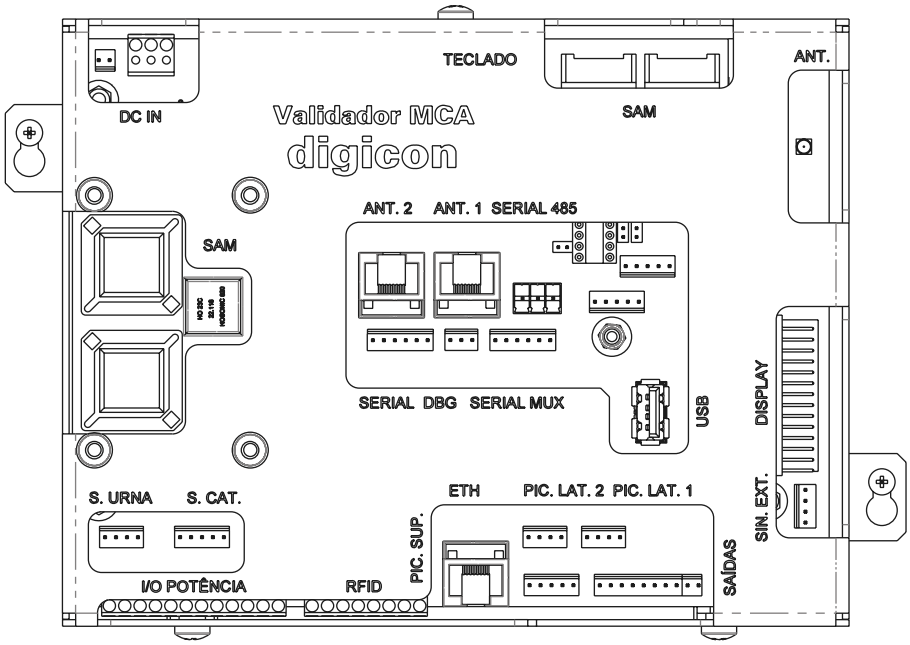
The collector kit with box has a device for collecting, retaining, and collecting cards or badges. It is ideal for places where there are visitors or occasional users. The kit consists of a slot, a solenoid-actuated retention device, and a storage box.

The following figure shows the items that accompany the collecting box kit and can serve as a guide for its assembly.



7.2 Digicon MCA board

The dGate can have an intelligent controller called MCA (Access Control Cabinet). The MCA consists of a powerful and versatile control board that integrates into access control and clock-in systems and software, adding robustness and functionality to different solutions in which it is responsible for managing identification readers (contactless card, bars, fingerprint, etc.) that may be present in the equipment used for user validation. Its TCP / IP network quickly and reliably query databases and a large local storage capacity allows the equipment to operate off-line consulting and storing access data. The gates present the option of proximity card readers (RFID or MIFARE), as well as the model with bar code, which are easily recognized by the user, reducing the time of transaction. The fingerprint biometrics solution offers an excellent option, with good performance, ergonomics, and security for access control and attendance projects. It can be integrated in the application 1:N or 1:1 with the technology of available cards



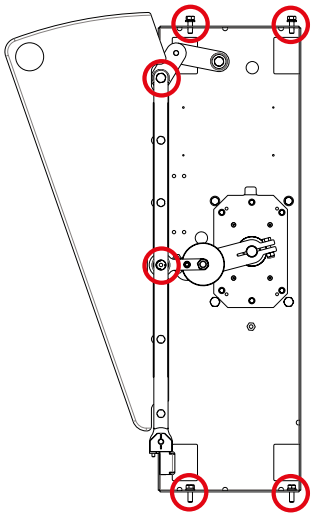
8.Maintenance

8.1 Door

Every six months, it is necessary to check the attachment of the door brackets. This adjustment should be performed with torque wrench with value of 17 N.m.

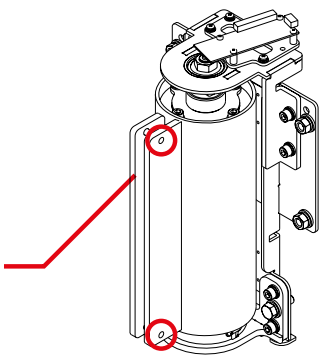
Fixing points:

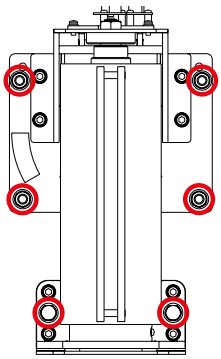
dGate AW mechanism:



dGate SW mechanism:

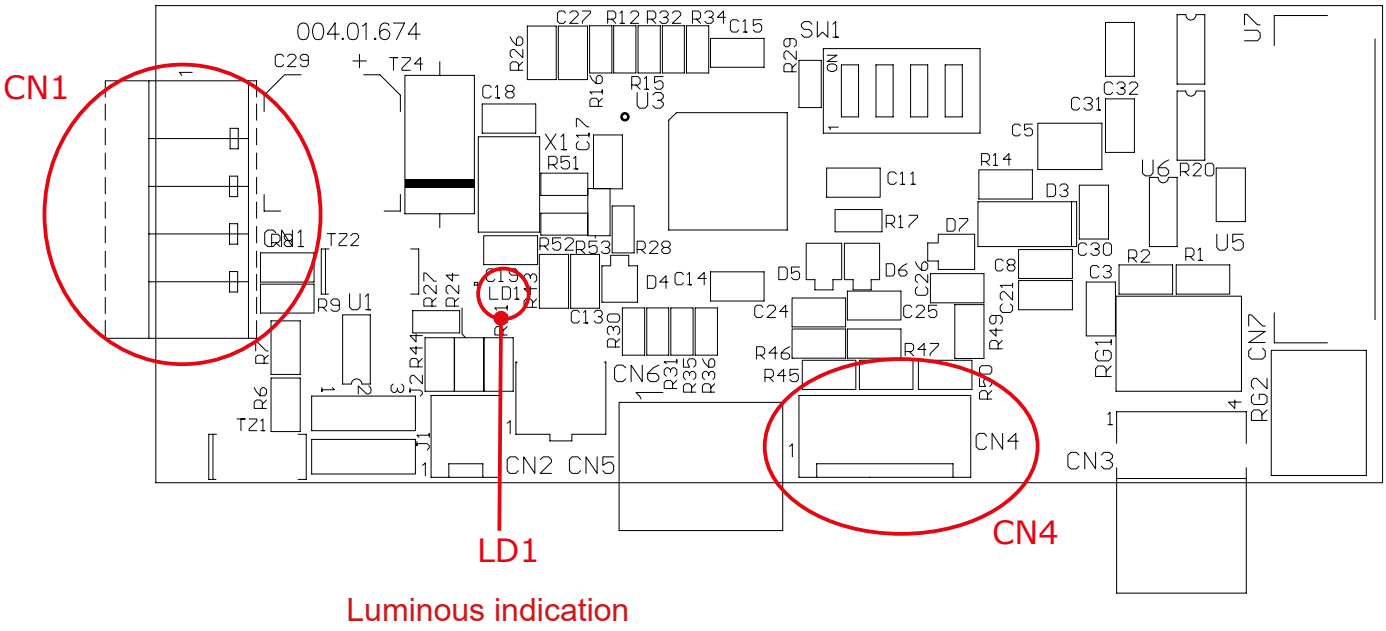
Polycarbonate fixed according to the model 500 or 900





8.1.1 Calibration routine

Engine control board (CP1674) 019.01.836:



1. Turn off the engine board by removing the power and communication cable from the connector CN1;
2. Remove the hall sensor cable CN4 and supply the board again by inserting the connector CN1;
3. Wait for the end of the initialization signaled by the LD1 switching between green and red;
4. Turn off the board again by removing the connector CN1, insert the connector CN4 and feed it again through the connector CN1 so that it can perform the automatic calibration process;
5. At this point, the door must be unobstructed as it will go to the end of the course, clockwise and counterclockwise, and then will be centralized.

8.2 Defects and possible causes

Problem	Possible cause	Action
dGate will not turn on	Equipment is not receiving power from the AC network or circuit breaker is off	Check circuit breaker and power network.
Acoustic warning without the presence of obstruction	Passage sensors misaligned or power connection failure.	Check if the gate is perfectly aligned and then use the MCP tester software to identify the defective sensor(s).
Pictograms will not turn on	Lack of AC power to the equipment, failure of CC power to the equipment, fuse open in the MCP, cables broken.	Check AC network, MCP fuse, and cabling.
Pictograms display wrong messages	Display data cable with bad contact or connection failure at the terminal block.	Check data cable and terminal block.
When enabling passage, the doors open and do not close	Check gate sensors as they may consider that a user is inside the gate.	Use the MCP tester software to identify the defective sensor(s). Then, perform the realignment or replacement of the sensor(s).
Misaligned doors	Door calibration	Perform calibration procedure.
Mechanical door brake	Cable connection of brake activation.	Check connection cable of brake coil with CN3 on motor control board.
	Dip Switch motor control board	W1-01 must be ON.

9. Preventive maintenance

To estimate preventive maintenance times, 1,600 passages/day and 30 days/month were assumed. As these are reference values, they may change depending on the use of the equipment and the customer should make adjustments to obtain new times.

Calculation basis:

Passage cycle: 1,600 (Estimate passages in one day).

Month (days): 30

Cycles in one month: 48000

Cycles	Maintenance month
300,000	6 months
500,000	10 months
1,000,000	22 months
1,500,000	32 months

9.1 Preventive actions table:

Action	Frequency
Calibrate doors	1x / 3 months
Analyze door operation in order to search for noise, heavy mechanisms, and non-standard activations.	1x / 6 months
Analyze activation of the equipment's upper LEDs. .	1x / 6 months
Analyze the activation of the entry and exit pictogram.	1x / 6 months
Analyze the activation of the buzzer via validations and invalid entries..	1x / 6 months

Action	Frequency
Check rise of 24 V in supplies that feed the engine	1x / 6 months
Check the operation of the mechanic doors brake.	1x / 6 months
Check the operation of biometric reader(s)..	1x / 6 months
Check the operation of contactless card reader(s).	1x / 6 months
Checking the tightness of the screws that fix the doors	1x / 6 months
Check the operation of bearings	1x / 10 months
Visually check cotters	1x / 6 months
Check engine operation.	1x / 22 months
Visually check door conditions.	1x / 6 months
Check locks operation.	1x / 22 months

Preventive maintenance records:

Manufacturer	
Company: Digicon S/A	Contact: +55 51 3489 7000 www.digicon.com.br

Product		
Model:	Code:	Serial number:

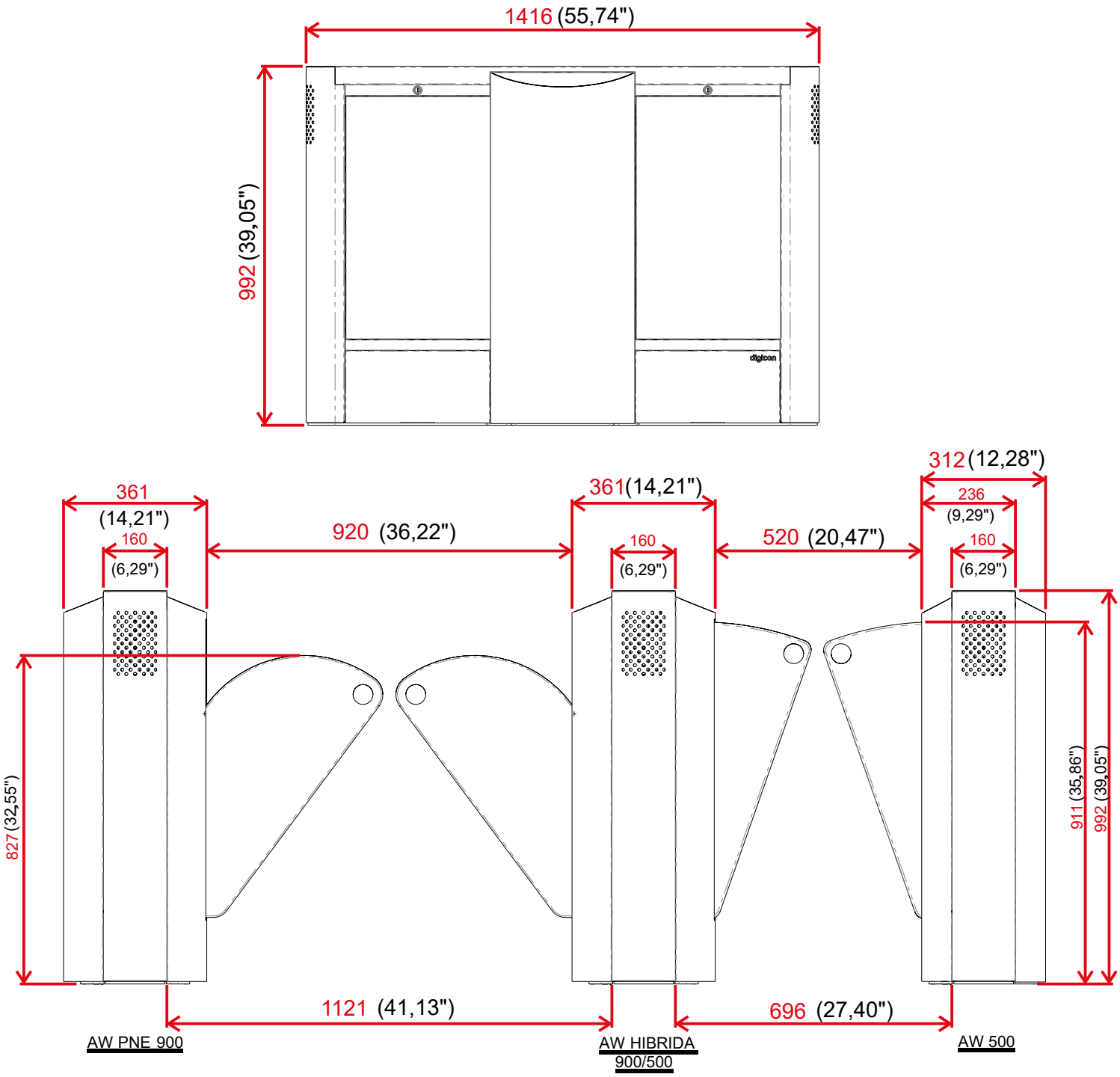
Installation		
Company:	Contact:	Date:

Action	Date	Responsible	Signature

10.Technical characteristics

10.1 Dimensions

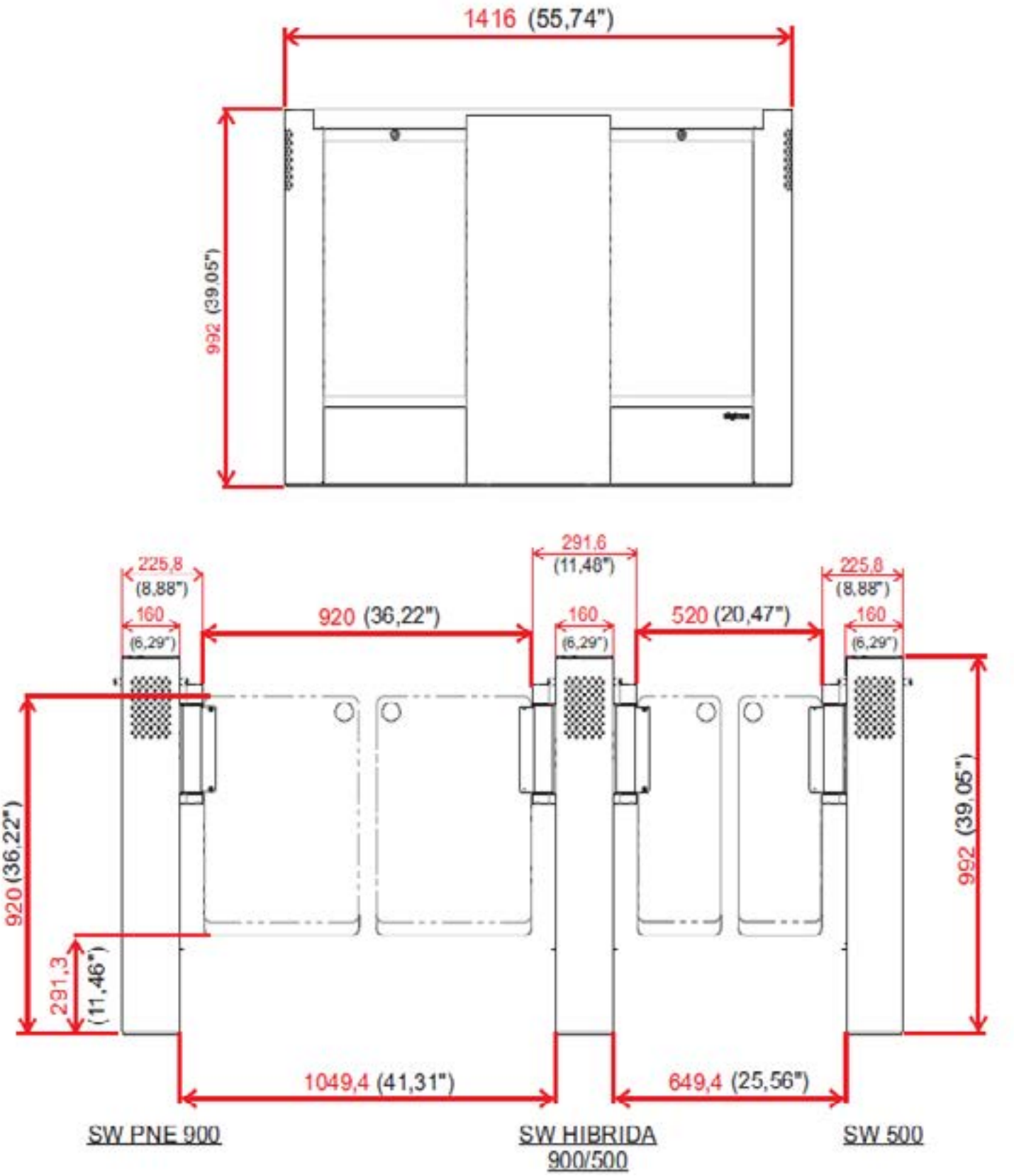
dGate AW:



⚠ ***ATTENTION! -*** In PNE models the body of the gate measures 360 mm in width.

The measures of the dGate are shown in millimeters and (inches).

dGate SW:



⚠ ***ATTENTION! -*** The measures of the dGate are shown in millimeters and inches.

10.2 Other information

Technical data	Characteristics
Supply	100 - 240 Vac (automatic selection)
Frequency	50/60 Hz
Average time open/close door	1 second
Average time operation cycle	6 seconds
Weight	150 KG per packaged cabinet
Consumption	**AW 500 Passage** Initialization: 382 W Standby: 60 W Operation: 252 W **AW 900 Passage** Initialization: 425 W Standby: 40 W Operation: 403 W **SW 500/900 Passage** Initialization: 36 W Standby: 32 W Operation: 92 W
Minimum capacity of cards in collecting box	120 cards
MCBF (Mean cycles between failures)	Greater than 8 millions cycles
Operational temperature	(-5° and 50°C)

11.Cleaning

11.1 Maintenance and preservation of stainless steel:

Do not use chemicals products, bleaches, or cleaning products for domestic use.

- **Routine cleaning:** The best products to preserve stainless steel are water, soap, mild and neutral detergent, and ammonia-based removers diluted in warm water and applied with a soft cloth or nylon sponge. Then, rinse with plenty of water, preferably warm, and dry with a soft cloth.

- **Fat, Oils, and Grease:** Wipe off thick deposits with a soft cloth or paper towel. Apply a warm solution of detergent or ammonia. Then, follow the procedures of routine cleaning.

- **Fingerprints:** Remove spots with a soft cloth or paper towel dampened with isopropyl alcohol (found at manipulation pharmacies) or organic solvent (ether, benzene).

- **Labels, tags, or films:** Peel off as much as possible. Apply warm water over the piece and rub with a soft cloth. If there is still adhesive, dry the area and rub gently with alcohol or organic solvent. Beware: never scrape the stainless steel surface with blades, scrapers, or thick abrasives.

- **Rust stains:** With a swab soaked in water and Nitric acid (10%), make topical applications, keeping the spot moistened for 20 to 30 minutes, repeating the operation if necessary.

Stains more pronounced require vigorous rub to the spotted surface with a paste made of fine household abrasive (soap), water, and nitric acid (10%), using a polishing pad. The acid treatment should always be followed by a rinse in ammonia or bicarbonate of soda solution and of the routine cleaning.

- **Moderate dirt/light stains:** When routine cleaning is not sufficient, apply a paste made with plaster or bicarbonate of soda dissolved in domestic alcohol. Use a soft cloth or nylon pad to spread this mixture over the stainless steel surface. Alternatively, you can use a soft-bristled brush, taking care to not rub, and gently spread the paste in long and uniform movements, in the direction of the finishing, if any. Avoid rubbing with circular motions. Then, rinse with plenty of water, preferably warm, and dry with cloth soft.

- **Intense dirt/significant stains:** Apply warm or hot detergent or a solution of an ammonia-based remover (household remover) and water. If this is not enough to soften burnt food or charred deposits, resort to more aggressive products, such as caustic soda-based removers employed in domestic cleaning.

11.2 Maintenance and preservation of polycarbonate (doors):

Routine cleaning:

- Choose a dry day with preferably with low humidity because the soot that might be deposited on the door will be easier to remove.
- Preferably, and if possible, remove the polycarbonate (door) item for better cleaning.
- Wet the polycarbonate doors with water until you notice that the excess dirt has come off. The insistence on the amount of water is due to the fact that if we move a cloth over the soot granulation we would end up sanding the polycarbonate and not cleaning it. The result of that would be one blurry, opaque door.
- Separate a cotton cloth (100%) and a good-branded neutral detergent. Do not use conventional brooms, they will scratch the polycarbonate.
- Mix the neutral detergent with water in a bucket until enough foam is formed and gently spread the solution with the cloth in a single direction, that of the water falling. Never wipe the cloth in a circular motion. Rinse well and repeat the process until the result is satisfactory.
- Do not let the sun dry the solution over the polycarbonate. Spots may appear.

Paint splatters over the polycarbonate: It is common, when painting walls, latex paint splatters appearing on the polycarbonate plate. Do not use solvents such as thinner, gasoline, benzene, or acetone. Isopropyl alcohol or kerosene can solve the problem. Try cleaning it before the paint dries and wash the area with a solution of water and neutral detergent.

Frequency of cleaning the polycarbonate: There no determined period for cleaning. The amount of soot dispersed in the air, generated by dirt roads, factories, and buildings in the region can lead to more frequent cleaning. Start with a monthly cleaning and review. Then adapt this period to a more convenient one. Clean without scratching.

⚠ ***ATTENTION! -*** Even in the case of more resistant dirt, try to start cleaning with the mildest method. Be patient and repeat a number of reasonable times prior to use more severe cleaning methods.

12. Warranty and technical assistance

Digicon is responsible for the project, good quality of workmanship, and materials used in the manufacture of its products, ensuring that the equipment and all its parts are free from defects or defects in material and manufacturing. Digicon undertakes to replace or repair any part or equipment that has a manufacturing defect, at no cost to the buyer, within the conditions stipulated below:

1. The purchaser is responsible for the transportation costs to and from of the product;;

2. The warranty period is counted from the issuance of the sales invoice and comprises 12 (twelve) months for the equipment, accessories, parts, and pieces, including the legal warranty period of 90 (ninety) days.

Legal warranty:

"The consumer has a period of 90 (ninety) days, counted from the date of issuance of the purchase invoice, to complain about apparent irregularities (vices), easily and immediately observed in the product, such as the items that make up the external part and any other accessible to the user, as well as appearance parts and accessories in general.

3. Guarantee will be provided to the buyer only upon presentation of an invoice (original or copy). Service is carried out upon opening a service call via e-mail:

- **Access and clock-in control area:** sac.vca@digicon.com.br
- **Urban mobility area:** sac.mobilidadeurbana@digicon.com.br
- **Information necessary to open a service call:**

  Company name:

  CNPJ:

  Address:

  Responsible:

  Telephone:

  Defective equipment model(s):

  Defective equipment serial number(s)

  Defect(s) displayed:

Observations

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