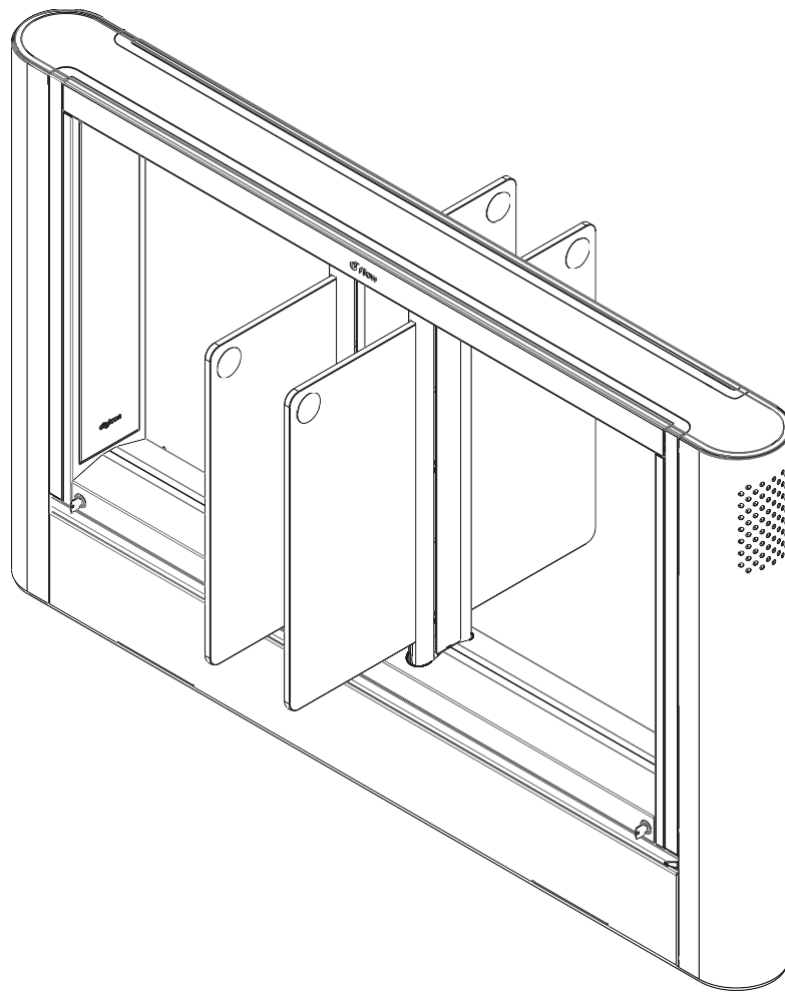

d'Flow G4



digicon

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Code: 069.31.289
Version: 00 - English

This manual was prepared by: Digicon S.A. Controle Eletrônico para Mecânica.

Documentation Department - EDS

Revision	Date	Reviwer	History
00	27/06/2023	• Carlos Alberto	• Document creation

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Contents

1.	ANALYSIS PROCEDURES:	7
1.1	OBTAINING FILES AND INFORMATION	7
1.1.1	Quick Analysis of Log Information through the Browser	7
1.1.2	Download internal files	10
1.2	VISUAL INDICATIONS OF THE EQUIPMENT THROUGH LEDs	10
1.2.1	LED strip flashing in orange	10
1.2.2	LED strip flashing in blue	11
1.2.3	LED strip flashing in purple	11
1.2.4	LED strip flashing in White	11
1.2.5	LED strip flashing in yellow	12
1.2.6	LED strip signaling in green	12
1.2.7	LED strip in steady red for more than 2 minutes	12
1.3	PROBLEMS AND POSSIBLE ACTIONS	12
1.3.1	The equipment does not turn on	12
1.3.2	Breakers tripping	13
1.3.3	Entry pictogram does not turn on	13
1.3.4	Exit pictogram does not turn on	13
1.3.5	LED strips from module R do not turn on	14
1.3.6	LED strips from module T do not turn on	15
1.3.7	Door(s) from module R do not activate	16
1.3.8	The door(s) of module T do not operate	17
1.3.9	The sensor does not turn on	17
1.3.10	The sensor does not communicate with the equipment	17
1.3.11	The application cannot configure the sensor	18
1.3.12	Doors moving and buzzer activating without people present in the equipment	18
1.3.13	Door cannot reach the desired angle and presents idle cycles of opening and closing	18
1.3.14	The card collection mode is not activated correctly	18
2.	CONFIGURATION PROCEDURES:	19
2.1	SELECTOR SWITCH	19
2.1.1	Position M0 - Normal operation	19
2.1.2	Position M1 - Sensor calibration validation	19
2.1.3	Position M1 - Sensor Calibration	21
2.1.4	Position M2 - Door Calibration	21
2.1.5	Position M3 and M4 - Operational status of entrance and exit	21
2.1.6	Position M5 - Operation colors	22
2.1.7	Position M6 - Protection levels	22
2.2	MOTOR BOARD ADDRESSING VIA DIP SWITCHES	22
3.	PREVENTIVE MAINTENANCE	23
3.1	ELECTRONIC PREVENTIVE MAINTENANCE	23
3.1.1	Clean sensor acrylics	23
3.1.2	Analyze the operation of the 3D sensor	24
3.1.3	Analyze the sensor calibration	24
3.1.4	Analyze the operation and calibration of the doors with buzzer	24
3.1.5	Check the operation of the LED strips and pictogram	24
3.1.6	Check if the emergency alarm is sounding correctly	25
3.1.7	Check if the door brakes are working properly (optional item)	25
3.2	PREVENTIVE MECHANICAL MAINTENANCE	26
3.2.1	Base fasteners	26

3.2.2	Base fasteners.....	27
3.2.3	Brake.....	27
3.2.4	Motor.....	28
3.2.5	Upper bearing.....	28
3.2.6	Door.....	29
4.	CORRECTIVE MAINTENANCE.....	29
4.1	ELECTRONIC CORRECTIVE MAINTENANCE.....	30
4.1.1	Motor board (019.01.943).....	30
4.1.2	Control board (019.01.941).....	31
4.1.3	LEDs Communication board (019.01.942).....	33
4.1.4	24V power supplies (019.01.875 e 032.03.954).....	35
4.1.5	5V Power Supply (032.03.732 032.03.942).....	39
4.1.6	12V Power Supply (037.45.781 019.02.008).....	45
4.1.7	CPU power supply (037.45.855).....	49
4.1.8	CPU (080.04.004).....	51
4.1.9	Sensor (080.04.575).....	52
4.1.10	Pictogram (019.01.837).....	53
4.1.11	Upper LED Strip (037.45.763).....	54
4.1.12	Side LED strip (037.45.388 e 037.45.768).....	55
4.2	CORRECTIVE MECHANICAL MAINTENANCE.....	58
4.2.1	Upper bearing replacement.....	58
4.2.2	Replacement of the door.....	59
4.2.3	Brake Replacement (Optional Item).	60
4.2.4	Replacement of the brake base.....	61
4.2.5	Replacement of shock absorber springs.....	62
4.2.6	Motor replacement.....	63
4.2.7	Align the sensor – card collector cover.....	64

Introduction

In order to streamline the procedures involving support and maintenance of the dFlow equipment, information to assist in error analysis procedures, file retrieval, preventive and corrective maintenance have been grouped together to generate this document. Each topic will cover the functions and detailed methodology of how to perform the operations, making configuration via selector switch, log analysis, file download, and parts replacement tasks easy to understand.

1. Analysis Procedures:

1.1 Obtaining Files and Information

We can obtain information from the equipment in two ways: Quickly analyzing the log through the browser or downloading the relevant files (logs, videos, calibration files) for each analysis.

1.1.1 Quick Analysis of Log Information through the Browser

Access the equipment's IP address through the browser and log in using the following credentials:

User: digicon
Password: d1g1c0n

Access the "log/" folder and select the desired log file by filtering for the creation date and time identification, i.e., when the application was initialized.



log_000.1001_XXXX_XX_XX_XX_XX.txt

Year ← → Sec
Month ← → Min
Day → hour



ATTENTION! Log files with zero hour indicate the transition to the next day. Within these files, startup information is not found, so analysis should revert to the initial log.



log_000.1001_XXXX_XX_XX_00_00_00.txt

Day turnover ← → Log Start Marker

```

infoLog.cpp:235  INFO| Gate: 0000.1005 2019_08_12 18:13:35
infoLog.cpp:236  INFO| HD Total          : 96.92
infoLog.cpp:239  INFO| HD Available       : 10.68 [11.02%]
infoLog.cpp:236  INFO| HD Total          : 96.92
infoLog.cpp:239  INFO| HD Available       : 10.68 [11.02%]
infoLog.cpp:242  INFO| HD Used           : 86.24 [88.98%]
infoLog.cpp:243  INFO| RAM Total         : 3.30
infoLog.cpp:246  INFO| RAM Available    : 0.48 [14.56%]
infoLog.cpp:250  INFO| RAM Used         : 2.82 [85.44%]
infoLog.cpp:254  INFO| Sensor FireMode  : AUTO
infoLog.cpp:263  INFO| Software Version : VER X.XX.XX-XXXXXX
infoLog.cpp:264  INFO| Date and Time Compilation : XXXXXXXXXXXX
infoLog.cpp:265  INFO| Gate Description  : XXXXXXXXXXXX
infoLog.cpp:266  INFO| Sync Server IP   : 192.168.0.12
infoLog.cpp:267  INFO| Sensor IP        : 192.168.0.10
infoLog.cpp:268  INFO| Integration Time  : 0xXXXX [XXX]
infoLog.cpp:270  INFO| Sensor Model     : TIMETH
infoLog.cpp:271  INFO| ControlBoard Path : /dev/INTERFACE1
infoLog.cpp:272  INFO| IntrusionAlarm    : 50 %
infoLog.cpp:273  INFO| Monitoring Server IP : XXX.XXX.XXX.XXX
infoLog.cpp:274  INFO| Monitoring Server Port : XXXX
  
```

Within the file, we can check some settings and possible undesired behaviors. Below are some examples:

1.1.1.1 Discovering the software version:

```
Software Version          : VER X.XX.XX
```

Search the "software version" log and await the return.

1.1.1.2 Discovering the equipment's operating mode:

Search the "opmodedoor" log and wait for the response.

```
OpModeDoor               : XXXXXXXXXX
```

1.1.1.3 Discovering the equipment's entrance and exits status:

Search the "state entrance" log and wait for the response.

```
State Entrance           : XXXXXXXXXX
StateExit                 : XXXXXXXXXX
```

1.1.1.4 Discovering the sensor integration time:

Search the "integration time" log and wait for the response.

```
Integration Time         : 0x0000 [XXXX]
```

1.1.1.5 Discovering the equipment ID and sensor trigger frequency:

Search the "bloq id" log and wait for the response.

```
Bloq ID: X| FreqCam: XX.XX MHz
```

1.1.1.6 Discovering the firmware version of the control board:

Search the "firmware control board" log and wait for the response.

```
Checkversion firmware controlboard
Boardupdated: VX.XX
```

1.1.1.7 Discovering the address and firmware version of the motor board:

Search the "version of the board" log and wait for the response.

```
Firmware versionoftheboardwithaddress [#XX]: [VX.XX]
```

Address

Version

Communication error indication.

```
Motor boardnotresponding: [#XX]
Error: Motor Boardnot communication
```

1.1.1.8 Verifying if the control board has connected to the CPU:

Search the "checkcommunication" log and await the response.

```
checkCommunicationControlBoard
Controlboard communication OK
```

Communication error indication.

```
checkCommunicationControlBoard
Not communication withcontrolboard
```

1.1.1.9 Verifying if the sensor has been configured correctly:

Search the log "192.168.0.10" and locate one of the messages.

```
Camera 192.168.0.10 configurada com sucesso. ID:X
```

Configuration error indication.

```
Erro ao configcam 192.168.0.10 bloq ID X. Tentativa n: X
```

1.1.1.10 Verifying if the energy saving mode is active:

Search the "camenergy" log and await the response.

```
freqCamEnergySaving : Xfps
```

1.1.1.11 Verifying if the position readers have been configured correctly:

Search the "readerposition" log and await the response.

```
Error:Requiredreader position adjustment
Verifyreader position atreader.xml
```

Indication of which limit the image exceeded.

```
Reader position exceededthelimitoftheleftsideoftheimage
Reader position exceededthelimitoftherightsideoftheimage
Reader position exceededthetoplimitoftheimage
Reader position exceededthebottomoftheimage
```

1.1.1.12 Verifying if the configuration file was opened correctly:

Search the "config.xml" log and wait for the response.

```
*****
Readfromconfig.xml file:
```

Indication that the file was not opened.

```
*****
Failedto open config
```

1.1.2 Download internal files

To perform this task, we use the FileZilla software (SFTP client).



Please execute the program and configure the connection with the following information:

Host: Equipment's IP

Username: digicon

Password: d1g1c0n

Port: 22

Please perform a quick connection. After connected, the right window will be filled with the files from the dFlow equipment.

⚠ ATTENTION! Be careful not to delete, rename, or move internal files. This can affect the operation of the equipment.

Enter the "videos" folder using the path "/home/digicon/videos". Inside it, we have important files for performing comprehensive analyses. These files are found in the folders: bltstream, infoCalibration, log, and out.

Access the folders, select the desired files, and perform the copy by dragging them to the local computer tab. After getting all the files, close the connection.

1.2 Visual indications of the equipment through LEDs

The indications are separated by colors and the number of flashes. The interval between each trigger window is two seconds.

1.2.1 LED strip flashing in orange

Amount of activations	Possible causes	Actions
4	Error when opening the configuration file	Please check if the config.xml file exists inside the folder "/home/digicon/exec_aplicativo/atual". Verify the integrity of the file. Contact technical support if needed.

1.2.2 LED strip flashing in blue

Amount of activations	Possible causes	Actions
1	No communication with the motor board.	Check if all motor boards are powered and with connectors properly attached. Ensure that the RS-485 communication part of the motor boards is properly connected. Verify if the addressing of the boards is correct (Refer to 2.2). Confirm if the equipment's operating mode is correct (Refer to 1.1.1.2). Identify which port address is not responding (Refer to 1.1.1.7). Replace the motor board (Refer to 4.1.1).
3	Motor board version different from the others.	Identify which motor board is outdated (Refer to 1.1.1.7). Update the firmware of the motor board. Replace the motor board (Refer to 4.1.1).

1.2.3 LED strip flashing in purple.

Amount of activations	Possible causes	Actions
2	Outdated control board version.	Check the version of the control board. (Refer to 1.1.1.6) Update the control board with a version compatible with the software.

1.2.4 LED strip flashing in White

Amount of activations	Possible causes	Actions
1	Initial calibration required.	Initiate the first calibration procedure using the selector switch or the configurator.
5	Verification and validation of the calibration image required.	Check the alignment of the modules using the sensor image. After verification, proceed with the calibration.

1.2.5 LED strip flashing in yellow

Amount of activations	Possible causes	Actions
2	No connection with the sensor.	Check the network cable connection on the CPU. Verify if the sensor is functioning correctly.
4	Invalid reader position configuration	Check the log for the error corresponding to the reader position. Adjust the coordinate configuration to a valid position, i.e., within the image.

1.2.6 LED strip signaling in green

Possible causes	Actions
Emergency alarm activated.	Take the emergency alarm mode off. Check if connectors CN25 and CN26 on the control board are properly connected.

1.2.7 LED strip in steady red for more than 2 minutes

Possible causes	Actions
Application is not running.	Check if the CPU is turned on. Check the connection of CN4 on the control board. Check the serial connection on the CPU.

1.3 Problems and possible actions

Below are some problems that may occur with the equipment, along with possible actions to solve them.

 **ATTENTION!** These procedures should be performed by trained technical professionals.

1.3.1 The equipment does not turn on

Possible causes	Actions
1) Equipment is not receiving AC power from the power network. 2) Circuit breakers desarmed. 3) Power cables disconnected from terminal block B1.	1) Check the power supply status. 2) Arm the breakers. 3) Ensure that the cables supplying power to the equipment are properly connected to terminal block B1.

1.3.2 Breakers tripping

Possible causes	Actions
1) AC power cables in contact with the casing. 2) AC power supply inverted.	1) Identify the current leakage point and cease the flow. 2) Check if the breaker outputs are not shorted.

1.3.3 Entry pictogram does not turn on

Possible causes	Actions
1) Poorly connected cable. 2) Defective pictogram board. 3) Control board without firmware. 4) Defective control board. 5) Broken cable. 6) Defective R connection board. 7) Defective T connection board.	1) Check the cable connection with CN27 on the control board and with the pictogram board. 2) Check if the control board has connected to the CPU (As per 1.1.1.8). 3) Replace the cable. 4) Replace the pictogram board (As per 4.1.10). 5) Replace the control board (As per 4.1.2).

1.3.4 Exit pictogram does not turn on

Possible causes	Actions
1) Poorly connected cable. 2) Defective pictogram board. 3) Control board without firmware. 4) Defective control board. 5) Broken cable.	1) Check the cable connection with CN28 on the control board and with the pictogram board. 2) Check if the control board has connected to the CPU (As per 1.1.1.8). 3) Replace the cable. 4) Replace the pictogram board (As per 4.1.10). 5) Replace the control board (As per 4.1.2).

1.3.5 LED strips from module R do not turn on

Possible causes	Actions
1) Loose connectors. 2) Poorly connected cables on the interconnection board. 3) Damaged LED strip. 4) Faulty 5V power supply. 5) Control board without firmware. 6) Defective control board.	1) Measure the output of the 5V power supply. 2) Measure the voltage on the connectors that interconnect the LED strips and verify if they have 5V. 3) Check the cable connection to CN16 connectors on the control board and to the LED strip. 4) Check if the control board has communicated with the CPU (As per 1.1.1.8). 5) Check the cable connection to CN13 on the control board and to CN1 on the integrators connection board. 6) Check the cable connection to CN2 on the integrators connection board and to the LED strip. 7) Disconnect the faulty LED strip and connect the respective spare strip outside the equipment. If the problem persists, repeat the process for the following strips until the LEDs start working again. 8) Replace the defective LED strip(s) (As per 4.1.11 or 4.1.12). 9) Replace the 5V power supply (As per 4.1.5). 10) Replace the control board (As per 4.1.2).

1.3.6 LED strips from module T do not turn on

Possible causes	Actions
1) Loose connectors. 2) Poorly connected cables on the interconnection board. 3) Poorly connected cables on the converter board. 4) Poorly connected cable on the control board. 5) Damaged LED strip. 6) Faulty 5V power supply. 7) Control board without firmware. 8) Defective converter board. 9) Defective control board.	1) Measure the output of the 5V power supply. 2) Measure the voltage on the connectors that interconnect the LED strips and verify if they have 5V. 3) Check the cable connection on the converter board. 4) Check the cable connection on connector CN13 on the control board. 5) Check the cable connection to connectors CN1, CN2, and CN7 on the R-side connection board. 6) Check the cable connection to connectors CN1, CN2, and CN7 on the T-side connection board. 7) Disconnect the faulty LED strip and connect the respective spare strip outside the equipment. If the problem persists, repeat the process for the following strips until the LEDs start working again. 8) Replace the defective LED strip(s) (As per 4.1.11 or 4.1.12). 9) Replace the LEDs communication board (As per 4.1.3). 10) Replace the 5V power supply (As per 4.1.5). 11) Replace the control board (As per 4.1.2).

1.3.7 Door(s) from module R do not activate

Possible causes	Actions
1) Loose connectors. 2) Incorrect height between the encoder and the magnet. 3) Poorly connected cables on the intercommunication boards on the R and T sides. 4) Motor board(s) without firmware. 5) Defective motor board(s). 6) Faulty 24V power supply. 7) Defective motor(s). 8) Control board(s) without firmware. 9) Defective control board(s).	1) Measure the power supply of the motor board(s). 2) Check the cable connection to connectors CN1 and CN6 of the motor board(s). 3) Check the connectors of the motor(s). 4) Verify if the height of the encoder on the board(s) with the magnet is between 0.3 and 0.7 mm. 5) Check the connection of CN12 on the control board. 6) Check if the control board has communicated with the CPU (As per 1.1.1.8). 7) Replace the motor board(s) (As per 4.1.1). 8) Replace the motor(s) (As per 4.2.6). 9) Replace the 24V power supply (As per 4.1.4.1). 10) Replace the control board (As per 4.1.2).

1.3.8 The door(s) of module T do not operate.

Possible causes	Actions
1) Loose connectors. 2) Incorrect height between the encoder and the magnet. 3) Poorly connected cables on the intercommunication boards on the R and T sides. 4) Motor board(s) without firmware. 5) Defective motor board(s). 6) Faulty 24V power supply. 7) Defective motor(s). 8) Control board(s) without firmware. 9) Defective control board(s).	1) Measure the power supply of the motor board(s). 2) Check the cable connection to connectors CN1, CN5, and CN6 of the motor board(s). 3) Check the connectors of the motor(s). 4) Verify if the height of the encoder on the board(s) with the magnet is between 0.3 and 0.7 mm. 5) Check the interlocking cable between locks responsible for the RS-485 network of the motor board(s). 6) Check the connection of CN12 on the control board. 7) Check if the control board has communicated with the CPU (As per 1.1.1.8). 8) Replace the motor board(s) (As per 4.1.1). 9) Replace the motor(s) (As per 4.2.6). 10) Replace the 24V power supply (As per 4.1.4.2). 11) Replace the control board (As per 4.1.2).

1.3.9 The sensor does not turn on.

Possible causes	Actions
1) Power cables disconnected. 2) AC cable disconnected from the sensor power source. 3) Loose sensor power connector.	1) Check if the cables supplying power to the sensor are properly connected to terminal B1. 2) Verify the AC connection of the power supply. 3) Check if the sensor is being powered with 24V. 4) Replace the sensor (As per 4.1.9).

1.3.10 The sensor does not communicate with the equipment.

Possible causes	Actions
1) Network cable disconnected from the CPU. 2) Network cable disconnected from the sensor. 3) Broken network cable.	1) Check the network cable connection at the CPU and sensor. 2) Replace the network cable. 3) Replace the sensor (As per 4.1.9).

1.3.11 The application cannot configure the sensor.

Possible causes	Actions
1) Error in communication between the sensor and the equipment.	1) Reset the sensor using the reset button. 2) Access the equipment and try to ping the sensor's IP internally. 3) Replace the sensor (As per 4.1.9).

1.3.12 Doors moving and buzzer activating without people present in the equipment.

Possible causes	Actions
1) Sensor out of calibration. 2) Interference between IDs.	1) Check if the free area is being respected. 2) Calibrate the sensor (As per 2.1.3). 3) Verify the IDs configured in neighboring equipment (As per 1.1.1.5).

1.3.13 Door cannot reach the desired angle and presents idle cycles of opening and closing.

Possible causes	Actions
1) Mechanism with slack. 2) Loose mechanical components.	1) Check if any part of the mechanism shows wear or poor fixation. 2) Replace the mechanism (As per 4.2).

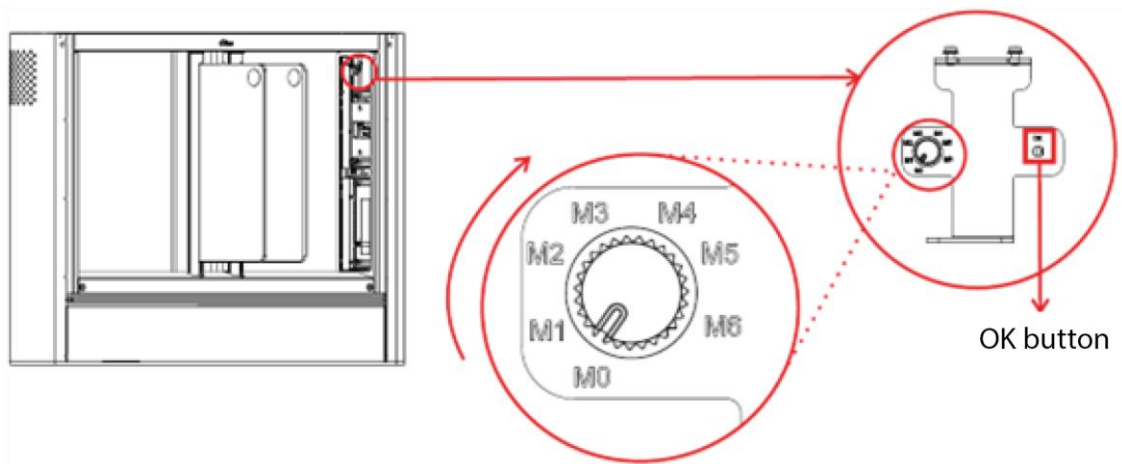
1.3.14 The card collection mode is not activated correctly.

Possible causes	Actions
1) Access box cover sensor mispositioned.	1) Perform sensor alignment. (According to point 4.2.7).

2. Configuration Procedures:

2.1 Selector switch

These procedures are applied for quick configurations that do not require establishing a connection with the equipment. There are seven functions that can change the operation of the dFlow according to the customer's needs.



2.1.1 Position M0 - Normal operation

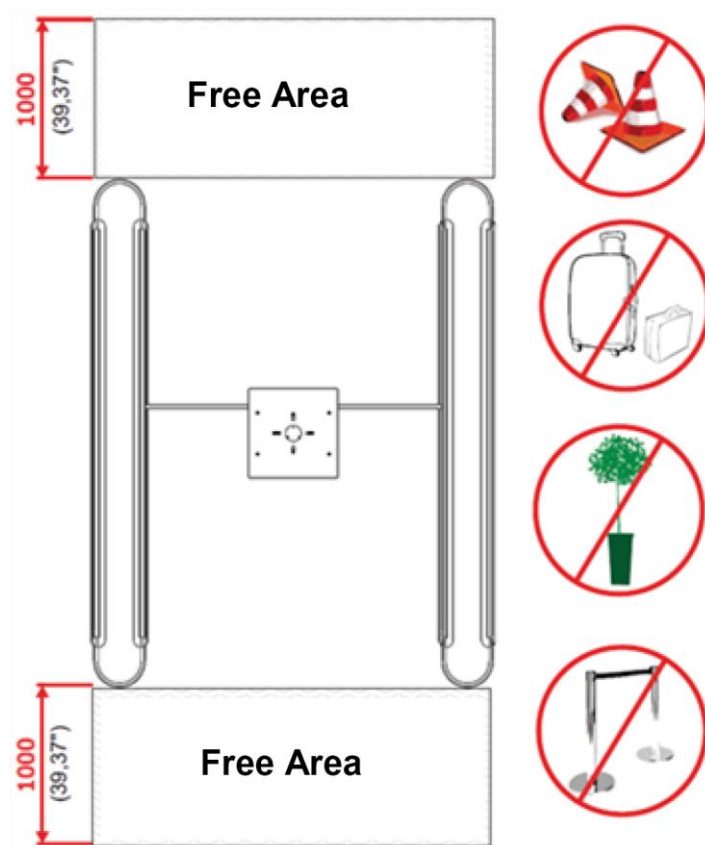
Pressing the OK button briefly will return the equipment to its normal state.

2.1.2 Position M1 - Sensor calibration validation

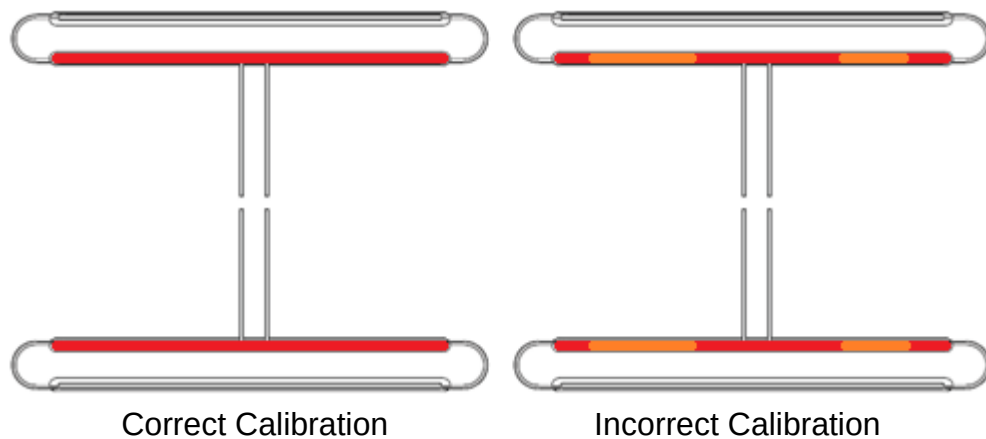
This function is important to verify the quality of the calibration being used.

By briefly pressing the OK button, all LEDs light up in red. Move away from the barrier and make sure there is nothing in the barrier area according to the specifications.

⚠ ATTENTION! This functionality has a timeout period. After about 1 minute, the equipment will return to its normal state. If you do not want to wait for the timeout, you can exit the function by returning to position M0 and briefly pressing the OK button.

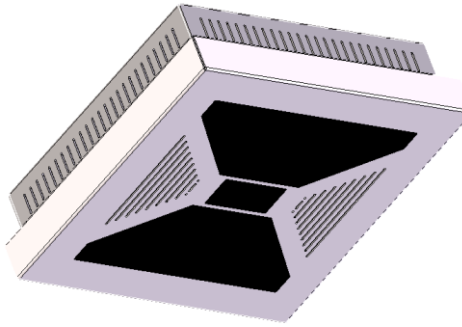


If the orange color is identified on the LEDs, it means that the calibration is not correct. An ideal calibration is identified by the static red color, meaning the orange color is not triggered in the calibration validation process.



In cases of incorrect calibration, perform the sensor calibration procedure.

2.1.3 Position M1 - Sensor Calibration



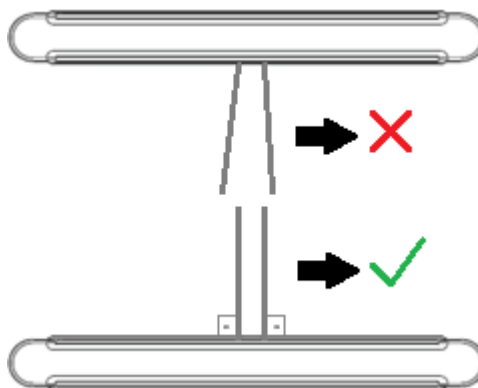
Sensor calibration is an important feature for the proper functioning of the equipment. This procedure is applied when there are changes in the installation environment and/or when an incorrect calibration is identified.

By pressing the OK button for three seconds, the equipment will start the calibration process. Remember to move away from the equipment to avoid affecting the process. The progress of the step can be visualized on the LEDs by the red color.

After completion, the equipment will return to its normal operation.

2.1.4 Position M2 - Door Calibration

The door calibration procedure is applied when we identify that the doors are not orthogonal to the barrier, meaning they do not form a 90° angle with the module.



This procedure is divided into two steps: checking the door extremes and centering the doors. Pressing OK briefly will start the process of checking the extremes. After completing the first step, adjust the doors to the orthogonal position to the module and press the OK button again. The progress of the two steps can be visualized on the LEDs by the purple color.

After completion, the equipment will return to its normal operation.

2.1.5 Position M3 and M4 - Operational status of entrance and exit

The operational states can be configured in three ways, they are:

Controlled - Only accepts passages with the presentation of a valid credential. It is represented by the color chosen in the procedure of position M5 and with a "<" in the corresponding pictogram.

Free - State that does not require a credential to access. It is represented by the color green.

Closed - State that prevents passage in the indicated direction. It is represented by the red color on the side LEDs and with an "X" in the corresponding pictogram.

Press the OK button in position M3 to change the operational state of the entrance. If we perform the same procedure in position M4, the operational state of the exit is changed.

Press the OK button until you reach the desired state.

⚠ ATTENTION! If the equipment is configured in unidirectional mode, changing states in the exit direction will have no effect.

2.1.6 Position M5 - Operation colors

It is possible to choose the color to be displayed in controlled mode. The color options are: yellow, blue, orange, turquoise, white, purple, pink, olive, and brown.

Press the OK button until you reach the desired color.

2.1.7 Position M6 - Protection levels

The equipment's safety levels aim to prevent collisions between door leaves and users. This control occurs through delimited regions, which act on the door activation control according to the rules of the selected level. The upper LEDs identify the selection according to the level.

Red (Level 0): No protection

Orange (Level 1): Only valid users

Yellow (Level 2): Any user

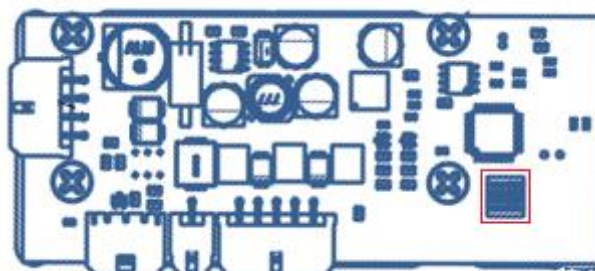
Green (Level 3): Any object



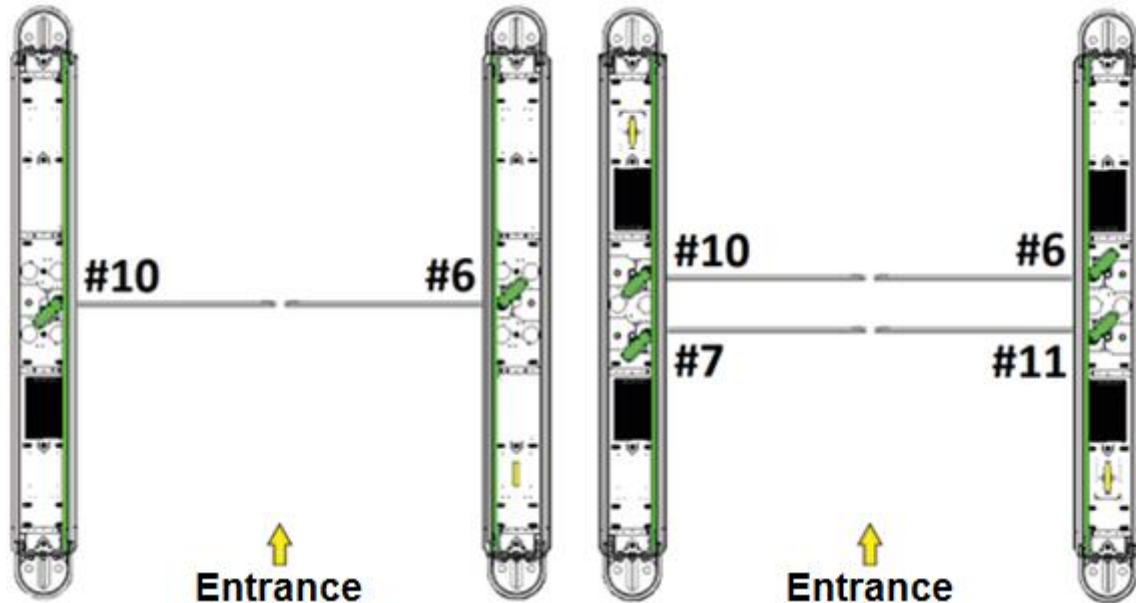
Press the OK button until you reach the desired security level.

2.2 Motor board addressing via DIP switches

On the motor board, we can configure the individual address of each door through the DIP Switch SW1.



It's possible to configure a total of eight addresses, but we only use four or two of them. The arrangement of addresses on the equipment is shown in the figure below:



1	2	3	4	Function
-	ON	ON	ON	Address 6
-	OFF	ON	ON	Address 10
-	ON	OFF	ON	Address 7
-	OFF	OFF	ON	Address 11

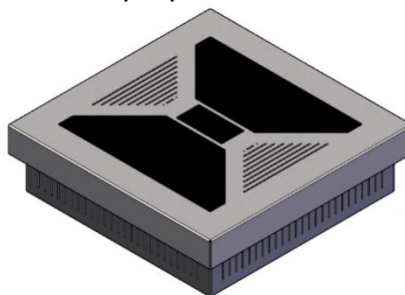
3. Preventive maintenance

Preventive maintenance should be carried out according to the list provided in the product manual. This list specifies the frequency of procedures and requires documentation for each process.

3.1 Electronic preventive maintenance

3.1.1 Clean sensor acrylics

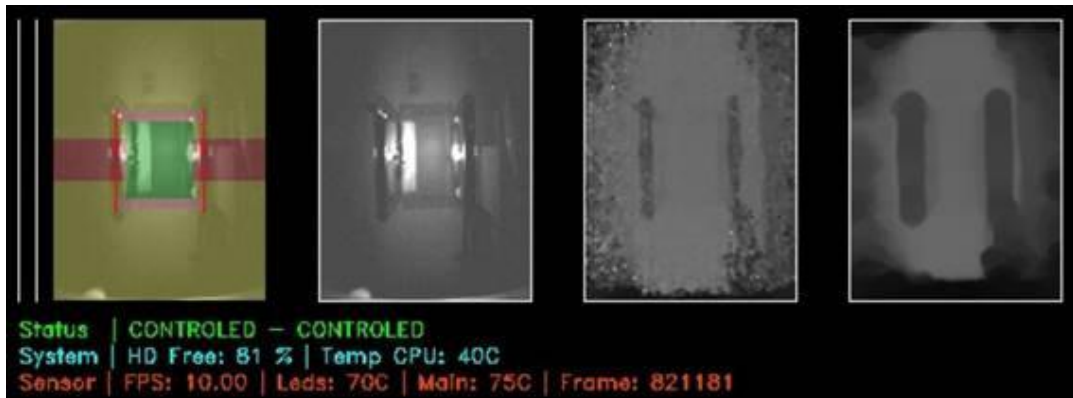
Remove the sensor cover and prepare a clean cloth with cleaning alcohol.



Clean both sides of the acrylics with the cloth.

3.1.2 Analyze the operation of the 3D sensor.

Access the files as per procedure 2.2. Open the "/out" folder, look for the latest generated files, and download them. Run the video files and observe if there are any abnormal behaviors during playback.

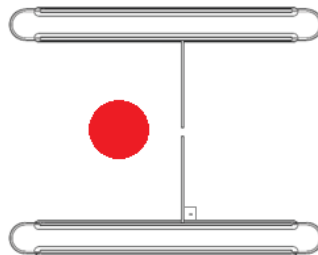


3.1.3 Analyze the sensor calibration.

Perform the procedure of the selector switch responsible for sensor calibration validation (M1). Check if the sensor is calibrated correctly; if not, execute its calibration.

3.1.4 Analyze the operation and calibration of the doors with buzzer.

Enter the equipment to force the doors to close completely with an attempt to pass. Ensure that the security level is set to level zero.



Check if the closed doors are orthogonal to the module; if not, perform door calibration. During door activation, inspect for any noises and mechanical wear of the mechanism. The buzzer should progressively sound louder according to the level of intrusion inside the equipment.

3.1.5 Check the operation of the LED strips and pictogram.

Perform a visual inspection along all LED strips to ensure that they are being activated and functioning correctly. Check on the front parts of the equipment if the pictogram is correctly activated with green for open passage and red for closed passage.

3.1.6 Check if the emergency alarm is sounding correctly.

Activate the emergency alarm using the client's peripheral and check if the buzzer is activated once and the LEDs flash in green. Conduct passages in this mode and ensure that there are no door activations and monitoring on the LEDs.

3.1.7 Check if the door brakes are working properly (optional item).

Enter the equipment to ensure the doors are fully closed by attempting a passage. Once the doors are completely closed, push them to simulate a forced passage attempt.

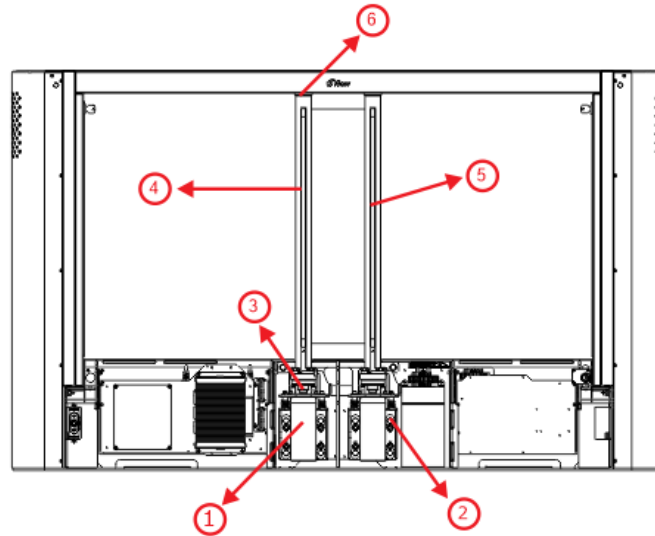
Verify if the brake is engaged, thus preventing passage.

 **ATTENTION!** Preventive maintenance must be followed according to the topics in this section and recorded in the available registration form (ANNEX 1).

3.2 Preventive mechanical maintenance

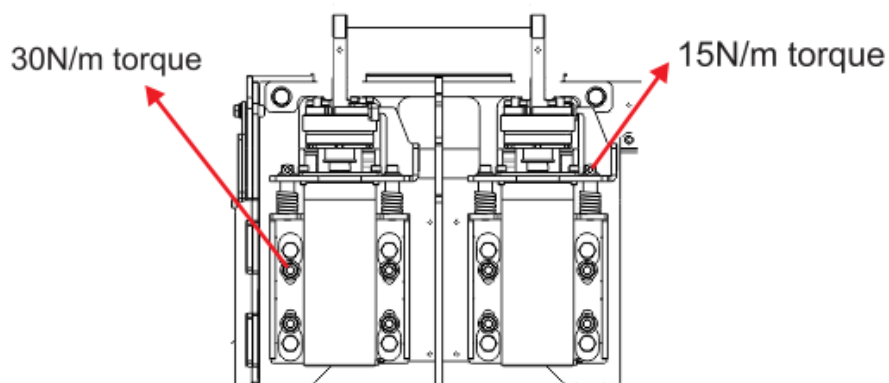
The equipment's door mechanism is divided into six parts. They are:

1. Motor
2. Mechanism base and shock absorbers
3. Brake system (Optional)
4. Door shaft
5. Door
6. Upper bearing



3.2.1 Base fasteners

- a) Check the tightness of the screws on the lower base of the mechanism using a torque wrench.

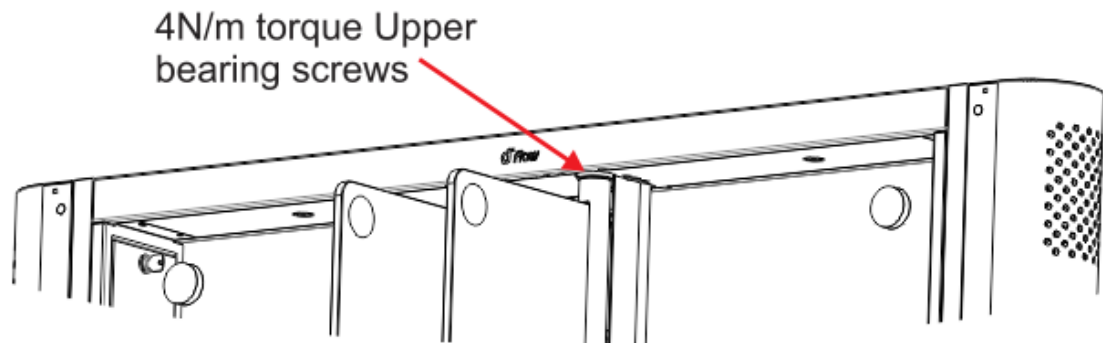


- b) Visually inspect the condition of the damping springs..

Quantity	Tools
1	Torque wrench
1	Allen wrench 4 and 5 mm
1	Socket wrench 13 mm

3.2.2 Base fasteners

- a) Check the tightening of the upper bearing screws using the torque wrench.

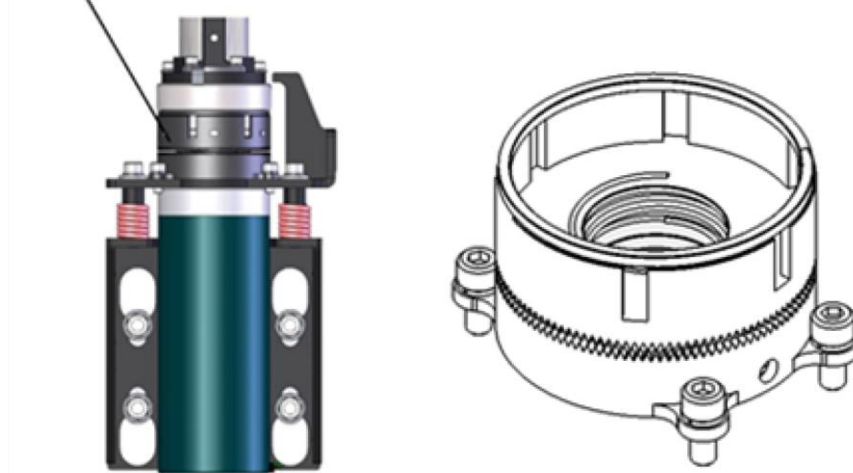


Quantity	Tools
1	Torque wrench
1	Crosshead screwdriver 1/4"

3.2.3 Brake

- a) Remove the accumulated dust on the brake teeth with a brush.

Magnetic Brake



- a) Check if the brake base is securely fixed and move the movable base up and down to check for any obstruction in the activation.

Quantity	Tools
1	Soft brush

3.2.4 Motor

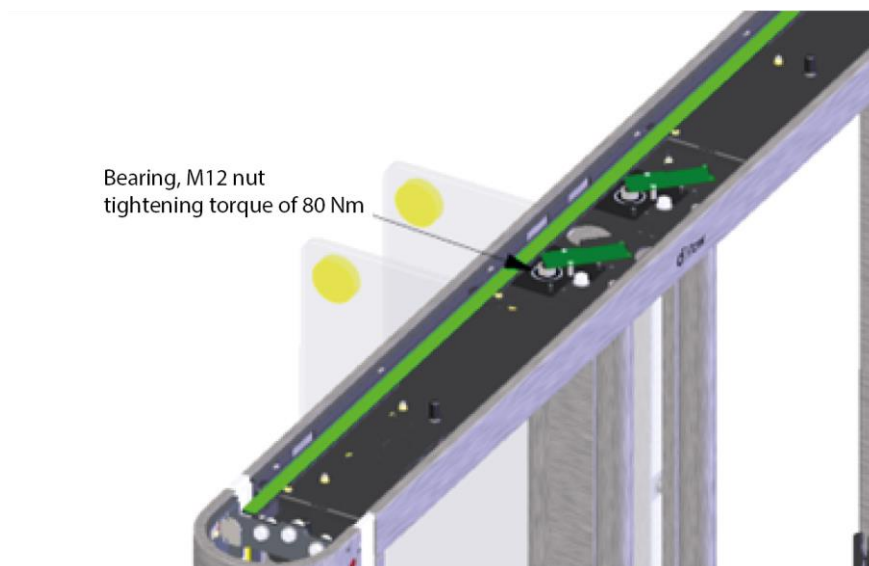
a) Hold the motor body and force a rotation to both sides to check its fixation.



3.2.5 Upper bearing

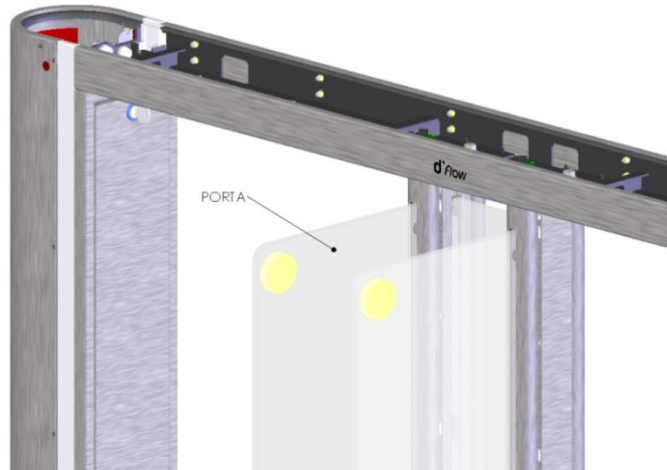
a) Clean the bearing using a clean brush and check the tightening of the M12 nut on the upper bearing housing.

Quantity	Tools
1	Torque wrench
1	brush ½"
1	Socket wrench 18 mm



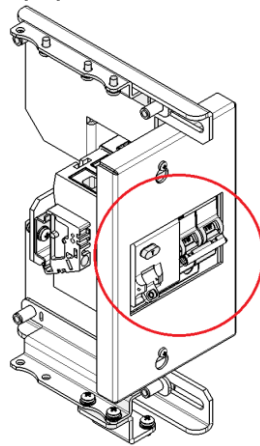
3.2.6 Door

- a) a) Hold the door at the upper and lower ends and move it to check its fixation on the rod.



4. Corrective Maintenance

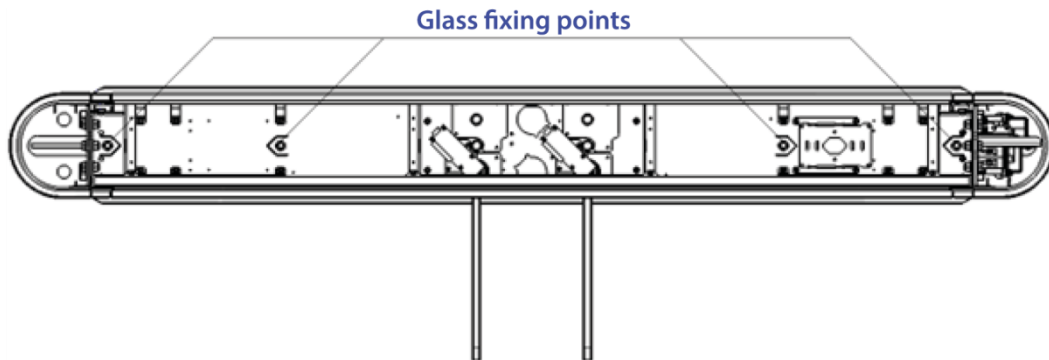
- ⚠ **ATTENTION!** Before any corrective procedure, access the circuit breakers panel and turn off the equipment.



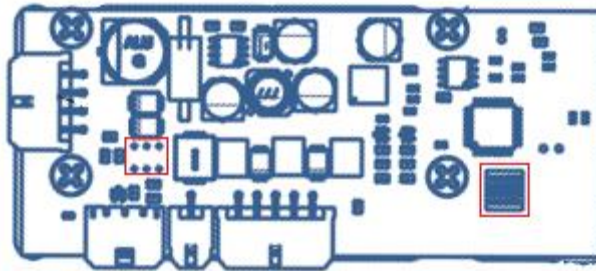
4.1 Electronic corrective maintenance

4.1.1 Motor board (019.01.943)

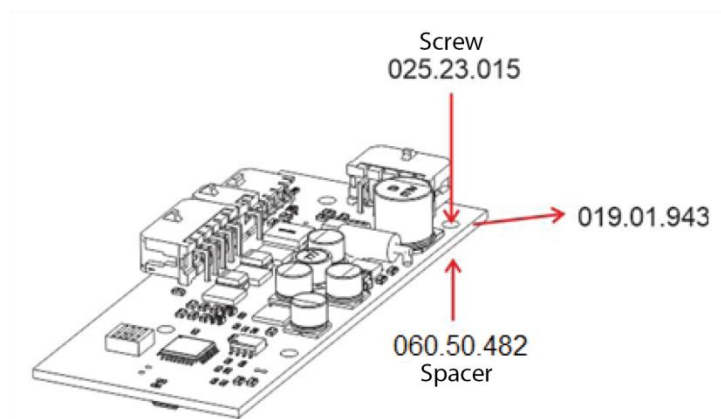
- a) Remove the four screws that secure the upper glass cover.



- b) Remove the glass and store it in a safe place to avoid scratches.
c) Identify and remove all connectors plugged into the board.
d) Copy the configuration of switch SW1 and jumpers J1 and J2 from the board will be removed and configure it on the replacement one.



- e) Unscrew and remove the board 019.01.943.

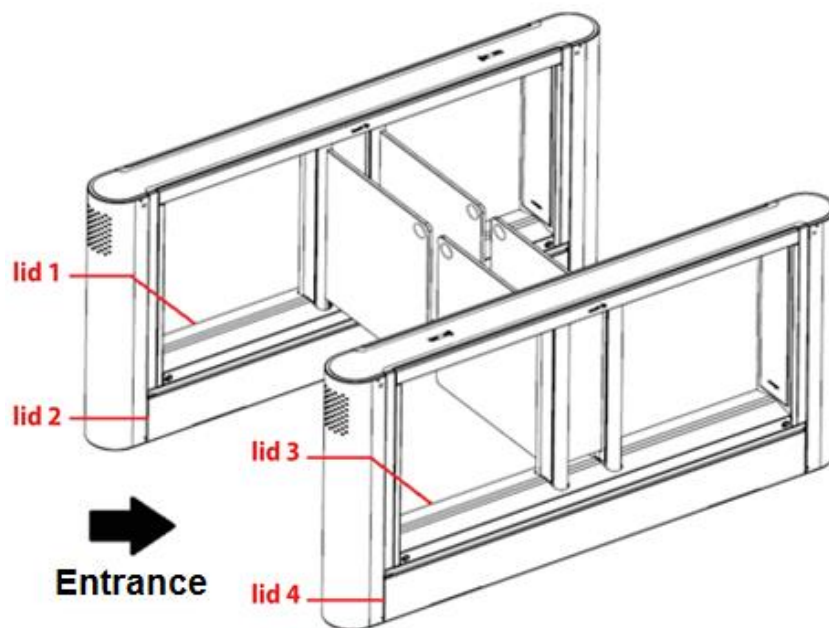


- f) Attach the new board 019.01.943 using the correct assembly sequence.
g) Reconnect the cables to their respective connectors.
h) Arrange the cables.
i) Reassemble the glass as it was removed.
j) Turn on the equipment.

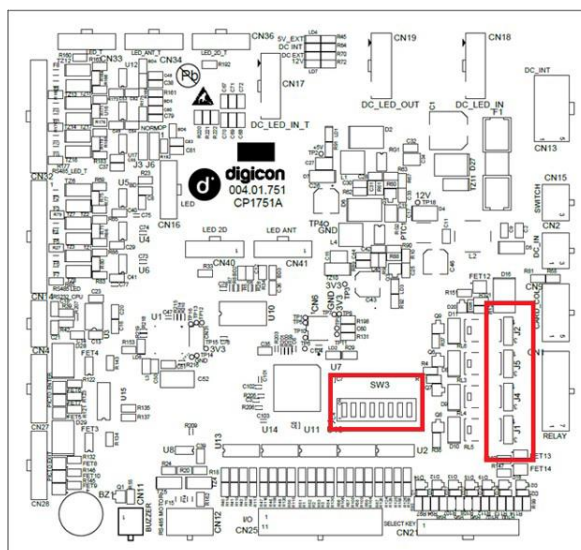
Code	Description
019.01.943	Texas encoder board
025.23.015	Crosshead screw M3x16
060.50.482	Spacer plate D3.0

4.1.2 Control board (019.01.941)

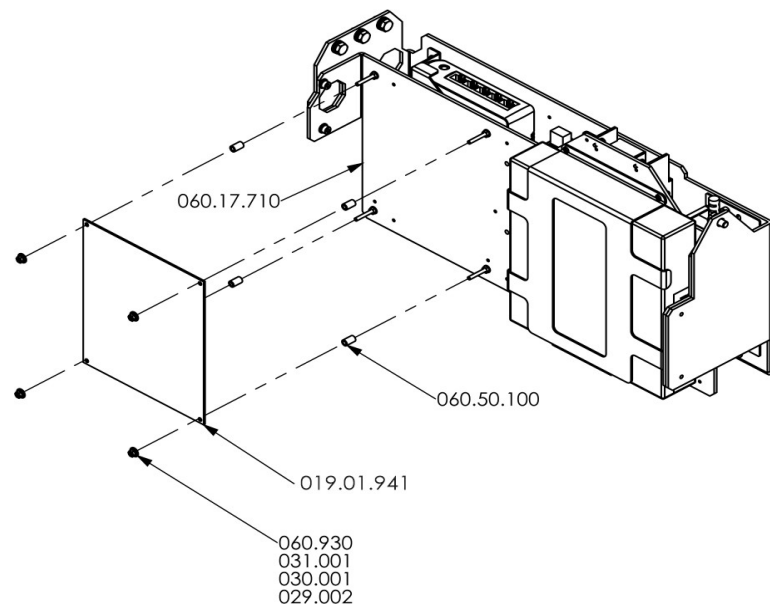
- a) Remove cover 3 and store it in a safe place to avoid scratches.



- b) Identify and remove all connectors plugged into the board.
c) Copy the configuration of switches SW1 and SW3 and jumpers J1, J2, J4, and J5 from the board being removed and configure it on the replacement board.



d) Unfasten and remove the board 019.01.941.

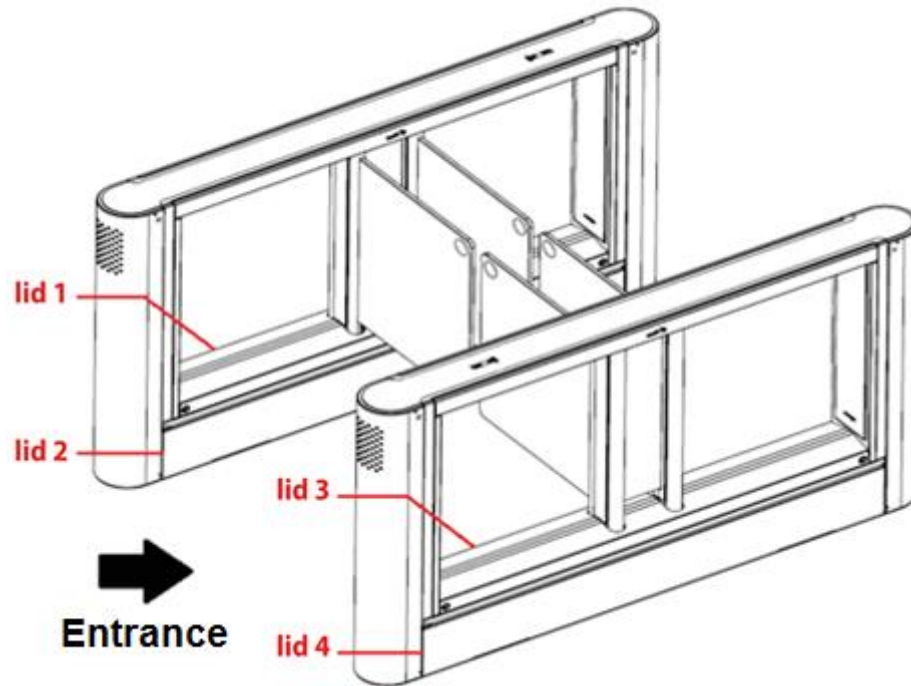


- e) Attach the new board 019.01.941 using the correct sequence of assembly items.
- f) Reconnect the cables to their respective connectors.
- g) Arrange the cables.
- h) Close the access cover.
- i) Turn on the equipment.

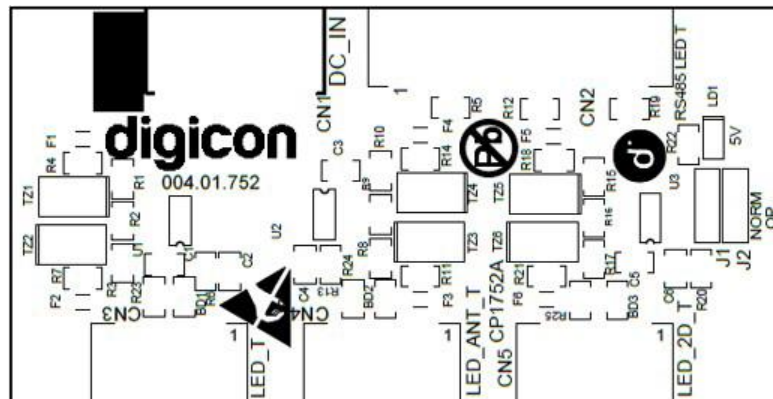
Code	Description
019.01.941	dFlow control board
029.002	Hex nut M3
030.001	Pressure washer D=3mm
031.001	Flat washer D=3mm
060.930	Solenoid pulley
060.50.100	Spacer 3.5x6x10

4.1.3 LEDs Communication board (019.01.942)

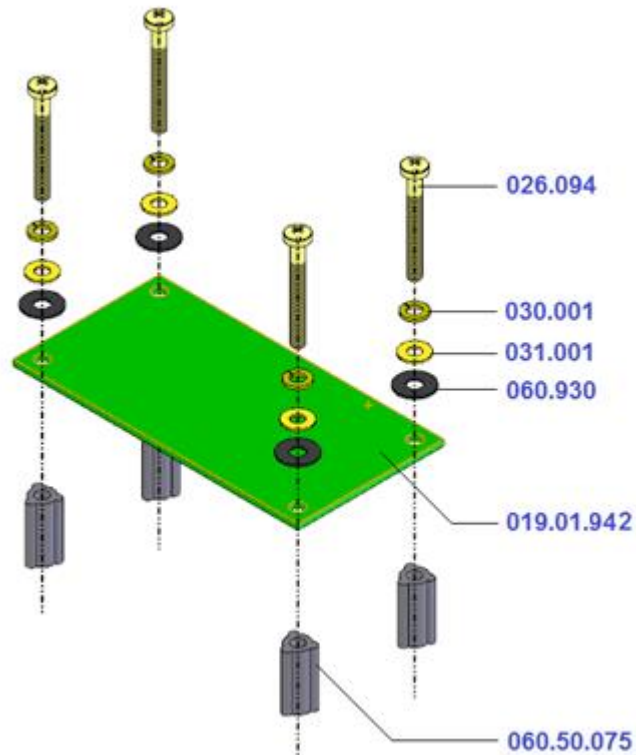
a) Remove the access covers 1 and 2 and store them in a safe place to prevent scratches.



a) Identify and remove all connectors plugged into the converter board.



b) Unscrew and remove the 019.01.942 board.

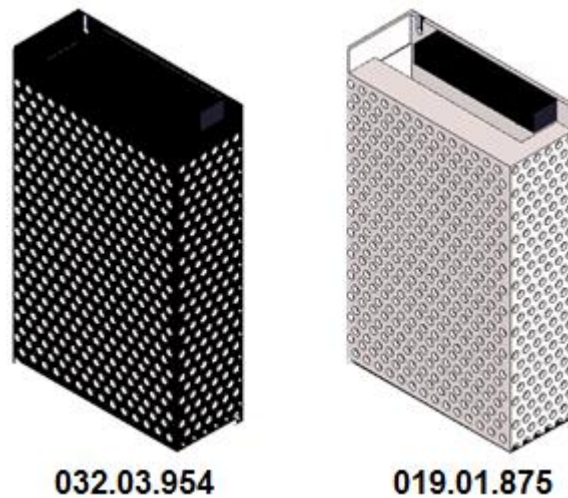


- c) Attach the new 019.01.942 board, ensuring to follow the correct sequence of assembly items.
- d) Reconnect the cables to their respective connectors.
- e) Close the access covers.
- f) Turn on the equipment.

Code	Description
019.01.942	LED communication board
026.094	Cross recessed screw M3x25
030.001	Pressure washer D=3mm
031.001	Flat washer D=3mm
060.930	Solenoid pulley
060.50.075	Display-T CNC spacer

4.1.4 24V power supplies (019.01.875 e 032.03.954)

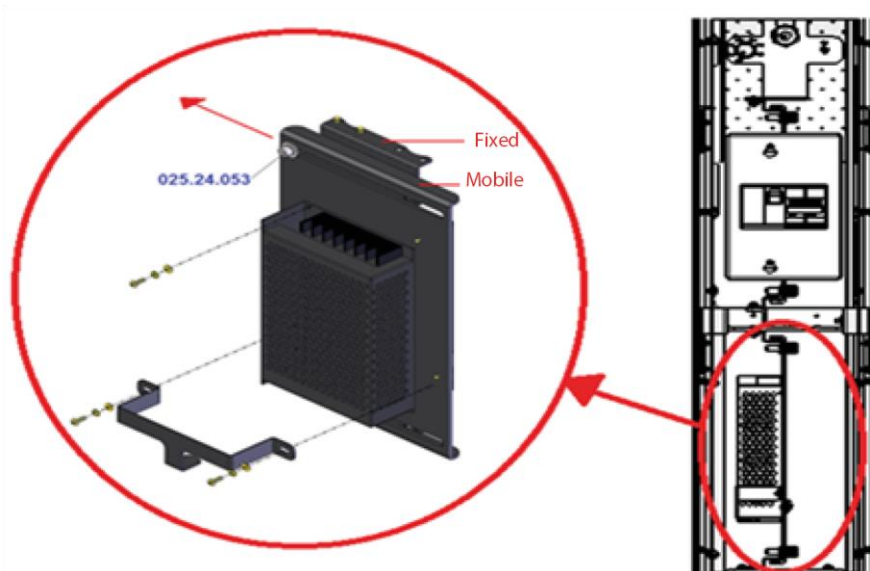
The dFlow equipment can be configured with two different 24V power supplies, as shown in the image below:



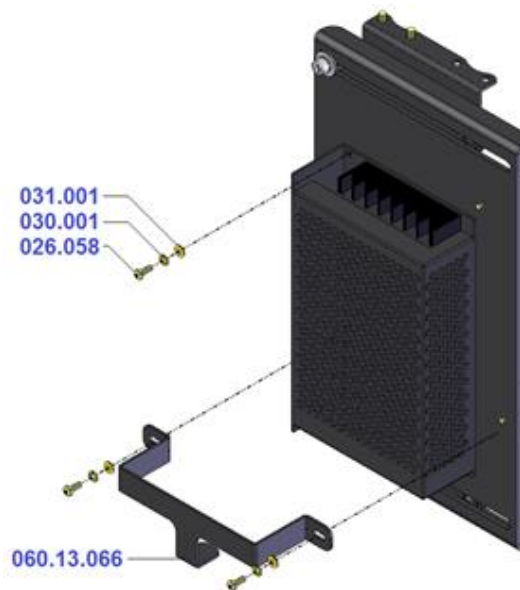
The fixing system for both power supplies does not change, so the maintenance procedures are the same.

4.1.4.1 R Module

- Access the door corresponding to the circuit breakers.
- Loosen the two screws 025.24.053 and move the power supply rail to the outer position.



- Measure the input of the power supply with the aid of the multimeter to check if the AC power has been turned off.
- Remove the cables from the connectors of the power supply.
- Unscrew and remove the power supply.

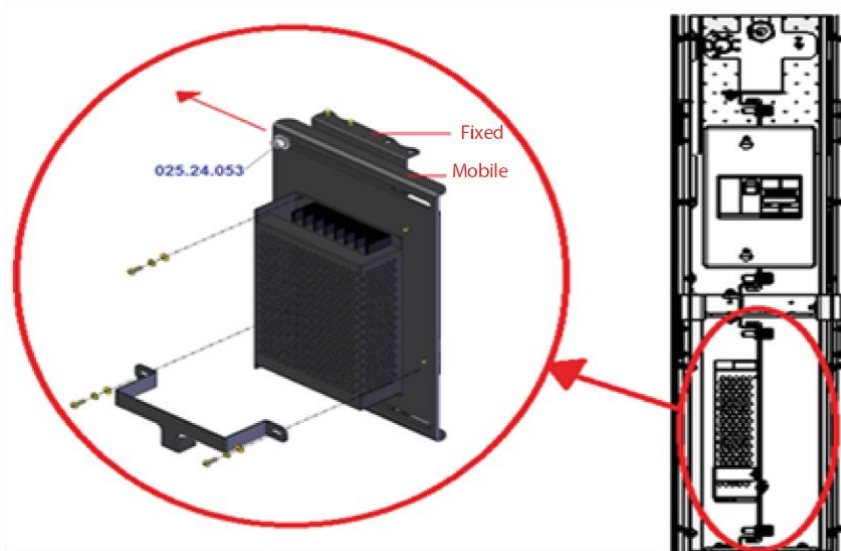


- f) Attach the new power supply using the correct sequence of mounting items.
- g) Reconnect the cables respecting the same order as removal.
- h) Move the power supply rail to its original position and tighten the two screws 025.24.053.
- i) Turn on the equipment.

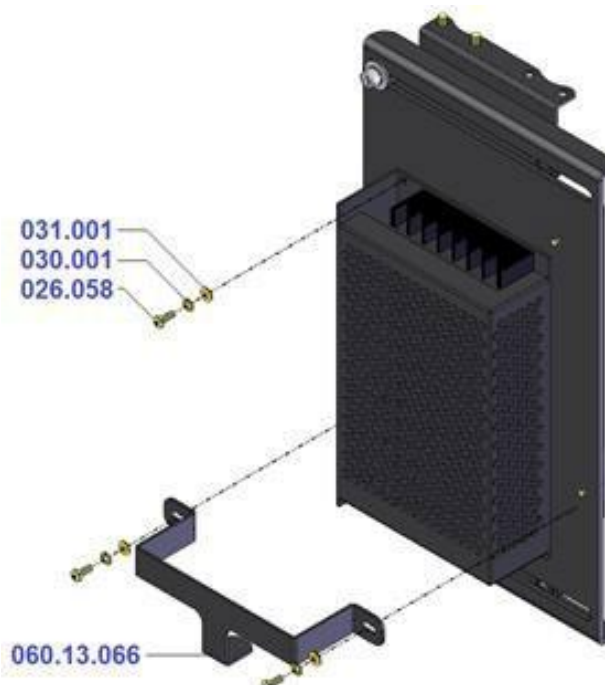
Code	Description
032.03.954 or 019.01.875	Power supply 24V/5A
026.058	Crosshead screw M3x8
030.001	Pressure washer D=3mm
031.001	Flat washer D=3mm
060.13.066	Support for fixing power supplies

4.1.4.2 T Module

- a) Access the side door on the entrance side.
- b) Loosen the two screws 025.24.053 and move the power rail to the outer position.



- c) Measure the input of the power supply with the help of a multimeter to verify if the AC power has been disconnected.
- d) Disconnect the cables from the connectors of the power supply.
- e) Loosen the screws and remove the power supply.



- f) Secure the new power supply using the correct sequence of assembly items.
- g) Reconnect the cables respecting the same removal order.
- h) Move the power supply rail to the original position and tighten the two screws 025.24.053.
- i) Turn on the equipment.

Code	Description
032.03.954 or 019.01.875	Power Supply 24V/5A
026.058	M3x8 cross-slotted screw
030.001	D=3mm Pressure Washer
031.001	D=3mm Flat Washer
060.13.066	Support for fixing power supplies

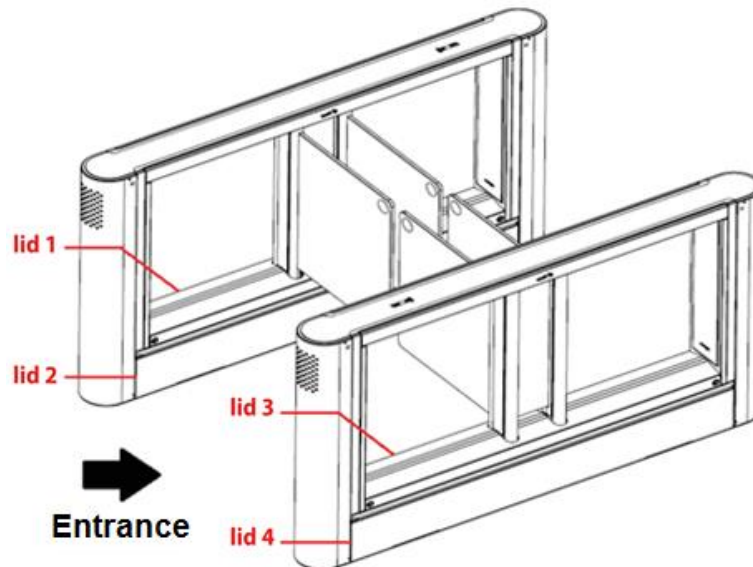
4.1.5 5V Power Supply (032.03.732 032.03.942)

The dFlow equipment can be configured with two different 5V power supplies, so a visual inspection is necessary to identify which procedure to follow.

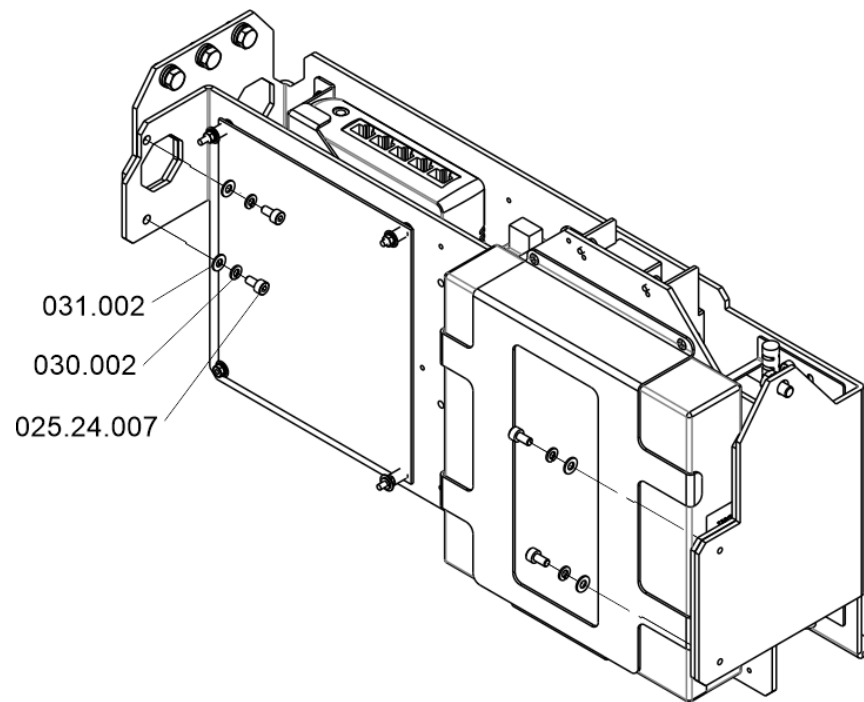
4.1.5.1 5V Power Supply (032.03.732)



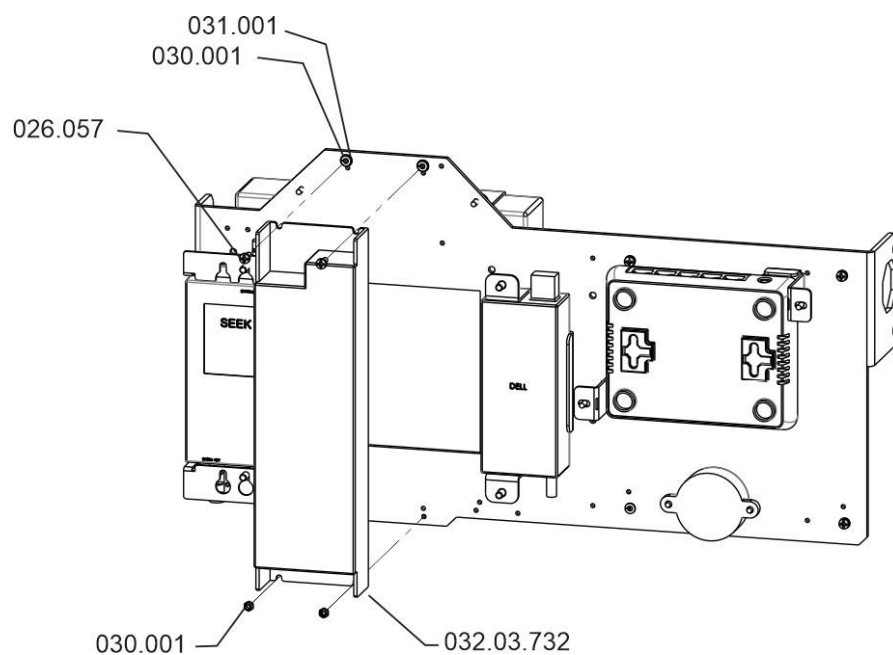
a) Remove the access cover 3 and set it aside in a safe place to prevent scratches.

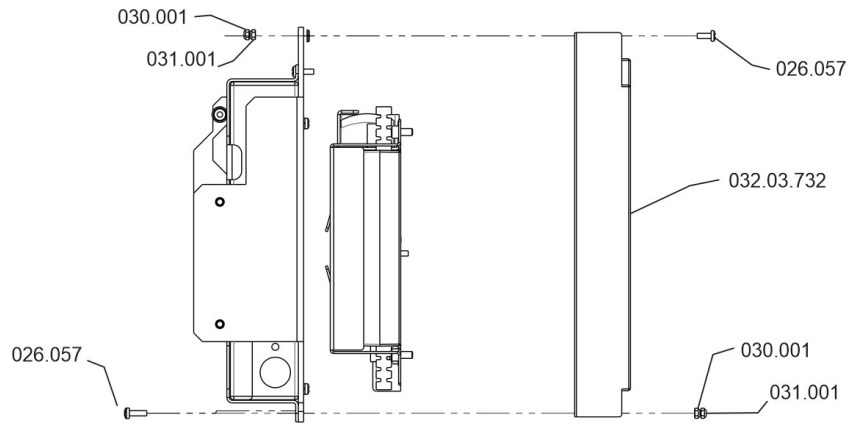


- a) Identify and remove all connectors that are plugged into the control board 019.01.941.
- b) Identify and remove all connectors that are plugged into the CPU 080.04.004.
- c) Remove the front panel 060.17.710.



- d) Measure the input of the power supply with the help of the multimeter to verify if the AC power has been disconnected.
- e) Remove the cables from the power supply connectors.
- f) Unscrew and remove the power supply 032.03.732.

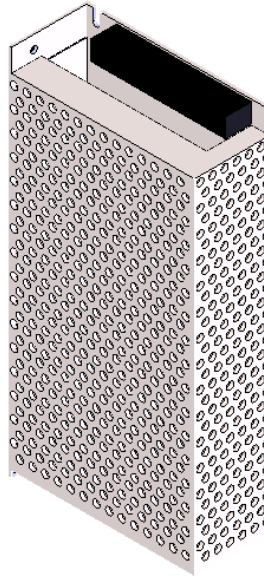




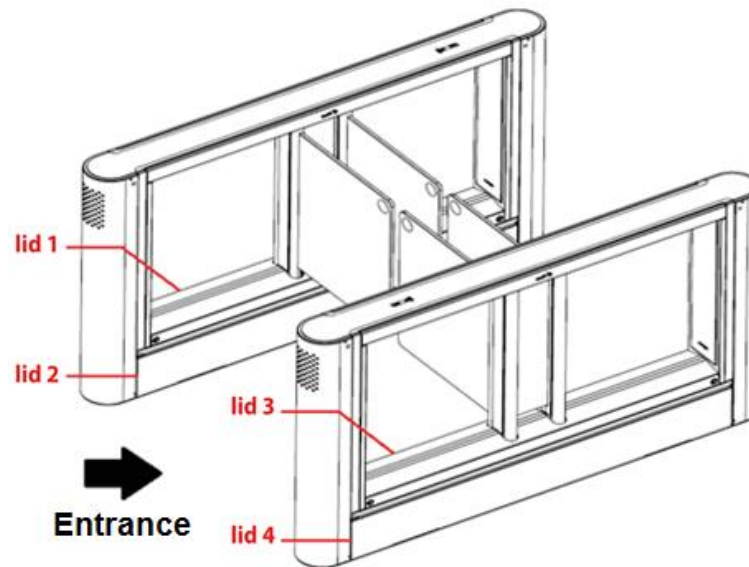
- g) Secure the new power supply 032.03.732 using the correct sequence of assembly items.
- h) Reconnect the cables of the power supply, respecting the same order as removal.
- i) Assemble the front panel 060.17.710 using the correct sequence of assembly items.
- j) Reconnect the cables from the control board 019.01.941 to their respective connectors.
- k) Reconnect the cables from the CPU 080.04.004 to their respective connectors.
- l) Arrange the cables.
- m) Close the access cover.
- n) Turn on the equipment.

Code	Description
025.24.007	Allen screw M4x8
026.057	Crosshead screw M3x6
030.001	Pressure washer D=3mm
030.002	Pressure washer D=4mm
031.001	Flat washer D=3mm
031.002	Flat washer D=4mm
032.03.732	Switched-mode power supply full range 5V
060.17.710	Main dFlow front panel

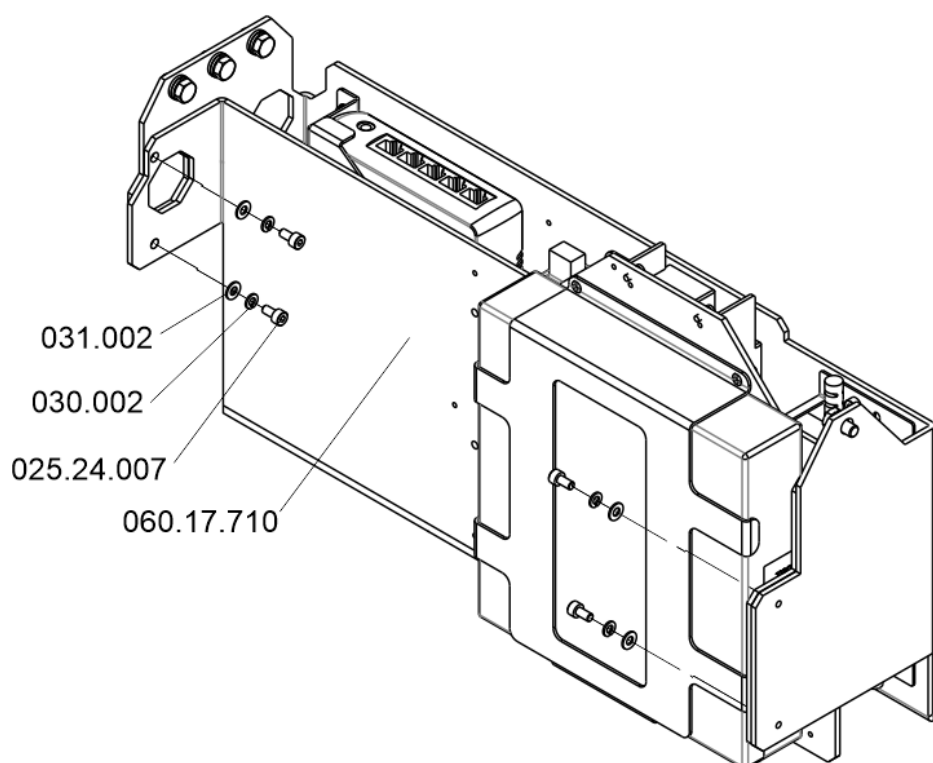
4.1.5.2 5V Power Supply (032.03.942)



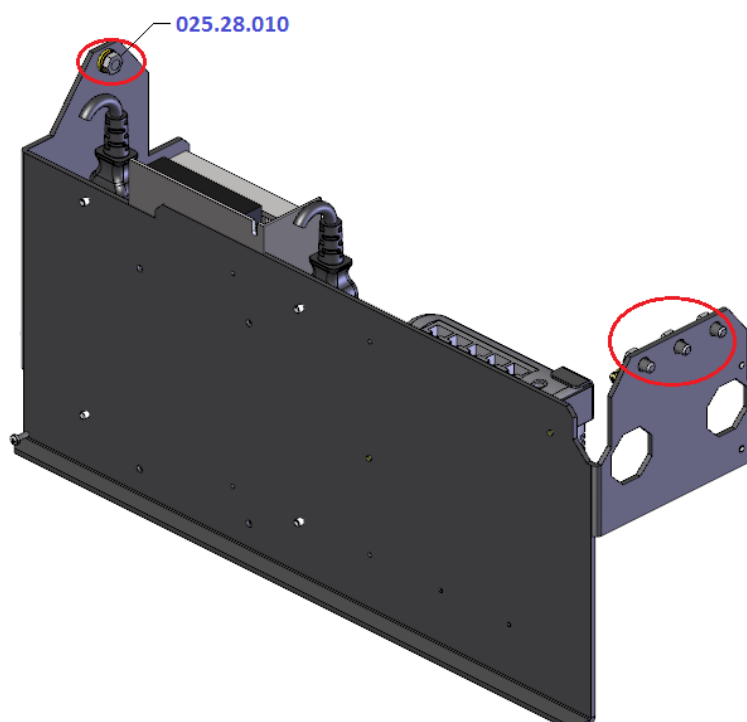
a) Remove access cover 3 and 4 and set aside in a safe place to avoid scratches.



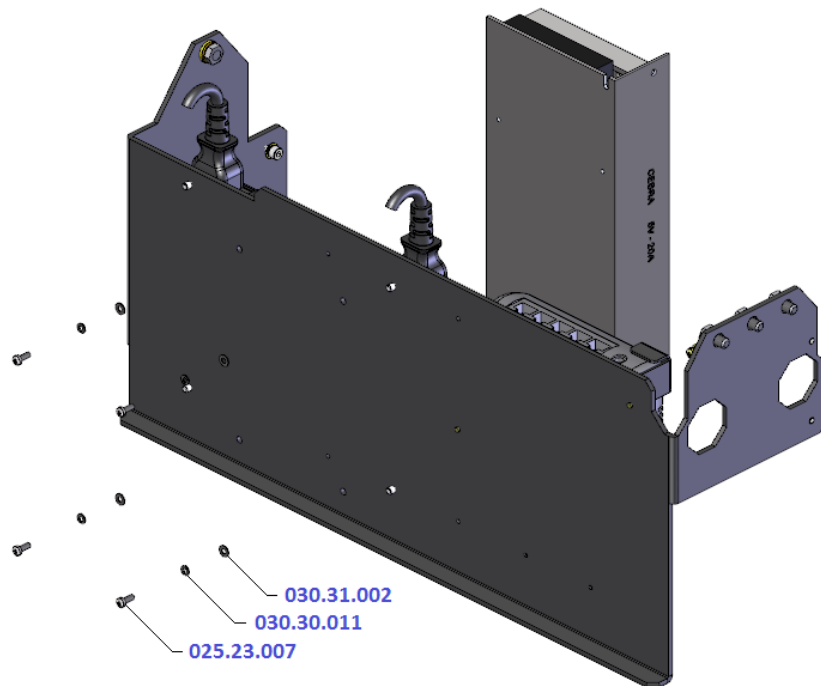
- a) Identify and remove all connectors plugged into control board 019.01.941.
- b) Identify and remove all connectors plugged into CPU 080.04.004.
- c) Remove the front panel 060.17.710.



- d) Measure the input of the power supply with the help of a multimeter to verify if the AC power has been disconnected.
- e) Remove the cables from the connectors of the power supply.
- f) Remove the rear panel 060.17.711.



- g) Unscrew and remove the power supply 032.03.942.



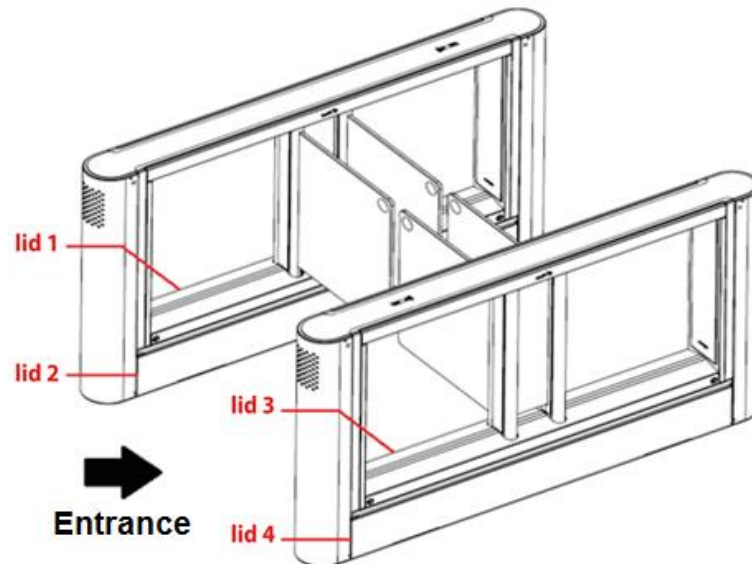
- h) Secure the new power supply 032.03.942 using the correct sequence of assembly items.
- i) Reconnect the cables of the power supply respecting the same removal order.
- j) Assemble the front and back panels (060.17.710 060.17.711) using the correct sequence of mounting items.
- k) Reconnect the cables from the control board 019.01.941 to their respective connectors.
- l) Reconnect the cables from the CPU 080.04.004 to their respective connectors.
- m) Arrange the cables.
- n) Close the access cover.
- o) Turn on the equipment.

Code	Description
025.23.007	Cross-head screw M3x8
025.24.007	Allen screw M4x8
025.28.010	Hex bolt M6x12
030.002	Pressure washer D=4mm
030.30.011	Pressure washer D=3mm
030.31.002	Flat washer D=3mm
031.002	Flat washer D=4mm
032.03.492	Switching power supply full range 5V
060.17.710	Main dFlow front panel

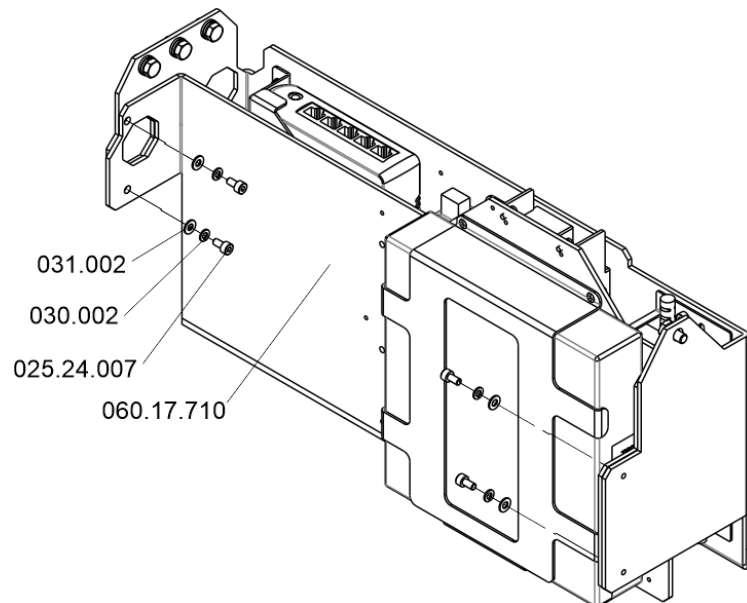
4.1.6 12V Power Supply (037.45.781 019.02.008)

4.1.6.1 12V Power Supply (037.45.781)

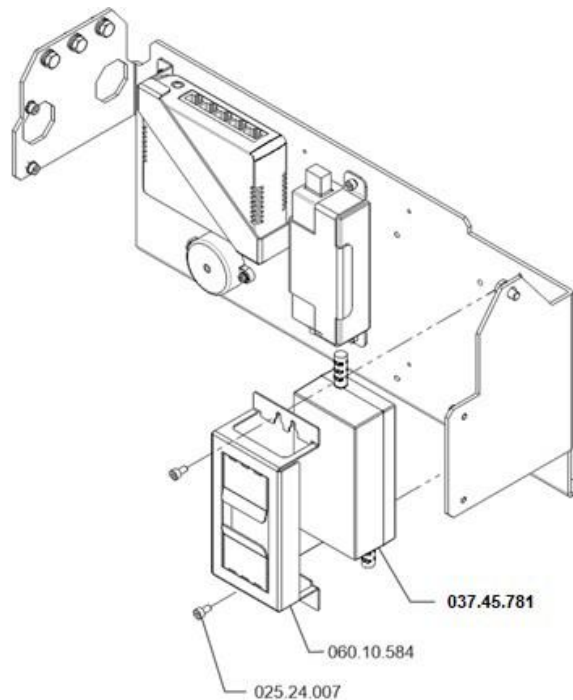
- a) Remove access cover 3 and 4 and set aside in a safe place to prevent scratches.



- a) Identify and remove all connectors plugged into the control board 019.01.941.
b) Identify and remove all connectors plugged into the CPU 080.04.004.
c) Remove the front panel 060.17.710 using the four screws 025.24.007.



- d) Remove the AC connector from the power supply.
- e) Loosen the two screws 025.24.007 and remove the power supply 037.45.781.

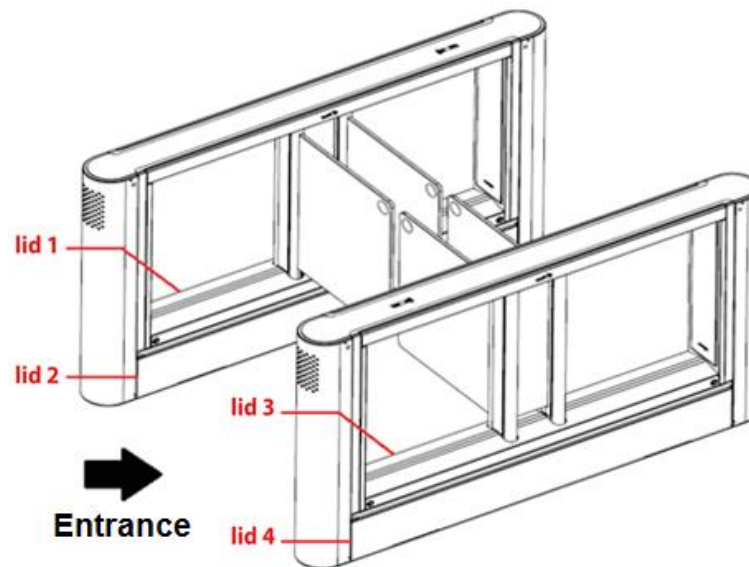


- f) Secure the new power supply 037.45.781 using the correct assembly sequence.
- g) Reconnect the AC cable to the power supply.
- h) Reconnect the DC output.
- i) Mount the front panel 060.17.710 using the correct assembly sequence.
- j) Reconnect the cables from the control board 019.01.941 to their respective connectors.
- k) Reconnect the CPU cables to their respective connectors.
- l) Arrange the cables.
- m) Close the access cover.
- n) Turn on the equipment.

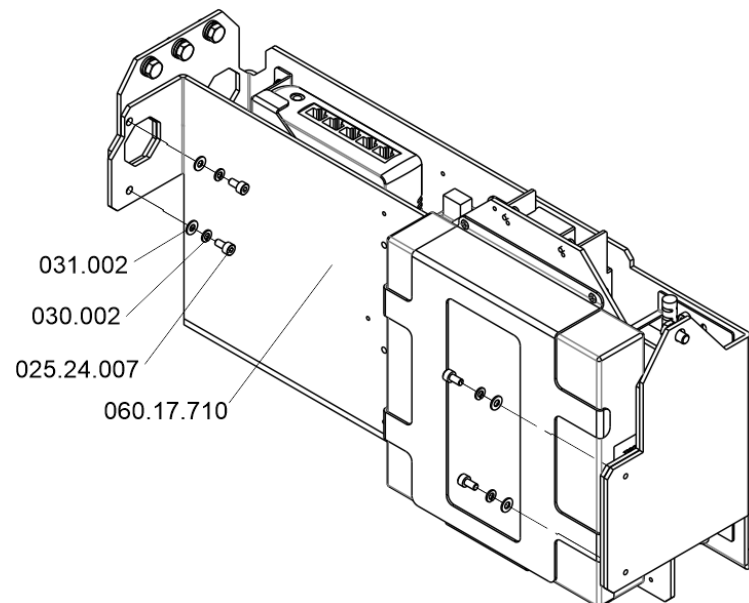
Code	Description
025.24.007	Allen screw M4x8
030.002	Pressure washer D=4mm
031.002	Flat washer D=4mm
037.45.781	12V power supply
060.10.584	Power supply bracket
060.17.710	Main dFlow front panel

4.1.6.2 12V power supply (019.02.008)

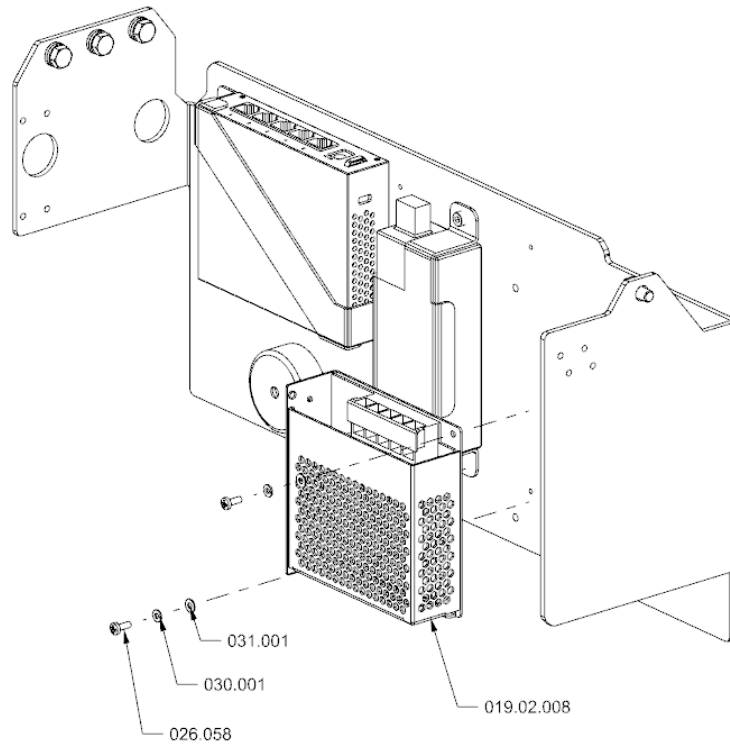
Remove access cover 3 and 4 and set aside in a safe place to prevent scratches.



- Identify and remove all connectors plugged into the control board 019.01.941.
- Identify and remove all connectors plugged into the CPU 080.04.004.
- Remove the front panel 060.17.710 using the four screws 025.24.007.



- Remove the AC connector from the power supply.
- Loosen the two screws 026.058 and remove the power supply 019.02.008.

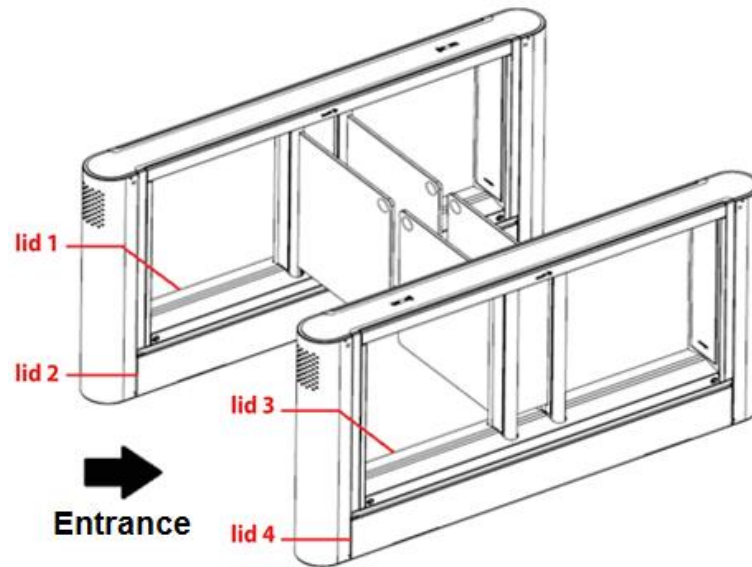


- f) Secure the new power supply 019.02.008 using the correct assembly sequence.
- g) Reconnect the AC cable to the power supply.
- h) Reconnect the DC output.
- i) Mount the front panel 060.17.710 using the correct assembly sequence.
- j) Reconnect the cables from the control board 019.01.941 to their respective connectors.
- k) Reconnect the CPU cables to their respective connectors.
- l) Arrange the cables.
- m) Close the access cover.
- n) Turn on the equipment.

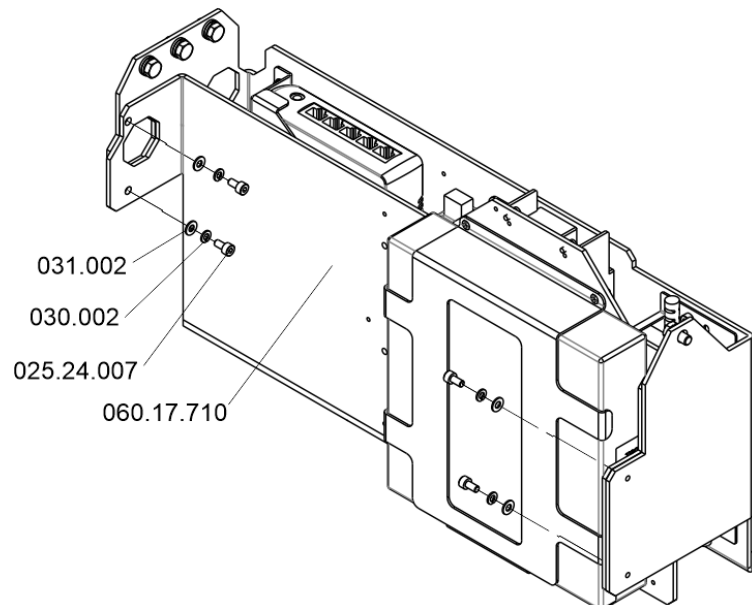
Code	Description
025.24.007	Allen screw M4x8
026.058	Crosshead screw M3x8
030.001	Pressure washer D=3mm
030.002	Pressure washer D=4mm
031.001	Flat washer D=3mm
031.002	Flat washer D=4mm
019.02.008	12V power supply
060.17.710	Main dFlow front panel

4.1.7 CPU power supply (037.45.855)

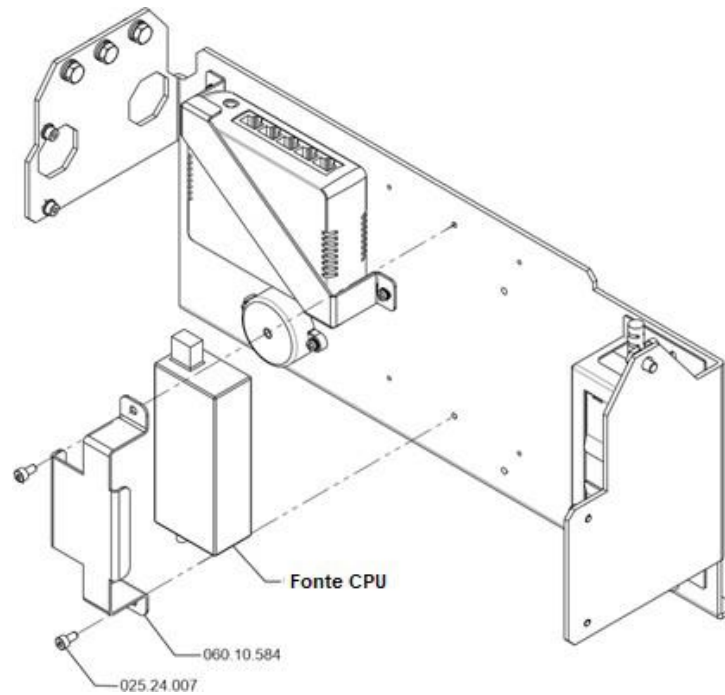
- a) Remove the access cover 3 and 4 and store it in a safe place to avoid scratches.



- a) Identify and remove all connectors plugged into the control board 019.01.941.
b) Identify and remove all connectors plugged into the CPU 080.04.004.
c) Remove the front panel 060.17.710 using the four screws 025.24.007.



- d) Disconnect the AC connector from the power supply.
e) Unfasten and remove the power supply.

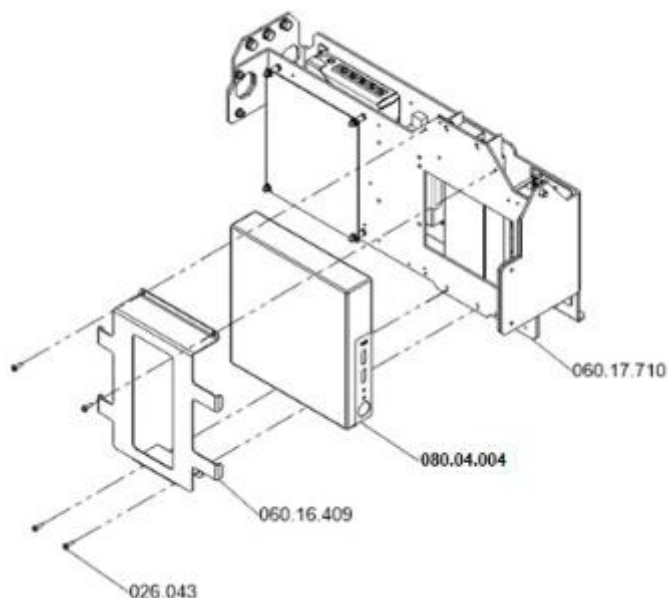


- f) Secure the new power supply following the correct assembly sequence.
- g) Reconnect the AC cable to the power supply.
- h) Assemble the front panel 060.17.710 using the correct assembly sequence.
- i) Reconnect the cables from the control board 019.01.941 to their respective connectors.
- j) Reconnect the CPU cables to their respective connectors.
- k) Arrange the cables.
- l) Close the access cover.
- m) Turn on the equipment.

Code	Description
025.24.007	Allen screw M4x8
030.002	Pressure washer D=4mm
031.002	Flat washer D=4mm
060.16.411	Power supply bracket
060.17.710	Main dFlow front panel
037.45.855	OptiPlex 3070 CPU

4.1.8 CPU (080.04.004)

- a) Remove the access cover 3 and store it in a safe place to avoid scratches.
- b) Identify and remove all connectors plugged into the CPU.
- c) Unfasten and remove the CPU.

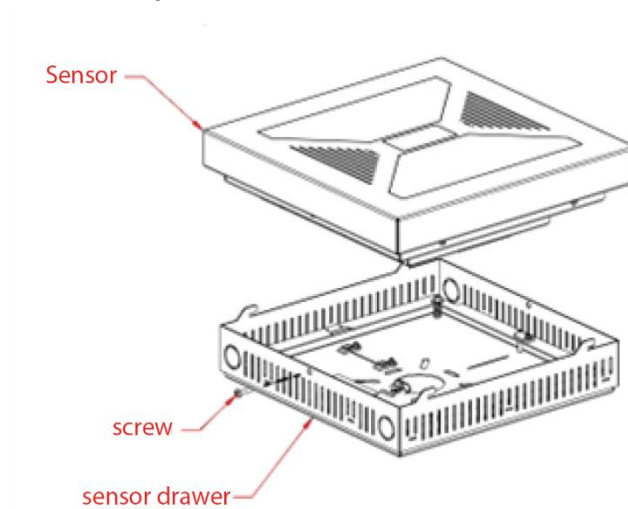


- d) Secure the new CPU using the correct assembly sequence.
- e) Reconnect the cables respecting the identifications placed.
- f) Arrange the cables.
- g) Close the access cover.
- h) Turn on the equipment.

Code	Description
026.043	Crosshead screw M3x10
029.002	Hex nut M3
030.001	Pressure washer D=3mm
031.001	Flat washer D=3mm
060.16.409	Dell CPU bracket
080.04.004	OptiPlex 3070 CPU

4.1.9 Sensor (080.04.575)

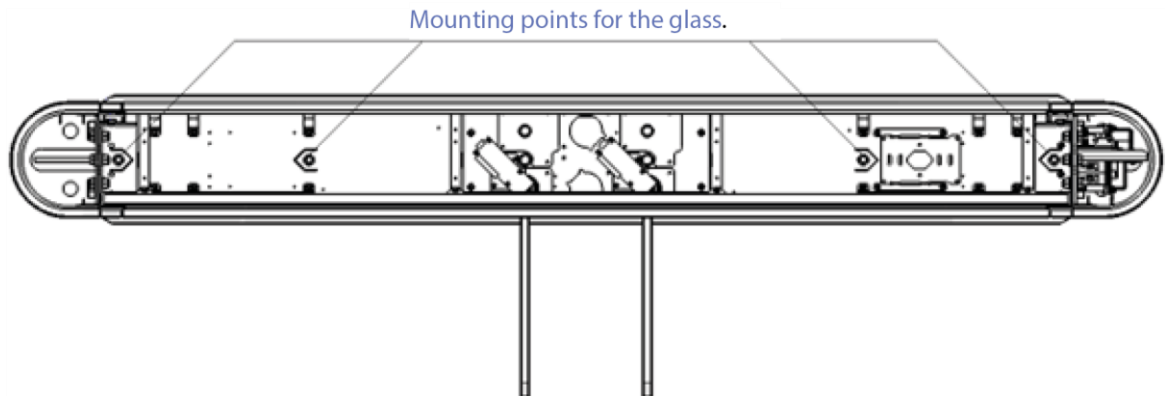
- a) Remove the sensor screw.
- b) Slide the sensor sideways and remove the cables.



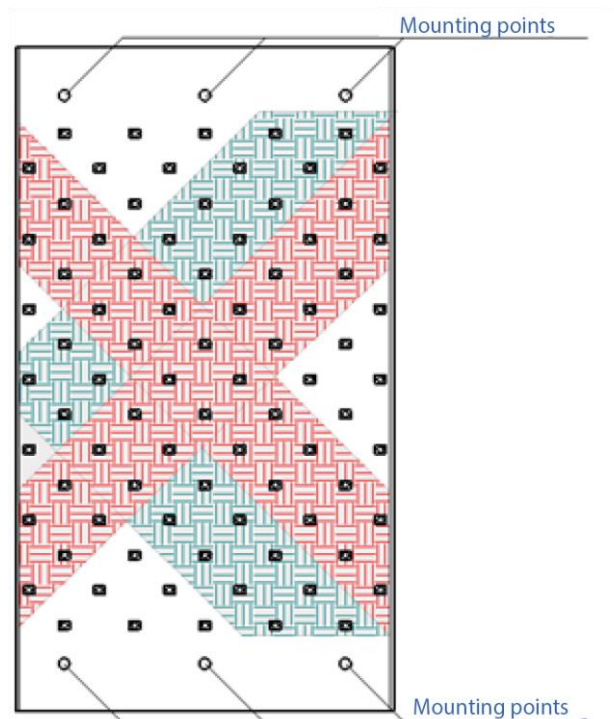
- c) Remove the sensor drawer.
- d) Assemble the new sensor following the reverse order.
- e) Reconnect the AC cable and the network cable to the sensor.
- f) Reassemble the sensor.
- g) Turn on the equipment.

4.1.10 Pictogram (019.01.837)

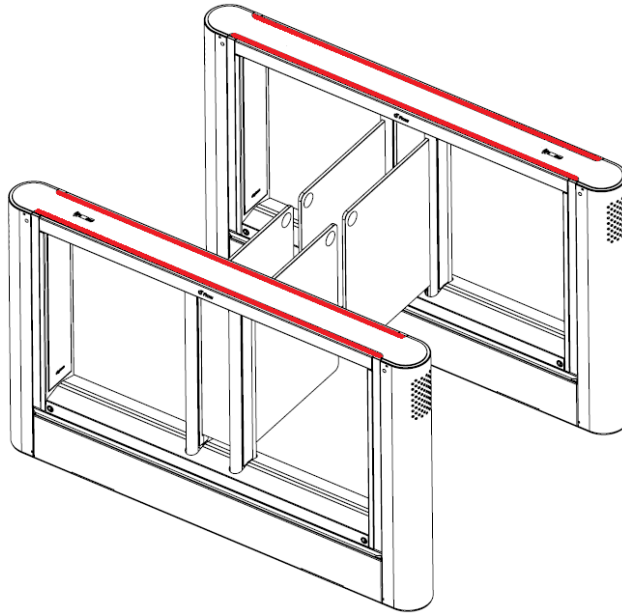
- a) Remove the four screws securing the upper glass cover.



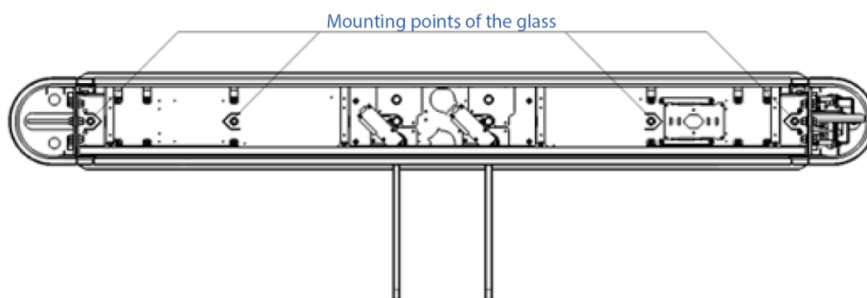
- b) Remove the glass and set it aside in a safe place to avoid scratches.
c) Remove the connector and the board 019.01.837.
d) Install the new board 019.01.837 and reconnect the connector.
e) Remount the glass as it was removed.
f) Turn on the equipment.



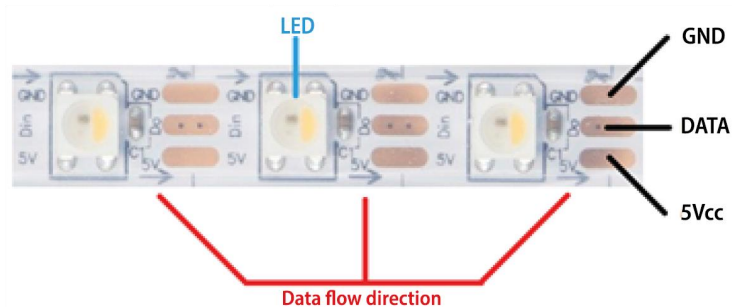
4.1.11 Upper LED Strip (037.45.763)



- a) Remove the four screws securing the upper glass cover.

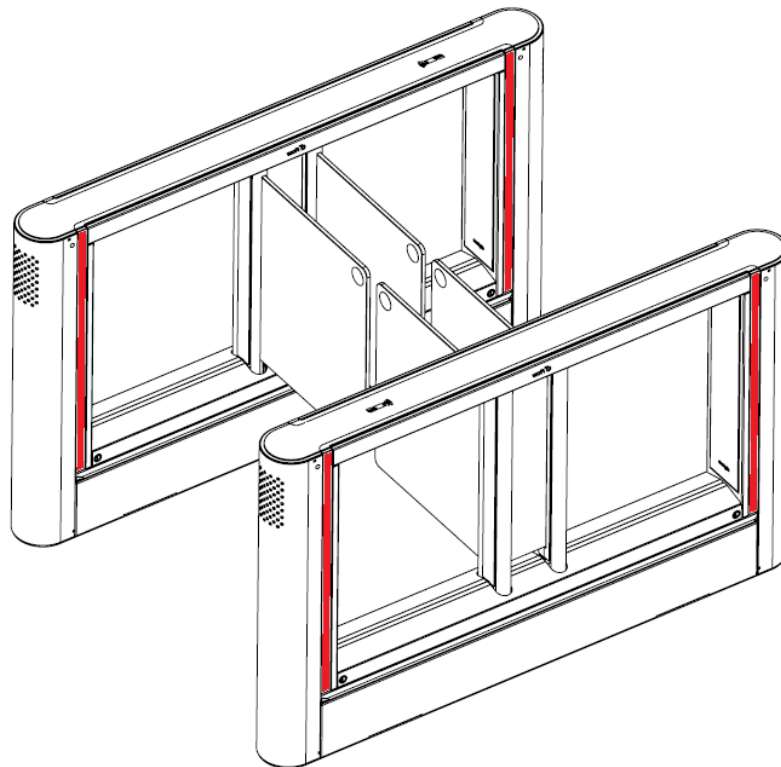


- b) Remove the glass and set it aside in a safe place to prevent scratches.
c) Remove the connectors from both ends of the LED strip.
d) Check the direction of the data flowing through the strip.

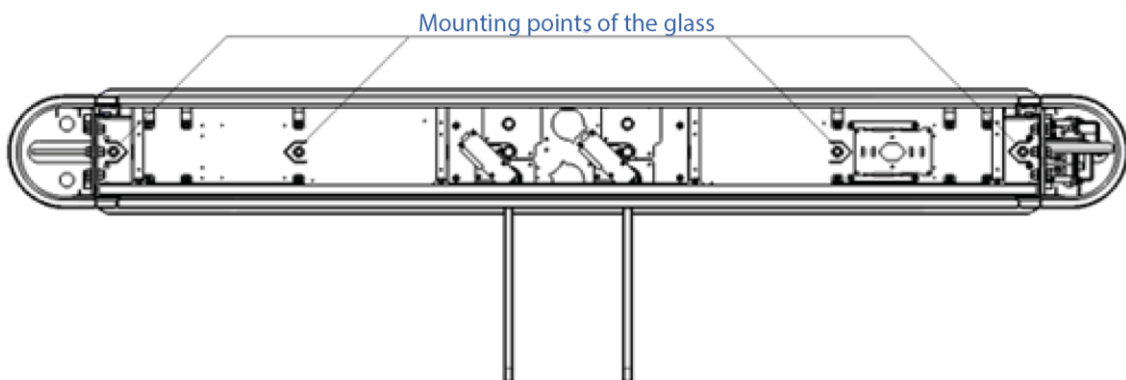


- e) Peel off the upper LED strip from the equipment and place the new strip respecting the same data flow direction as the old one.
f) Reconnect the ends of the strip, making sure the power polarity is correct.
g) Reassemble the glass as it was removed.
h) Turn on the equipment.

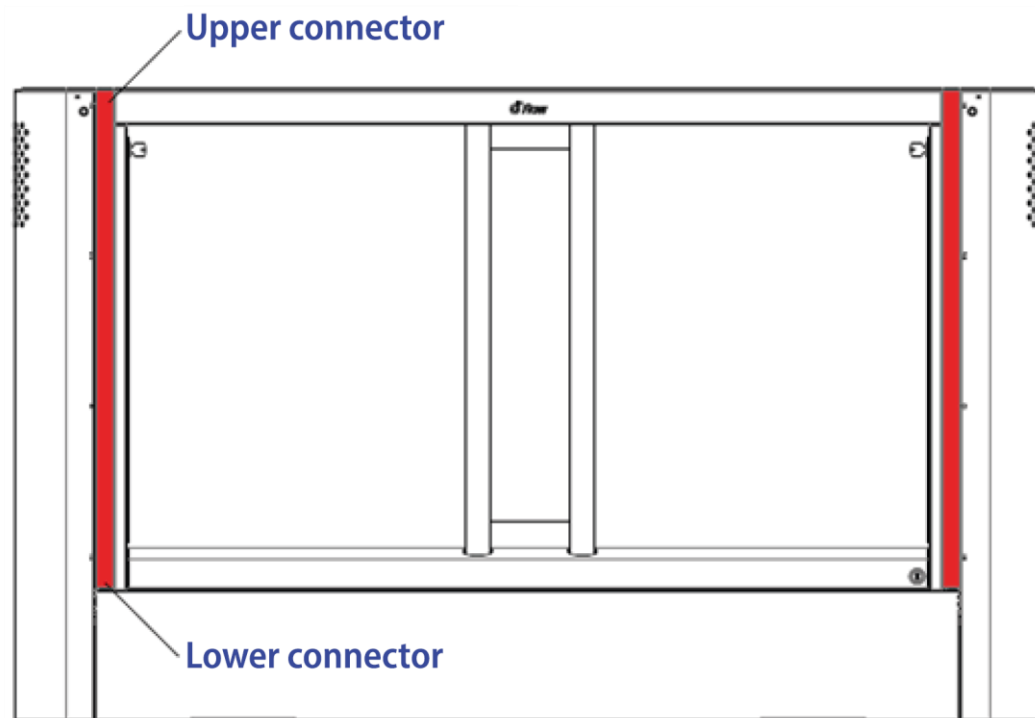
4.1.12 Side LED strip (037.45.388 e 037.45.768)



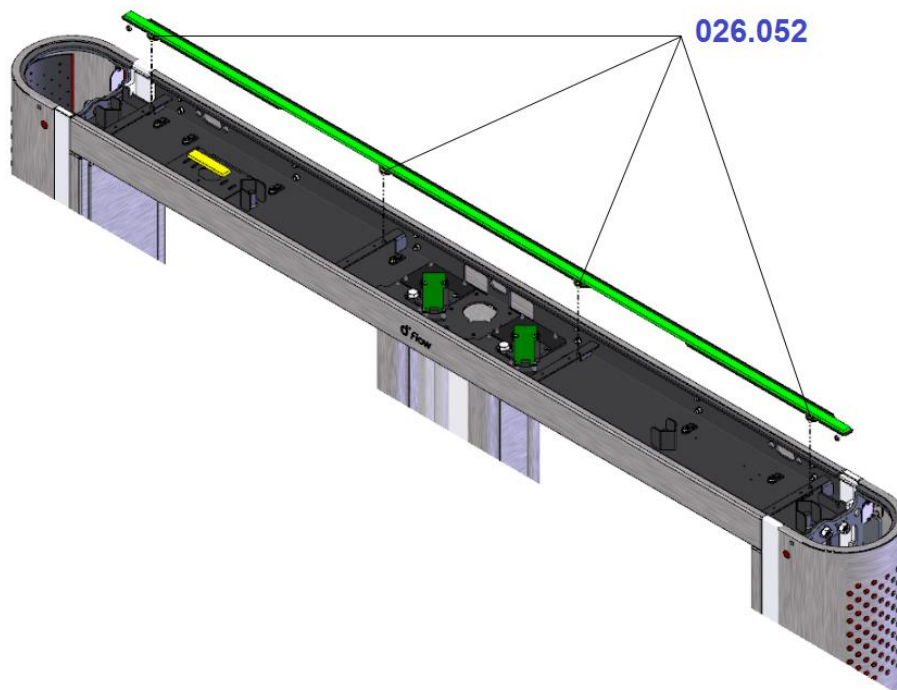
- a) Remove the four screws that secure the upper glass cover.



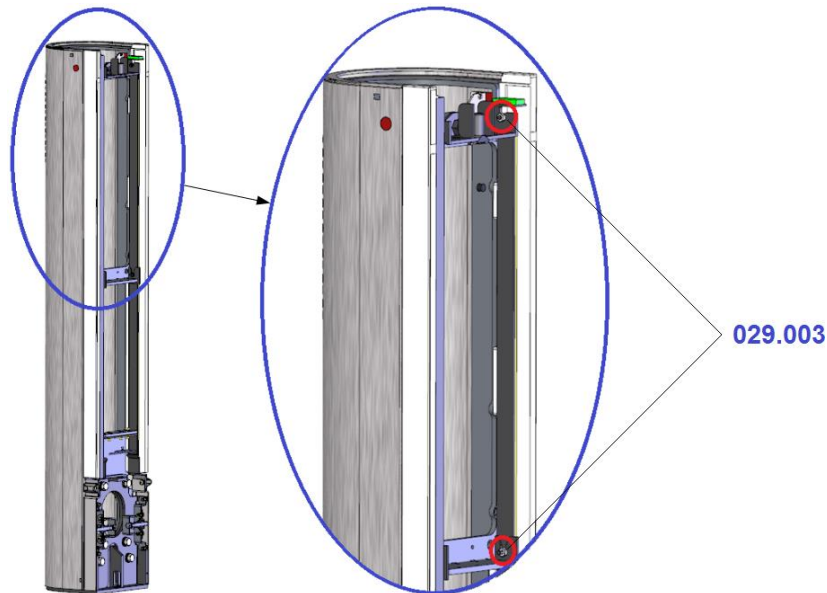
- b) Remove the glass and set it aside in a safe place to avoid scratches.
c) Remove the connectors from both ends of the LED strip.



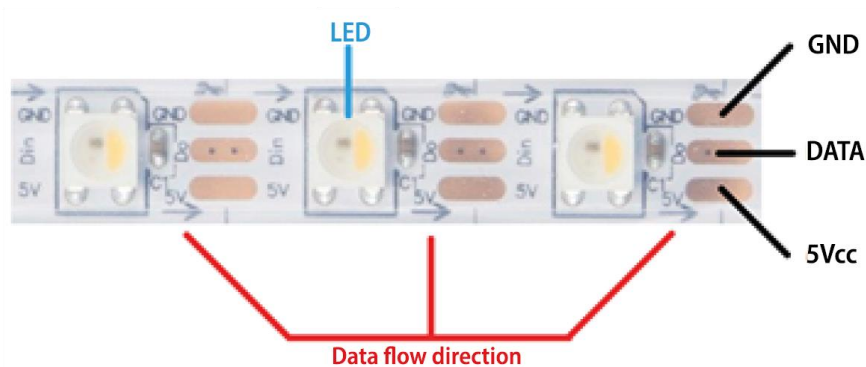
- d) Remove the cables from the lower connector.
- e) Detach the upper LED strip base by removing the four fastening screws.



- f) Loosen the two inner nuts that secure the side LED strip base.



- g) Pull the base with the LED strip out of the equipment and proceed with the replacement while always respecting the data direction.



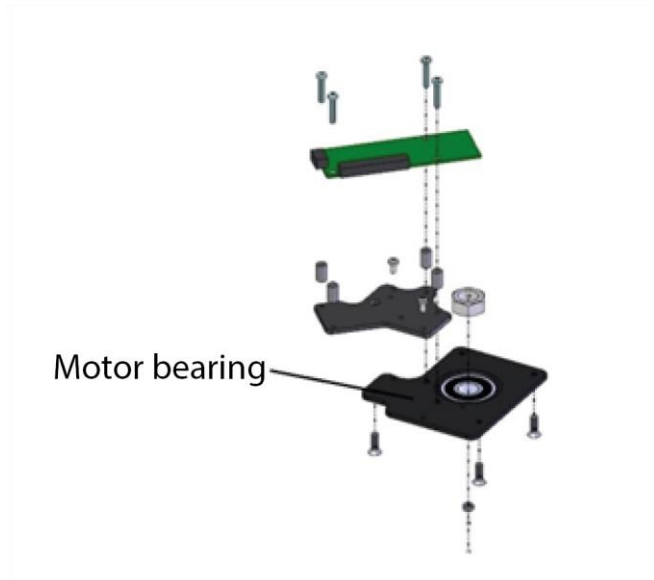
- h) Reattach the base with the LED strip and secure it using the two nuts.
 i) Reconnect the cables to the bottom connector.
 j) Secure the base of the upper LED strip.
 k) Reconnect the connectors at both ends of the LED strip, ensuring that the power polarity is correct.
 l) Remount the glass as it was removed.
 m) Turn on the equipment.

Code	Description
026.052	Crosshead screw. M4X6
029.003	Hex Nut M4 Carbon Steel
037.45.388	Side LED strip output
037.45.768	Side LED strip input

4.2 Corrective Mechanical Maintenance

4.2.1 Upper bearing replacement

- a) This procedure is applied in cases where the bearing is damaged or loose.
- b) Remove the encoder plate to access the M12 nut. Remove the M12 nut from the bearing.

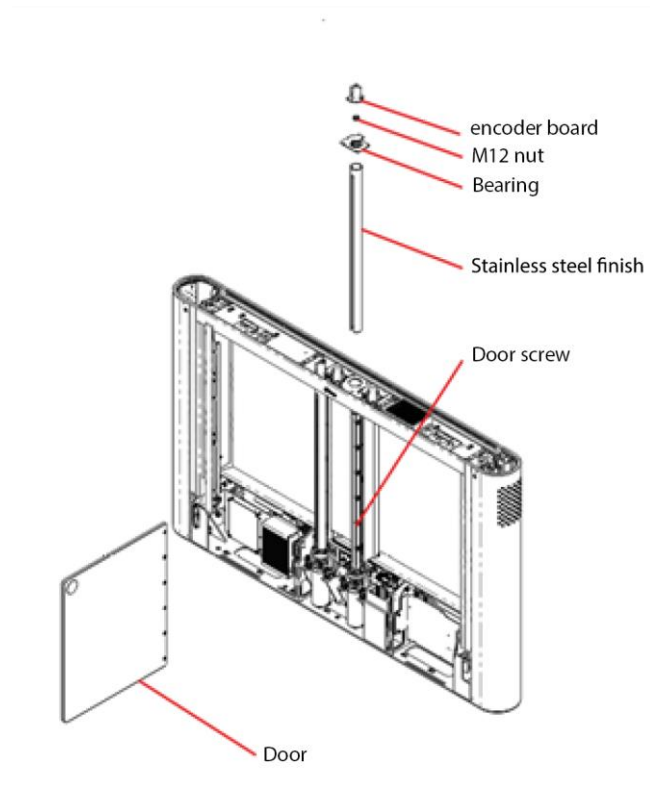


- c) Remove the bearing using the lower screws.

Quantity	Tools
1	Torque wrench
1	Cross-head screwdriver 1/4"
1	Socket wrench 16 mm

4.2.2 Replacement of the door

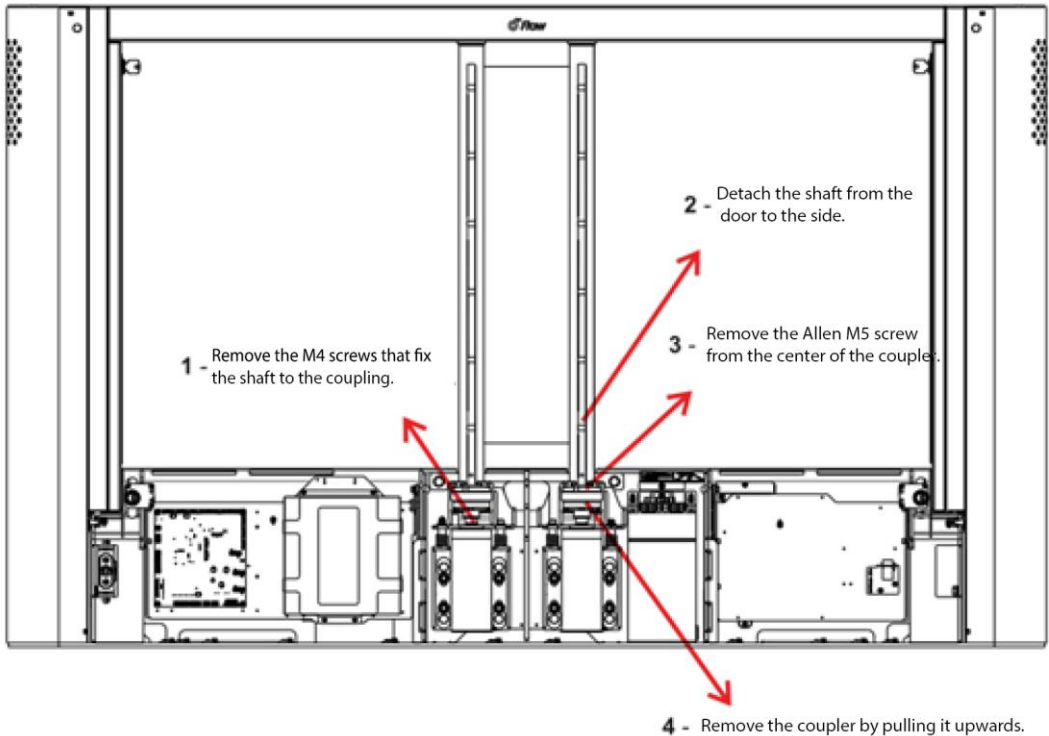
- a) Replace the door when it is damaged, scratched, or broken.
- b) Remove the encoder plate to access the M12 nut. Remove the M12 nut from the bearing. Remove the bearing through the lower holes.
- c) Remove the stainless steel trim (tube) to access the screws. Remove the screws fixing the door.



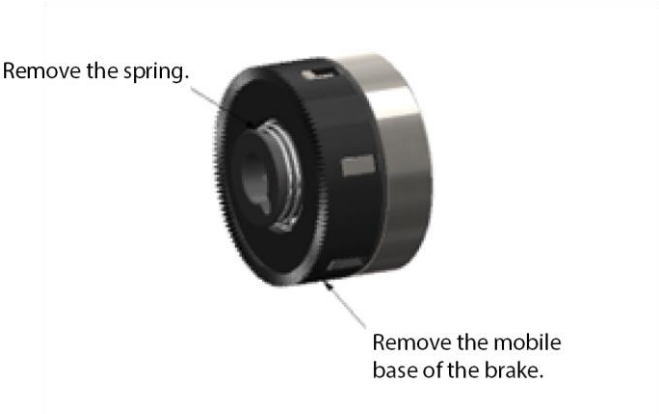
Quantity	Tools
1	Torque wrench
1	Crosshead screwdriver 1/4"
1	Socket wrench 16 mm
1	Allen key 5 mm

4.2.3 Brake Replacement (Optional Item).

Perform the replacement if the brake teeth are broken or dented.



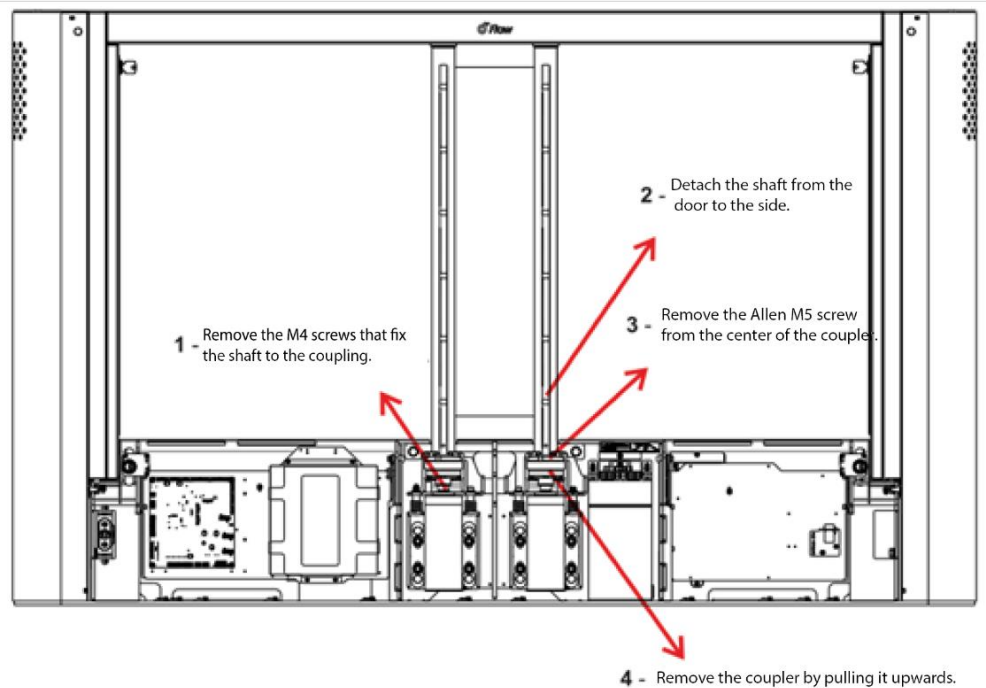
- a) Remove the six screws that secure the coupling to the door shaft and move the shaft sideways until you can see the screw in the center of the coupler.
- b) Remove the screw from the center of the coupler and then remove the brake (mobile base and spring).



Quantity	Tools
1	Torque wrench
1	Crosshead screwdriver 1/4"
1	Allen key 3 mm

4.2.4 Replacement of the brake base

Perform the replacement if the brake teeth are broken, dented, or if the coil is shorted.



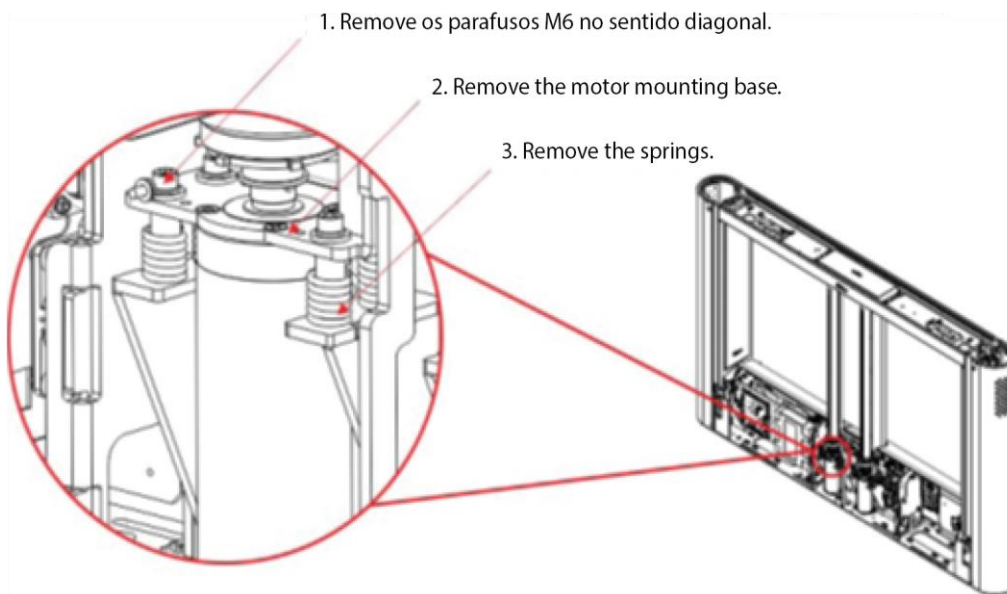
- Remove the six screws securing the coupling to the door shaft and shift the shaft sideways until you can see the screw in the center of the coupling.
- Remove the screw from the center of the coupling and then the brake (movable base and spring).
- Remove the fixing screws of the brake base, disconnect the connection cable, and remove the brake base by pulling it upwards.

Quantity	Tools
1	Torque wrench
1	Crosshead screwdriver 1/4"
1	Allen wrench 3 and 4 mm

4.2.5 Replacement of shock absorber springs

This procedure is applied in cases where the springs are broken.

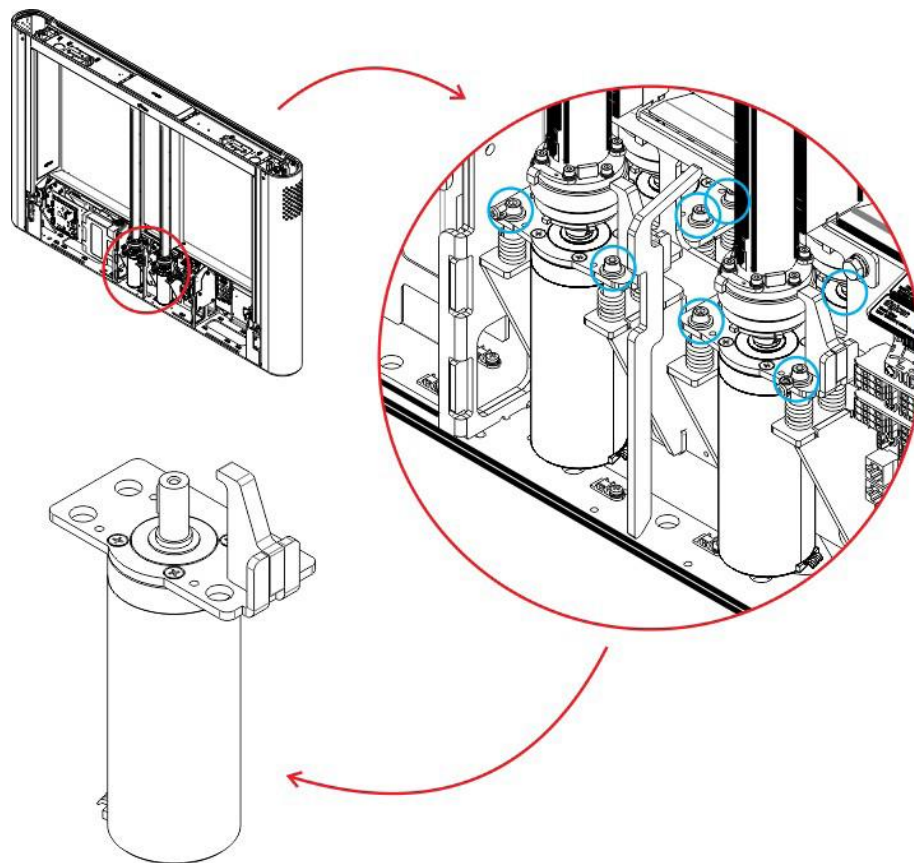
- a) Remove the six screws that fix the coupling to the door shaft and move the shaft to the side until the screw in the center of the coupling is visible.
- b) Remove the screw from the center of the coupling and then the coupling itself. Remove the motor mounting base and the springs.



Quantity	Tools
1	Torque wrench
1	Allen wrench 3 and 5 mm

4.2.6 Motor replacement

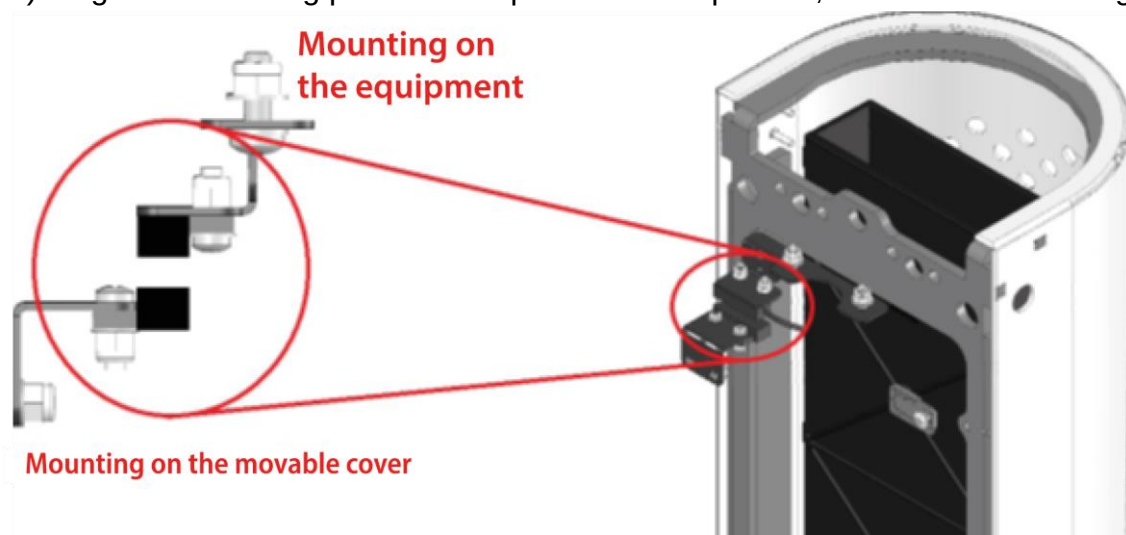
- a) Replace the motor when it is detected to be malfunctioning or burnt out.
- b) Remove the six screws that secure the coupling to the door shaft and move the shaft to the side until you see the screw in the center of the coupler.
- c) Remove the screw from the center of the coupler and then the coupler itself. Remove the motor mounting base and the springs, and take the motor out of the base.



4.2.7 Align the sensor – card collector cover

Perform the alignment when the card collector mode is not correctly fitted.

- a) Align the mounting plates to keep the sensors parallel, as shown in the image.



Quantity	Tools
1	Crosshead screwdriver 1/4"
1	Flat-nose pliers

ANNEX 1

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

Product		
Model:	Code:	Contacts:

Installation		
Company::	Contacts:	Date:

[illegible]

Headquarters/RS

Development, Factory, Technical Assistance, and Sales

Nissin Castiel Street, 640 - Industrial District.

Gravataí/RS, ZIP code 94045-420

E-mail: sales@digicon.com.br

Home page: <http://www.digicon.com.br>