**Description**


Full height turnstile (with bicycle access)

MPT-333, MPT-353 and MPB-311

**Control unit MGC**
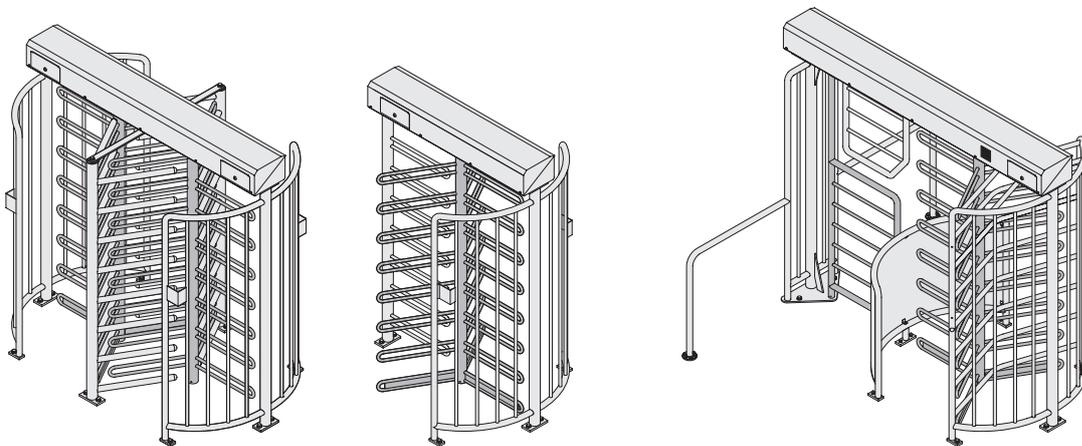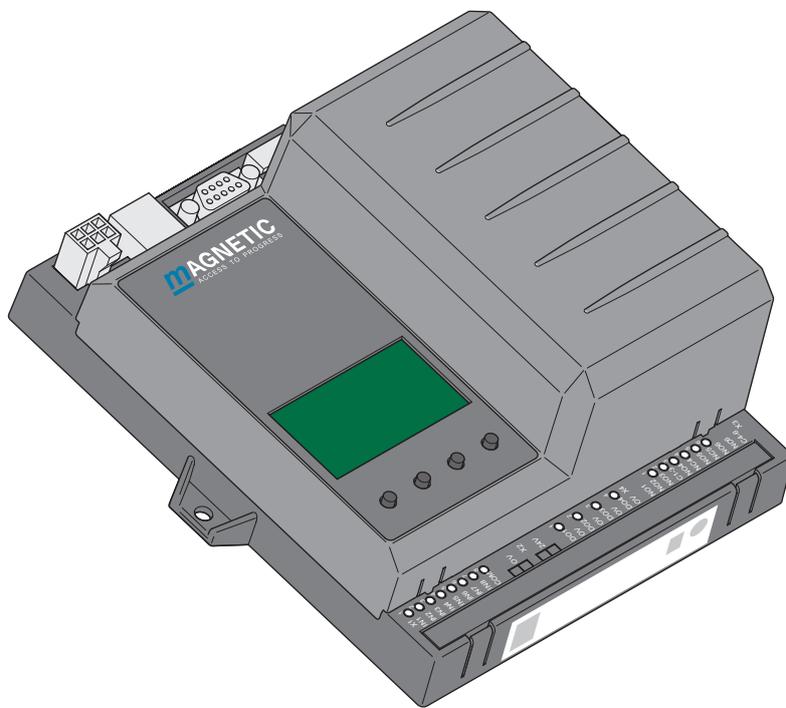
## Original Operating Instructions

This document is available as PDF in the Magnetic Autocontrol download area (www.magnetic-access.com). Authorisation is required for download.

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# Contents

# 1 Notices on the document

## 1.1 Purpose and contents of this description

This document describes the control unit MGC from the programme versions listed below.

Software number (Software #) and software version (SW version) are displayed in the menu "Module info".

| Designation | Software # | SW version |
|---|---|---|
| Gate Controller | 4915.1006 | 2.6 |
| Remote IO | 4915.3015 | 1.2 |
| Detector 1 | 4915.3001 | 1.2 |
| MGC.Connect | 4910.5052 | 1.5 |

Table 1: Programme versions control unit MGC

> **i** IMPORTANT!
>
> For information on design and function, for technical data, installation and mounting, electrical connection, commissioning and cleaning and maintenance, see the separate operating instructions
> ↗ Page 7, chapter 1.2.

## 1.2 Separate operating instructions

The operating instructions contain the following information: Design and function, technical data, installation and mounting, electrical connection, commissioning, cleaning and maintenance.

› Full height turnstile MPT-333: Doc.ID: 58170036

› Full height turnstile MPT-353: Doc.ID: 58170054

› Full height turnstile with bicycle access MPB-311: Doc.ID: 58170055

## 1.3        Symbols and illustrations used in this document

### 1.3.1        Warning notes and notes

Warning notes are characterised by pictograms in these instructions. A warning note starts with a signal word that expresses the extent of the hazard.

It is absolutely essential to observe the warning notes and to proceed with caution in order to prevent accidents as well as personal injuries and property damage.

**Warning notes**

| ⚠ DANGER | |
|---|---|
| ⚠ | The signal word DANGER points to an immediately dangerous situation, which leads to death or severe injuries if it is not avoided. |

| ⚠ WARNING | |
|---|---|
| ⚠ | The signal word WARNING indicates a potentially dangerous situation, which can lead to death or severe injuries if not avoided. |

| ⚠ CAUTION | |
|---|---|
| ⚠ | The signal word CAUTION indicates a potentially dangerous situation, which can lead to minor injuries if not avoided. |

| NOTICE | |
|---|---|
| ! | The signal word NOTICE indicates a potentially harmful situation, which leads to property damage if not avoided. |

**Notes and recommendations**

| i | IMPORTANT! |
|---|---|
| | The signal word IMPORTANT highlights useful notes and recommendations as well as information for an efficient and trouble-free operation. |

## 1.4 Target group

### 1.4.1 Personnel – activities and qualifications

All work on the control unit may only be performed by technicians and qualified electricians with the following qualifications.

| Designation | Qualification |
|---|---|
| Technician | › Has completed training as a systems mechanic, machinery technician, installation mechanic, installation technician or has comparable technical training. <br> › Has completed training as an electrical safety expert. <br> › Has additional knowledge and experience. <br> › Knows the relevant technical terms and regulations. <br> › Can evaluate the work assigned to him, recognise possible dangers and take appropriate safety measures. |
| Qualified electrician | › Has technical training which entitles him to carry out and monitor electrical work for commercial purposes. <br> › Has additional knowledge and experience. <br> › Knows the relevant technical terms and regulations. <br> › Can evaluate the work assigned to him, recognise possible dangers and take appropriate safety measures. |

Table 2: Qualification of the personnel – control unit MGC

# 2 Digital inputs, digital outputs and relay outputs

| ⚠ WARNING |
|---|
| **Improper wiring and parameterisation of the control unit!**<br>Improper wiring and parameterisation of the control unit can lead to undesired functions and thus to injuries.<br>› Only qualified electricians or technicians with additional "electrical safety expert" training may wire and parameterise the control unit.<br>› The electrical connection of the signal transmitters to the IN1 to IN8 inputs must fit the parameterisation. |

Parameterisation: ↗ Page 31, chapter 5.

## 2.1 Digital inputs

Definition of "entry" and "exit": ↗ Page 62, chapter 7.

By parameterising the inputs, you assign certain functions to the inputs. For example, if you parameterise the "Illumination off" function for input IN4, switch the illumination on and off via this input.

If the function is marked with "|", the input is inverted (closed-circuit principle). ↗ Page 50, chapter 6.3.3

The following functions are assigned to the inputs as default settings.

| Clamp | Description | Function |
|---|---|---|
| IN1 | Digital input 1 | | Emergency open |
| IN2 | Digital input 2 | Open entry |
| IN3 | Digital input 3 | Open exit |
| IN4 | Digital input 4 | MPT-3x3: Random check function<br>MPB-311: – |
| IN5 | Digital input 5 | MPT-3x3: Confirm warnings<br>MPB-311: Sensor / button entry |
| IN6 | Digital input 6 | MPT-3x3: Inhibit opening<br>MPB-311: Sensor / button exit |
| IN7 | Digital input 7 | Sensor B1 |
| IN8 | Digital input 8 | Sensor B2 |

Table 3: Factory setting "Digital inputs"

| Function | Description |
|---|---|
| – | Inputs that you assign this function "–" to are being deactivated. |
| \| Emergency open | Emergency situation (closed-circuit principle) |
| | Connect fire brigade switches, emergency opening contacts, etc. to this input. This input has the highest priority. As soon as +24 V DC are applied to this input, the pedestrian gate is in operation. |
| | If there is no signal at this entry, the centre pillar can rotate freely in both directions. The MPB bicycle door is blocked in both directions. |
| | This input function is high priority to all other input functions. |
| Confirm warnings | Confirm warnings |
| | A pulse at this input confirms the "Warning" output function. The output is reactivated the next time a warning occurs. |
| | The number of the warning message remains stored in the event list until the control unit is rebooted. |
| Open entry | Validation for a passage from the zone not controlled (ZNC) to the zone controlled (ZC) |
| | If the signal is present for longer than 3 seconds, permanent open is activated. ↗ Page 43, chapter 6.2.3, Parameter "Permanent open". |
| Open exit | Validation for a passage from the zone controlled (ZC) to the zone not controlled (ZNC) |
| | If the signal is present for longer than 3 seconds, permanent open is activated. ↗ Page 43, chapter 6.2.3, Parameter "Permanent open". |
| Inhibit opening | Lock pedestrian gate |
| | Use this input to lock the pedestrian gate in both passage directions. No validations are accepted anymore. Input IN1 "\| Emergency open" remains superordinated. This means that the pedestrian gate can also be opened via input IN1 when the pedestrian gate is locked. |
| Sensor / button entry | This function is only available for MPB-311. |
| | Connection of a sensor or button to open the bicycle door from the zone not controlled (ZNC) to the zone controlled (ZC) |
| | You can connect either a sensor such as a laser scanner or a button to this entry. You must specify the sensor / button used via the parameter "Sensor bicycle door". ↗ Page 49, chapter 6.2.8 |
| Sensor / button exit | This function is only available for MPB-311. |
| | Connection of a sensor or button to open the bicycle door from the zone controlled (ZC) to the zone not controlled (ZNC) |
| | You can connect either a sensor such as a laser scanner or a button to this entry. You must specify the sensor / button used via the parameter "Sensor bicycle door". ↗ Page 49, chapter 6.2.8 |

| Function | Description |
|---|---|
| Random check function | Activate random check function, confirm hits |
| | As soon as +24 V DC are applied to this input, the random check function is activated. If a hit is generated, the hit can be confirmed with a 0 V pulse via this input. |
| | For this input to be effective, you must select the option "Counting" or "Random" for the parameter "Mode" in the "Random check function" menu. ↗ Page 46, chapter 6.2.7, "Random check function" menu. |
| Multi valid entry | Multi validation for a passage from the zone not controlled (ZNC) to the zone controlled (ZC) |
| | Function when multiple signals are required to trigger a validation for a passage from the zone not controlled (ZNC) to the zone controlled (ZC). |
| | A validation is triggered when a pulse is pending at all inputs with the function "Multi valid entry". Pulses are deleted after 10 seconds. |
| | Example: Passage will not be granted until a face mask has been identified and the hands have been disinfected. In the example, you must parameterise two inputs with the function "Multi valid entry". |
| Multi valid exit | Multi validation for a passage from the zone controlled (ZC) to the zone not controlled (ZNC) |
| | Function when multiple signals are required to trigger a validation for a passage from the zone controlled (ZC) to the zone not controlled (ZNC). |
| | A validation is triggered when a pulse is pending at all inputs with the function "Multi valid exit". Pulses are deleted after 10 seconds. |
| | Example: Passage will not be granted until a face mask has been identified and the hands have been disinfected. In the example, you must parameterise two inputs with the function "Multi valid exit". |
| Inhibit sensor entry | This function is only available for MPB-311. |
| | As long as this input is activated, the bicycle door is locked for passage from the zone not controlled (ZNC) to the zone controlled (ZC). In this case, passage in this direction is not possible. |
| Inhibit sensor exit | This function is only available for MPB-311. |
| | As long as this input is activated, the bicycle door is locked from the zone controlled (ZC) to the zone not controlled (ZNC). In this case, passage in this direction is not possible. |
| Illumination off | Switching the illumination off and on |
| | As soon as +24 V DC are applied to this input, the following outputs are switched off: |
| | › Outputs with the following functions: "GED red entry", "GED green entry", "GED red exit" and "GED green exit". |
| | › Outputs of the plug-in modules MFM01 at slot 2 and 3. ↗ Page 17, chapter 2.3. |
| | If no voltage is applied at this input, the illumination on these outputs is switched on. |

| Function | Description |
|---|---|
| Sensor B1 (internal use) | Connection proximity sensor B1<br><br>Sensor B1 is connected to this entry by default. The inductive proximity sensor is used to detect the end positions. |
| Sensor B2 (internal use) | Connection proximity sensor B2<br><br>Sensor B2 is connected to this entry by default. The inductive proximity sensor is used to detect the end positions. |

Table 4: Function digital inputs

## 2.2 Digital outputs and relay outputs

Definition of "entry" and "exit": ↗ Page 62, chapter 7.

By parameterising the outputs, you assign certain functions to the outputs.

If the function is marked with "|", the output is inverted (closed-circuit principle).

The following functions are assigned to the outputs as default settings.

| Clamp | Description | Function |
|---|---|---|
| DO1 | Digital output 1 | GED red entry |
| DO2 | Digital output 2 | GED green entry |
| DO3 | Digital output 3 | GED red exit |
| DO4 | Digital output 4 | GED green exit |
| NO1 | Relay output 1 | Passage pulse entry |
| NO2 | Relay output 2 | Passage pulse exit |
| NO3 | Relay output 3 | MPT-3x3: – <br> MPB-311: Buzzer/Siren (alarm) |
| NO4/NC4 | Relay output 4 | Passage clear entry |
| NO5/NC6 | Relay output 5 | Passage clear exit |
| NO6/NC6 | Relay output 6 | MPT-3x3: Random hit <br> MPB-311: \| Error |

Table 5:      Factory setting digital outputs and relay outputs

| NOTICE |
|---|
| **!** **Changing the factory assignment of terminals and functions – MPT-3x3: Terminals DO1, DO2, DO3, DO4; MPB-311: Terminals DO1, DO2, DO3, DO4, NO3!** <br><br> By default, the terminals are wired for the listed factory setting. <br> A change will cause the pedestrian gate to malfunction. <br> › Do not change the assignment of the listed terminals. |

| NOTICE |
|---|
| **!** **Malfunction due to excessive output current at terminal X2!** <br><br> The maximum output current at terminal X2 is limited to 300 mA by a self-resetting fuse. <br> › Make sure that the maximum output current is not exceeded. <br> › If necessary, supply components such as other illumination with an additional power supply unit. The additional power supply unit must be installed outside the pedestrian gate. |

| Function | Description |
|---|---|
| – | Outputs that you assign this function "–" to are deactivated. |
| \| Error | When the control unit recognises any safety-relevant error or error, the output with this function is deactivated (closed-circuit principle). ↗ Page 84, chapter 10.3. |
| \| Warning | When the control unit recognises any "Warning", the output with this function is deactivated (closed-circuit principle). ↗ Page 84, chapter 10.3. |
| Gate ready | Pedestrian gate is ready for operation

This output is activated as soon and as long as the pedestrian gate is ready for operation. |
| Passage pulse entry | Counting pulse for the passage from the zone not controlled (ZNC) to the zone controlled (ZC)

When the next end position is reached in the zone controlled direction, a counting pulse (300 ms) is emitted via this output. A counter pulse is also emitted in the "Permanent open" operating mode. |
| Passage pulse exit | Counting pulse for the passage from the zone controlled (ZC) to the zone not controlled (ZNC)

When the next end position is reached in the zone not controlled direction, a counting pulse (300 ms) is emitted via this output. A counter pulse is also emitted in the "Permanent open" operating mode. |
| Passage clear entry | Control of display "Passage in zone controlled direction cleared"

When the passage in the zone controlled direction is cleared, a permanent signal is emitted via this exit. This exit may also be used to block a pulse encoder such as a card reader for the opposite direction. The request generator must be equipped with a lock input for this. |
| Passage clear exit | Control of display "Passage in zone not controlled direction cleared"

When the passage in the zone not controlled direction is cleared, a permanent signal is emitted via this output. This exit may also be used to block a pulse encoder such as a card reader for the opposite direction. The request generator must be equipped with a lock input for this. |
| Home position | Centre pillar in Home position

When the centre pillar is in one of the end positions, a permanent signal is output. |
| Sensor active | This function is only available for MPB-311.

This function serves for feedback. This exit is activated when a sensor signal is active. A sensor signal is triggered e.g. by an induction loop or by the button. |
| Buzzer/Siren (alarm) | Acoustic signal transmitter connection

An acoustic signal transmitter is connected to this output.

You can parameterise the events for which an acoustic signal is to be triggered via the "Buzzer/Siren" parameter in the "Signalling" menu. |

**Digital inputs, digital outputs and relay outputs**

| Function | Description |
|---|---|
| Obstacle detection | This function is only available for MPB-311. |
| | Obstacle detection during opening or closing of the bicycle door. |
| | As soon as an obstacle is detected during movement, this output is activated. An obstacle could be, for example, a trapped piece of luggage. |
| Random hit | Hits of the random check function, signal transmitter |
| | The random check function generated a hit. You can connect a signal lamp or a siren to this output, for example. |
| | The passage remains blocked until the random hit / validation is confirmed with a 0 V pulse at the "Random check function" input. |
| Service mode active | Pedestrian gate in service mode |
| | As soon as the service mode is switched on via the slider on the control unit MGC, this output is activated. |
| GED red entry | Gate End Display connection |
| | Connect the GED "red" of the zone not controlled to this output. |
| GED green entry | Gate End Display connection |
| | Connect the GED "green" of the zone not controlled to this output. |
| GED red exit | Gate End Display connection |
| | Connect the GED "red" of the zone controlled to this output. |
| GED green exit | Gate End Display connection |
| | Connect the GED "green" of the zone controlled to this output. |
| Magnet RL1 (internal use) | Connection magnet RL1 |
| | Magnet RL1 for locking is connected to this exit by default. The magnet locks in passage direction left. |
| Magnet RL2 (internal use) | Connection magnet RL2 |
| | Magnet RL2 for locking is connected to this exit by default. The magnet locks in passage direction right. |

Table 6:    Function digital outputs and relay outputs

## 2.3    Plug-in modules MFM01, DM02 and EM01

The MGC control unit is equipped with 5 slots for plug-in modules. The function is permanently assigned via the slot number.

Depending on the requirements, the plug-in module MFM01, the loop detector module DM02 and the Ethernet module EM02 can be plugged into the slots.

Digital 60 V / 3 A power outputs are available via the MFM01 plug-in modules.
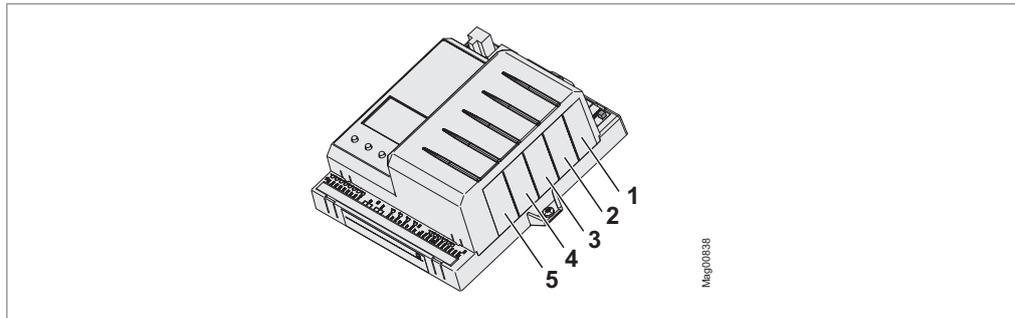


Fig. 1:        Slot numbers

**Slot assignment and function MPT-333 and MPT-353**

| Slot number [1] | Terminal plug-in module | LED plug-in module | Function |
|---|---|---|---|
| 1 [2] | MFM01: Magnets for locking | | |
| | 1 | Red | Magnet RL1 |
| | 2 | Green | Magnet RL2 |
| | 3 | Yellow | Output function "Home position" |
| 2 | – | | |
| 3 | – | | |
| 4 | – | | |
| 5 | See slot number 1 [2] | | |

[1]  The optional Ethernet module EM01 can be plugged into all unoccupied slots.

[2]  Alternatively, the plug-in module MFM01 for locking can also be plugged into slot 5.

Table 7:        Slot assignment and functions of the plug-in modules – MPT-3x3

**Slot assignment and function MPB-311**

| Slot number [1] | Terminal plug-in module | LED plug-in module | Function |
|---|---|---|---|
| 1 | Loop detector module DM02 | | |
| 2 | – | | |
| 3 | – | | |
| 4 | – | | |
| 5 | MFM01: Magnets for locking | | |
| | 1 | Red | Magnet RL1 |
| | 2 | Green | Magnet RL2 |
| | 3 | Yellow | Output function "Home position" |

1) The optional Ethernet module EM01 can be plugged into all unoccupied slots.

Table 8:     Slot assignment and functions of the plug-in modules – MPB-311

# 3 Parameterising MPT-333, MPT-353 and MPB-311

You have the following possibilities to parameterise the control unit MGC:

› Directly at the control unit MGC

› via the programme "MGC.Connect".

The "MGC.Connect" programme also allows you to test the function of the pedestrian gate.

## 3.1 Parameterisation directly at the control unit

The turnstile MPT-333 and the turnstile with bicycle access MPB-311 are equipped with a control unit. The control unit is mounted in the support beam and is accessible when the cover of the support beam is dismounted.

The MPT-353 turnstile is equipped with two control units. The control units are mounted in the support beam and is accessible when the cover of the support beam is dismounted.

IMPORTANT!

For access to the control unit, see separate operating instructions ↗ Page 7, chapter 1.2.

## 3.2      Parameterisation via the "MGC.Connect" programme

The programme "MGC.Connect" is available on the Magnetic website in the download centre. You can also download the programme with the programme for the Service Module SM01 "SM-Downloader".

Additionally required components:

> › Laptop

> › Magnetic Service Module "Service Module SM01"

> › USB cable A plug to B plug

> › RJ-45 patch cable, with a maximum length of 3 meters.

Additional options:

> › Ethernet module EM01 for connection via Ethernet

System requirements laptop:

> › Windows 10 or higher

> › .NET Framework 4.5 or higher

> › USB connection

### 3.2.1      Establishing the connection via service module SM01

1.  Connect the SM01 service module to the RJ-45 socket of the MGC control unit.

2.  Connect the Service Module SM01 to the laptop.

3.  Start the "MGC.Connect" programme on the laptop.

    √ The MGC.Connect start view is displayed.

    √ The connection between MGC.Connect and the pedestrian gate is established.

√   When the connection is established, the symbol "Connection established" is displayed in the MGC.Connect header.

If the connection could not established, the connection settings may have been changed.

1.  Open the "Configuration" window. To do so, click the "⚙" button in the header of the MGC.Connect programme. ↗ Page 23, chapter Fig. 4, pos. 1.

    √ The "Configuration" window is displayed:
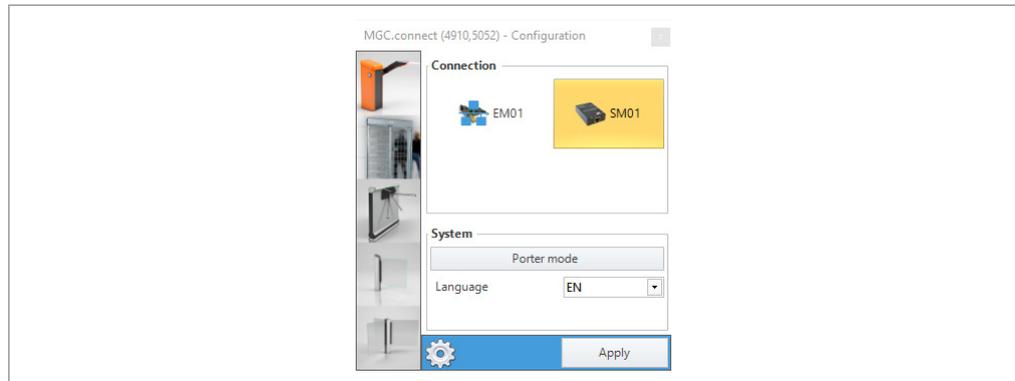


Fig. 2:       "SM01 configuration" window

2.  Select the connection "SM01".

3.  Click the "Apply" button.

√   The connection between pedestrian gate and "MGC.Connect" programme is established.

### 3.2.2 Connection via Ethernet module EM01

Further information on the Ethernet module: Technical Manual "Ethernet Module" (Doc.ID: 5815,0001).

For pedestrian gates with the option "Ethernet module EM01", the Ethernet module is installed ex works.

1. Connect the EM01 Ethernet module to the customer's network via a customer-side network cable.

2. Check whether the LEDs on the EM01 Ethernet module are flashing. If the LEDs flash, the Ethernet module is connected correctly.

3. If necessary, set the IP address of the Ethernet module. DHCP is activated ex works. Note the IP address.

4. Start the "MGC.Connect" programme on the laptop.

   √ The MGC.Connect start view is displayed.

   √ The "Configuration" window is displayed:
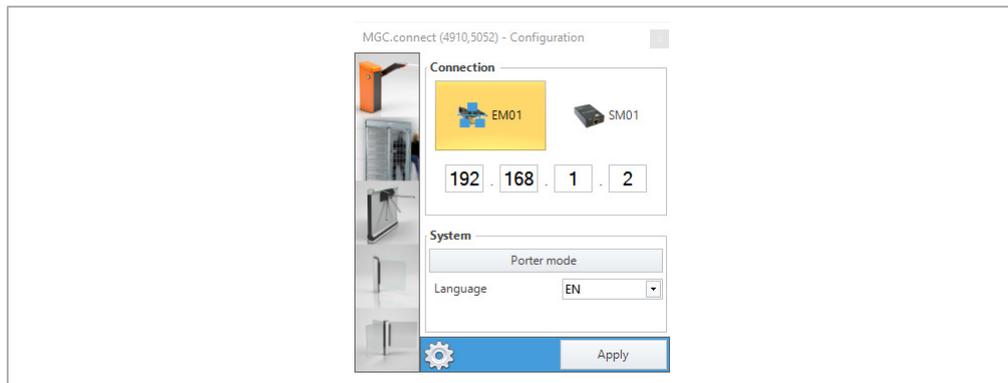


Fig. 3: "EM01 configuration" window

5. Select the connection "EM01".

6. Enter the previously noted IP address of the pedestrian gate.

7. Click the "Apply" button.

√ The connection between pedestrian gate and "MGC.Connect" programme is established.

### 3.2.3 Updating control unit MGC

> IMPORTANT!
> If necessary, download and update via the "SM-Downloader" programme.

# 4 Description of the "MGC.Connect" programme

## 4.1 Overview
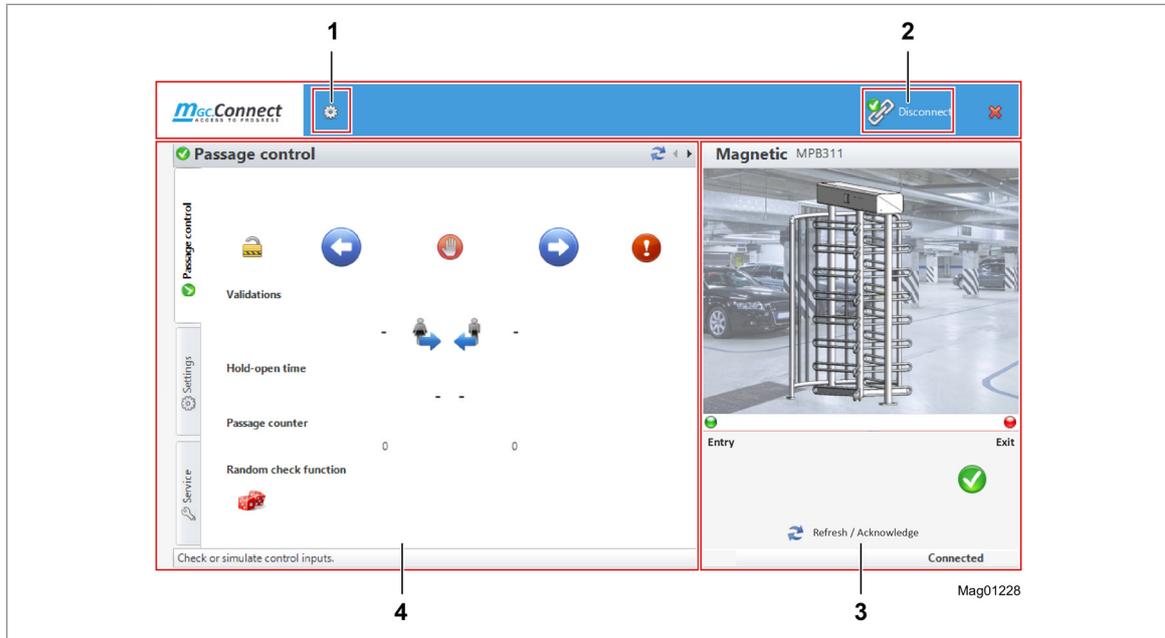


Fig. 4:     Exemplary view "MGC.Connect"

1    Button to open the "Configuration" window
2    Button to disconnect or connect the connection
3    Status display of the pedestrian gate
4    Tabs and parameters

| Button | Description |
|---|---|
| | No connection |
| | There is **no connection** between the pedestrian gate and the "MGC.Connect" programme. If the connection via the Service Module SM01 or via the Ethernet module exists and you click on the "Connect" button, the connection is established. |
| | Connection is established |
| | The connection between pedestrian gate and "MGC.Connect" programme is currently being established. |
| | Connection available |
| | There is a **one connection** between the pedestrian gate and the "MGC.Connect" programme. If you click on the "Disconnect" button, the connection is interrupted. |

Table 9:     Description of the buttons "Connect" and "Disconnect"

## 4.2 Changing the menu language for MGC.Connect

By default, the MGC.Connect programme applies the language of the operating system.

You can change the menu language via the "Language" option in the "Configuration" window. Open the "Configuration" window with the "⚙" button in the header of the MGC.Connect programme. ↗ Page 23, Fig. 4, pos. 1.

The changes are only assumed after a programme restart.

## 4.3 Status display MPT-3x3 and MPB-311

The status display shows the current position of the centre pillar to the locking comb, signals certain events and shows the current status of the pedestrian gate.

In the "Closed" position the value is 0°. When turning to the left, the value is negative. When turning to the right, the value is positive.
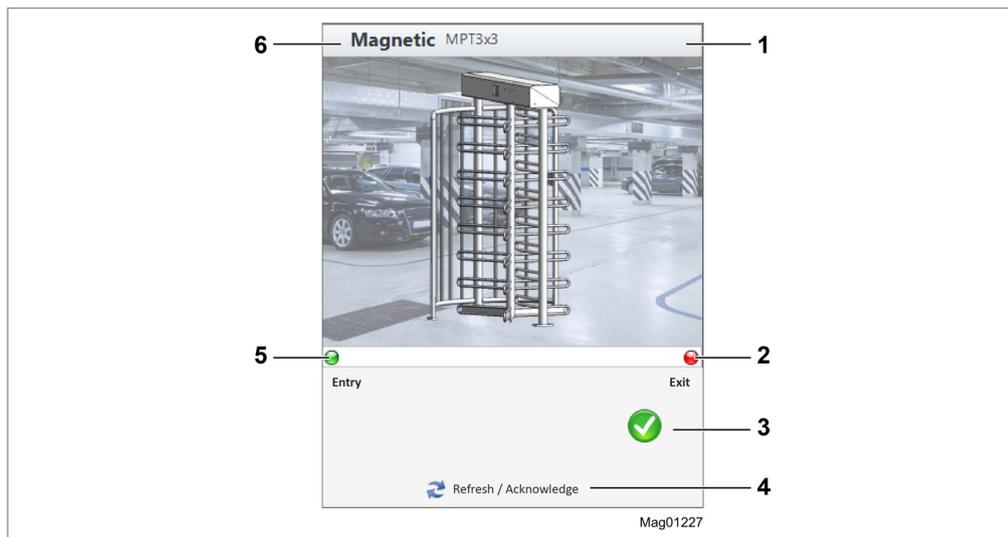


Fig. 5:          Status display, here as an example MPT-333 with status "OK"

1    Display of symbols: ↗ Page 25, Table 10

2    Display of the current status of the output functions "GED red exit" and "GED green exit" depending in the parameterisation of the "GED mode exit" parameter. If no LED symbol is displayed, the option "Off" has been set for the parameter "GED mode exit".
      ↗ Page 45

3    Current status of the pedestrian gate such as "OK", WARNING, ERROR

4    Refresh the event display and, if available, confirm the pending messages

5    Display of the current status of the output functions "GED red entry" and "GED green entry" depending in the parameterisation of the "GED mode entry" parameter. If no LED symbol is displayed, the option "Off" has been set for the parameter "GED mode entry".
      ↗ Page 45

6    Gate type, here e.g. MPT-333
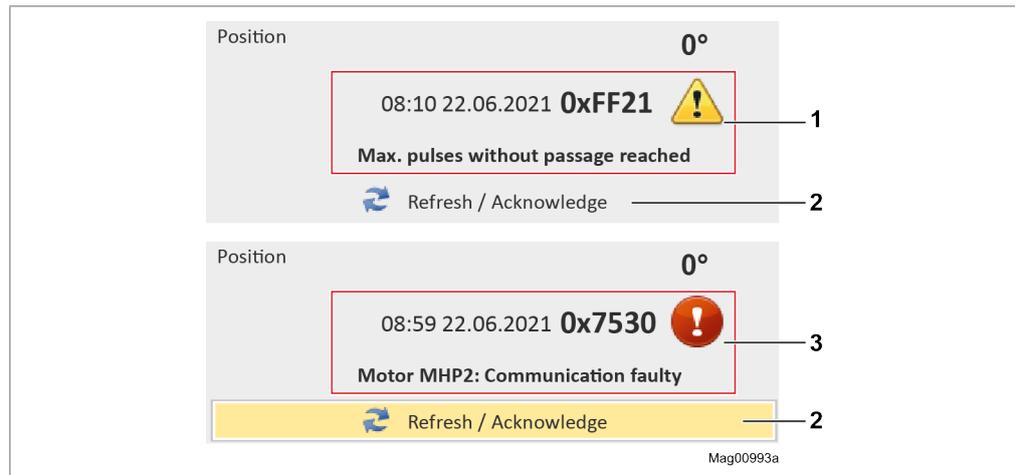
Fig. 6:        Examples of event displays
1    Example of an event of the type WARNING
2    Confirm pending messages and update display
3    Example of an event of the type ERROR

Information on WARNING and ERROR: ➚ Page 84, chapter 10.3.

| Symbol | Description |
|---|---|
| ✅ | OK<br>No warning and no error is pending. |
| ⚠️ | WARNING<br>A warning is pending. If you click the "Refresh / Acknowledge" button, the warning is confirmed and the display is refreshed. |
| ❗ | ERROR<br>There is an error. After correcting the fault and a reset, you can acknowledge the fault and refresh the display via the "Refresh / Acknowledge" button. If several errors are pending at the same time, the next error is displayed after refreshing.<br>In the "Service" tab, you can generate a current system report for the pedestrian gate. The system report contains an event log with additional information about a fault / message such as "Node name". ➚ Page 62, chapter 7. |
| ✋ | The pedestrian gate has detected an attempted vandalism. |
| 💡 | The "random check function" generated a hit. |

Table 10:        Status display – Description symbols

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## 4.4 "Passage control" tab

Use the "Passage control" tab to test the behaviour of the pedestrian gate.
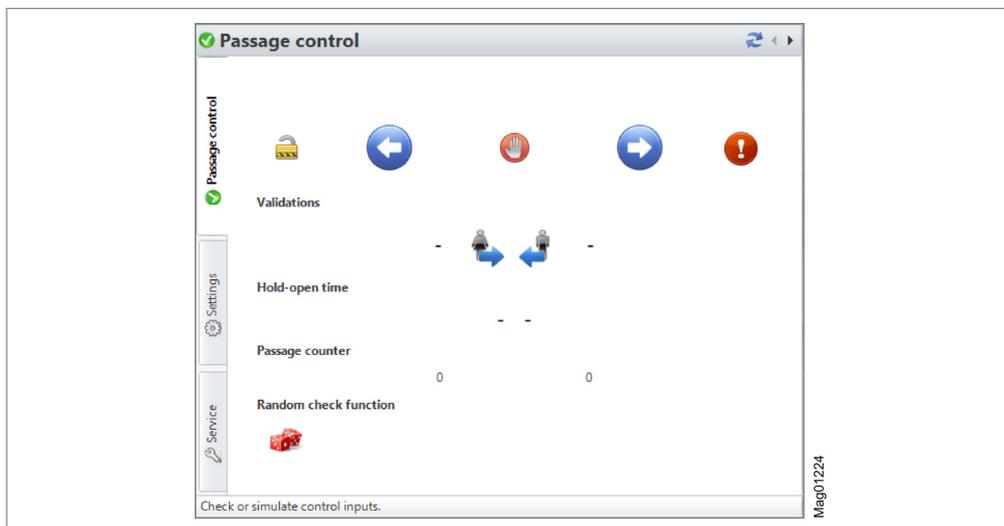


Fig. 7:    "Passage control" tab

The view offers the following options.

Information about the input functions: ⬈ Page 10, chapter 2.1.

| Button / parameters | Description |
|---|---|
| 🔓 | The permanent signal is deactivated. |
| | The 3 central buttons simulate pulse operation and you can test the respective input function by clicking on the button. The selected input function is automatically reset. |
| 🔒 | The permanent signal is activated. |
| | The 3 central buttons are in hold mode. After you have selected an input function, this input function is held until you click the button again. |
| ➡️ | Test input function "Open entry". |
| | Trigger a validation for a passage from the zone not controlled (ZNC) to the zone controlled (ZC). Passage from this direction is possible. |
| ✋ | Test input function "Inhibit opening". |
| | Lock the pedestrian gate in both passage directions and delete validations. No validations are accepted anymore. |
| ⬅️ | Test input function "Open exit". |
| | Trigger a validation for a passage from the zone controlled (ZC) to the zone not controlled (ZNC). Passage from this direction is possible. |
| ❗ | Test input function "Emergency open". |
| Validations | Display of pending validations. |

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| Button / parameters | Description |
|---|---|
| Hold-open time | Display of the current hold-open time still available. |
| | If several validations are pending, the total hold-open time is not displayed. The hold-open time is counted down again from the set value with each validation. |
| | ↗ Page 42, chapter 6.2.1 |
| Passage counter | Display of the current counters. |
| Random check function | Activate and test the "Random check function" function. |
| | ↗ Page 46, chapter 6.2.7 |

Table 11: "Passage control" tab – Description buttons and parameters

## 4.5 "Settings" tab

The "Settings" tab encloses the sections: General, MGC OK, Signalling and Random check function.

Use the "Settings" tab to check and adjust the settings.
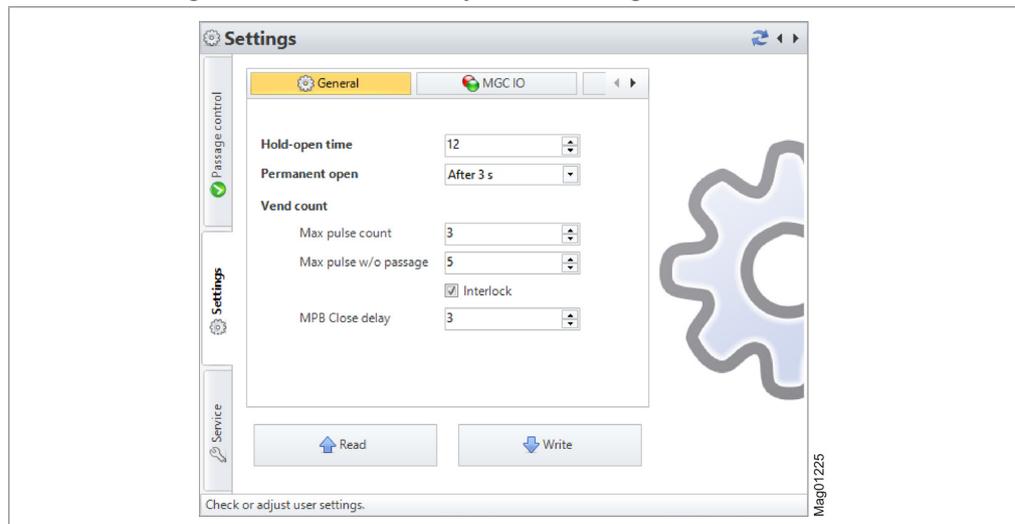


Fig. 8: "Settings" tab, "General" section

| Button | Description |
|---|---|
| Read | Read current settings from the MGC control unit into the "MGC.Connect" programme. |
| Write | Transfer settings from the "MGC.Connect" programme to the MGC control unit. |

Table 12: "Settings" tab – Description of buttons

**"General" section**

| Parameter | Description |
|---|---|
| Hold-open time | "Hold-open time" parameter: ↗ Page 42 |
| Permanent open | "Permanent open" parameter: ↗ Page 43 |
| Vend count | "Vend count" menu: ↗ Page 44 |
| Interlock | "Interlock" parameter: ↗ Page 43 |
| MPB close delay | "Close delay" parameter: ↗ Page 42 |

Table 13:　　　"Settings" tab – "General" section

**"MGC OK" area**

This view shows the currently parameterised input functions and output functions. Activated inputs are indicated via a red LED. Activated outputs are indicated via a green LED.

**"Signalling" section**

| Parameter | Description |
|---|---|
| Buzzer/Siren | "Buzzer/Siren" parameter: ↗ Page 44 |
| GED input | "GED mode entry" parameter: ↗ Page 45 |
| GED output | "GED mode exit" parameter: ↗ Page 45 |

Table 14:　　　"Settings" tab – "Signalling" section

**"Random check function" section**

Information about the "Random check function": ↗ Page 46, chapter 6.2.7.

| Parameter | Description |
|---|---|
| Random mode | "Mode" parameter: ↗ Page 46 |
| Hit range | "Hit range" parameter: ↗ Page 47 |
| Count of hits | "Count of hits" parameter: ↗ Page 47 |
| Delete validation | "Delete validation" parameter: ↗ Page 48 |
| Direction | "Direction" parameter: ↗ Page 48 |

Table 15:　　　"Settings" tab – "Random check function" section

## 4.6 "Service" tab

The "Service" tab displays the configured exit direction and the locking.

For the turnstile, you can adjust the exit direction and locking. In both cases, conversion work is required on the pedestrian gate. ↗ Page 51, chapter 6.4.1

| | |
|---|---|
| **i** | **IMPORTANT!**<br><br>As standard, the turnstile is delivered with the "locking rotating freely when de-energised" configuration. If you want a different configuration, convert the locking and adjust the parameters "Invert magnet RL1" and "Invert magnet RL2". Possible configurations: ↗ Page 53, Table 29.<br><br>For locking conversion, see separate operating instructions ↗ Page 7, chapter 1.2. |
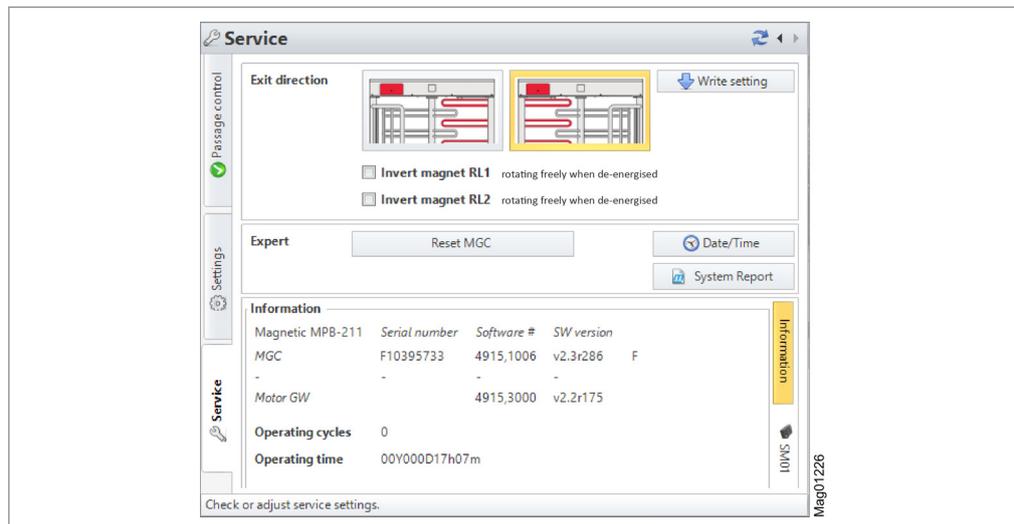


Fig. 9:          "Service" tab

**Description of the buttons and parameters**

| Button / parameters | Description |
|---|---|
| Exit direction | As soon as the pedestrian gate is connected to the MGC.Connect, the configured exit direction is displayed with a yellow background. After converting the pedestrian gate, you can select the new exit direction and write it to the control unit using the "Write setting" button.<br><br>› More information: ↗ Page 51, chapter 6.4.1<br><br>› "**Exit direction**" parameter: ↗ Page 52<br><br>› Versions and definitions. ↗ Page 62, chapter 7 |

| Button / parameters | Description |
|---|---|
| Invert Magnet RL1 | This parameter is used to specify the switching signal for the Magnet RL1 for locking.<br><br>**Options (display)**<br><br>› [ X ]: Invert magnet RL1 (locked when de-energised): The checkbox is activated. In the event of power failure, the lock is locked and the centre pillar **cannot** be turned.<br><br>› [ ] Invert magnet RL1 (rotating freely when de-energised): The checkbox is not activated. In the event of power failure, the locking is unlocked and the centre pillar can be turned.<br><br>**Factory setting**<br><br>› [ ]: Invert magnet RL1 (rotating freely when de-energised) |
| Invert Magnet RL2 | This parameter is used to specify the switching signal for the Magnet RL2 for locking.<br><br>**Options (display)**<br><br>› [ X ]: Invert magnet RL2 (locked when de-energised): The checkbox is activated. In the event of power failure, the lock is locked and the centre pillar **cannot** be turned.<br><br>› [ ] Invert magnet RL2 (rotating freely when de-energised): The checkbox is not activated. In the event of power failure, the locking is unlocked and the centre pillar can be turned.<br><br>**Factory setting**<br><br>› [ ]: Invert magnet RL2 (rotating freely when de-energised) |
| Experte – Deactivate motor | Disconnect the motor from mains. You can move the blocking element freely and check the current position of the blocking element in the status display. The "Closed" position is 0°. |
| Experte - Reset MGC | Perform reset. |
| System report | Open the current system report. You can save the system report.<br><br>The system report includes various information, the current parameterisation of the inputs and outputs, an event list (event log) and the current parameter settings. |
| Date/Time | Set the date and time. |
| Information | Display of serial number, software # and software versions |
| Operating cycles | Display of the current cycle counter reading of the pedestrian gate. The counter reading cannot be changed. |
| Operating time | Displays the operating hours counter. The operating hours counter records the time, during which the pedestrian gate is supplied with electrical power. |

Table 16:     "Service" tab – Description buttons and parameters

# 5 Parameterising the control unit

## 5.1 Changing menu language

The default setting in the MGC control unit is the menu language "English".

Change the menu language as follows:

The operational view is displayed.
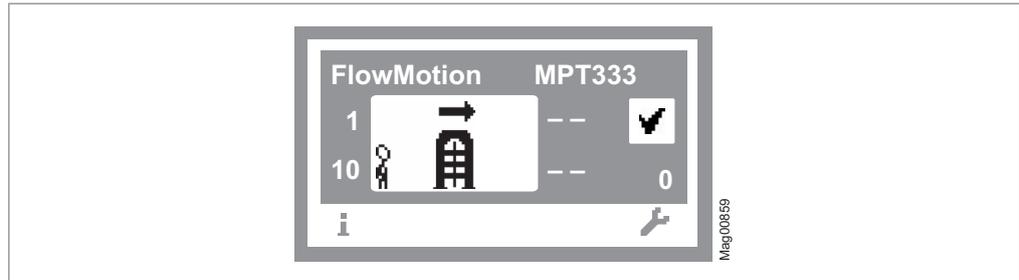


Fig. 10:     Example "Operational view"

1. Press right operating button « ».

2. Access to parameterisation can be password-protected. If password protection was activated, you are asked to enter a password.
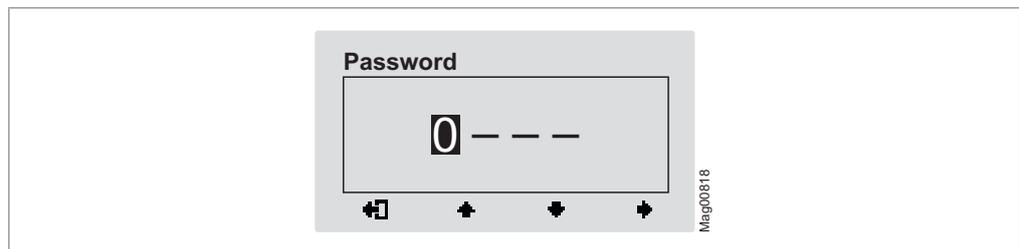


Fig. 11:     "Enter password" view

3. The "Main menu" menu is displayed. The "Settings" menu has a dark background and is thus selected.
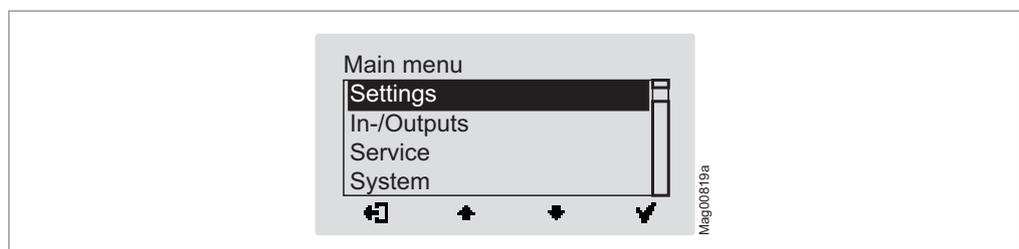


Fig. 12:     "Main menu – Settings" view

4.  Select the "System" menu with the two middle buttons «━», «━».

Main menu
Settings
In-/Outputs
Service
System

Mag00820a
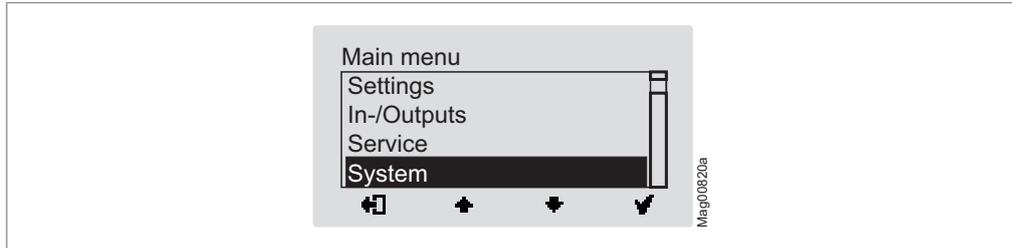
Fig. 13:      "Main menu – System" view

5.  Confirm selection with the right control button «✔». The following view is displayed. The menu "Language" is chosen.

System
Language
Date/Time

Mag00821
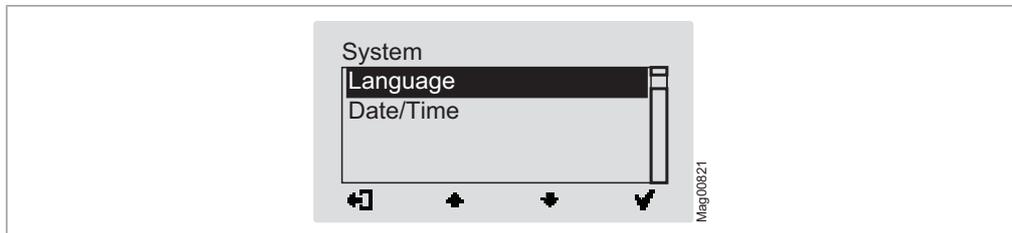
Fig. 14:      "Language" view

6.  Confirm selection with the right button «✔». The following view is displayed. The menu language "English" is chosen.

Language
✔English

Mag00822
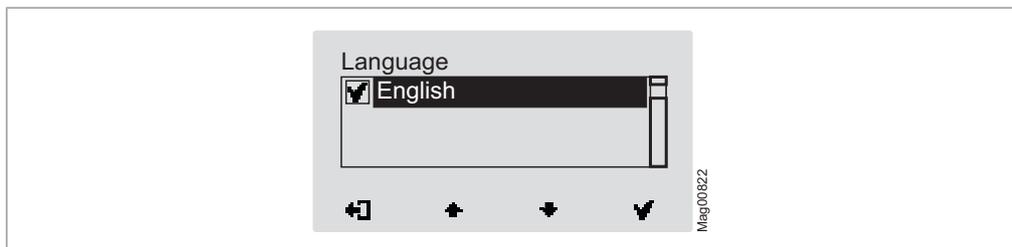
Fig. 15:      "Language – English" view

7.  Select the language "German" with the two middle buttons «━», «━». The language "German" has a dark background.

Language
German
✔English

Mag00823
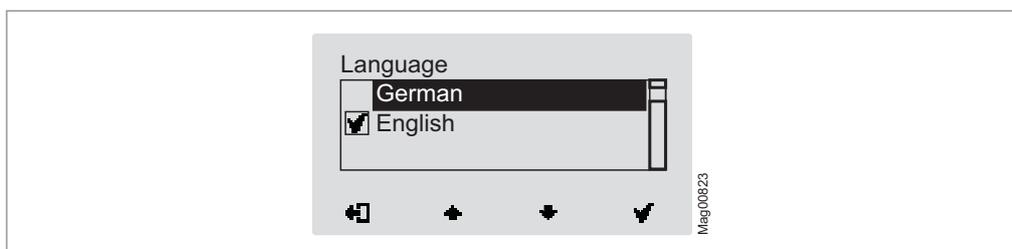
Fig. 16:      "Language – German" view

8.  Use the right button «✔» to select the new menu language. Your selection is marked with the symbol «✔».



Fig. 17:        "Language – German, step 2" view

9.  Use the left button «◄」» to leave the "Language" menu. The safety prompt "Save changes?" appears.
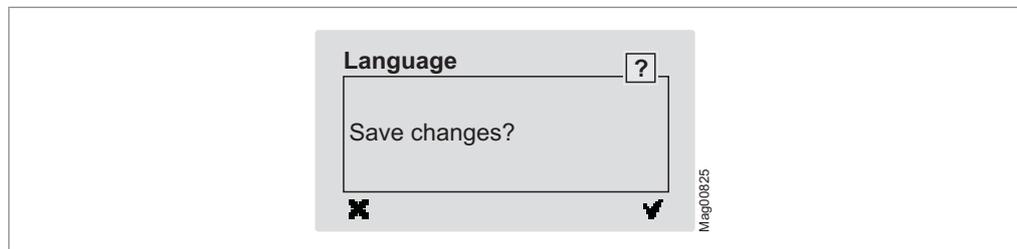


Fig. 18:        View "Safety prompt – Save changes?"

10. Push the left button «✖» if you do not want to save the changes. The menu language "English" remains active.

11. Confirm safety prompt with the right button «✔». The new menu language "German" is activated. The following view is displayed:
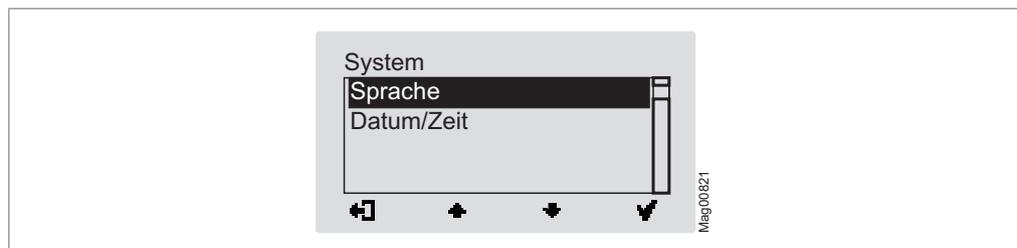


Fig. 19:        View "System" menu – Menu language "German" is activated

12. Press the left button «◄」» repeatedly until the operational view is displayed again. ↗ Page 31, Fig. 10.

## 5.2      Entering password

You need to enter a password in the following cases:

> You would like to change parameters in the control unit and the password protection was activated.

> You would like to restore the parameters to factory settings.

If a password is required, the following view is displayed:
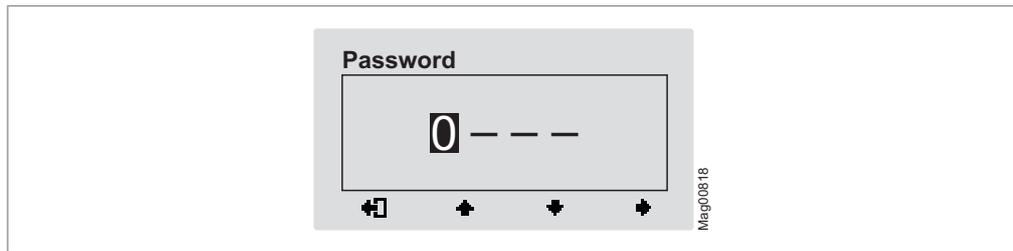


Fig. 20:        "Password" view

1.   Use the two middle buttons «✚», «✚» to enter the first digit of the password.

2.   Use the right button «✚» to select the second digit of the password. The following view is displayed:
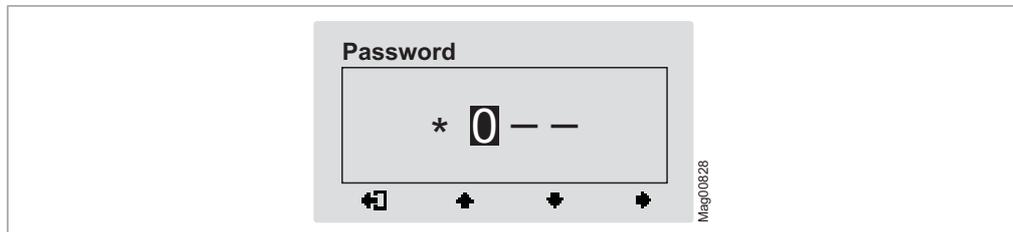


Fig. 21:        "Enter second digit of the password" view

3.   Use the two middle buttons «✚», «✚» to enter the second digit of the password.

4.   Use the right button «✚» to select the third digit of the password.

5.   Use the two middle buttons «✚», «✚» to enter the third digit of the password.

6. Use the right button «➡» to select the fourth digit of the password. The following view is displayed:
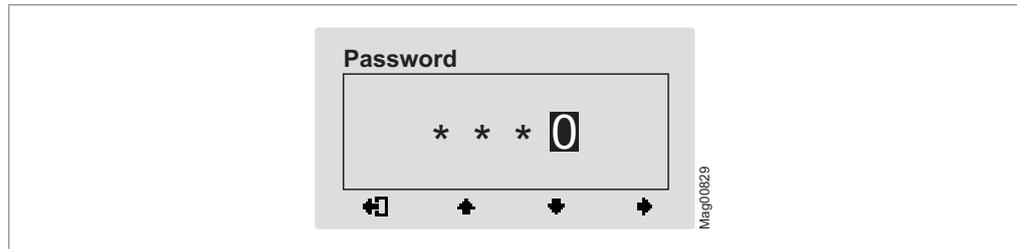


Fig. 22: "Enter fourth digit of the password" view

7. Use the two middle buttons «➕», «➕» to enter the fourth digit of the password.

8. Confirm the password with the right control button «✔».

## 5.3 Control unit elements
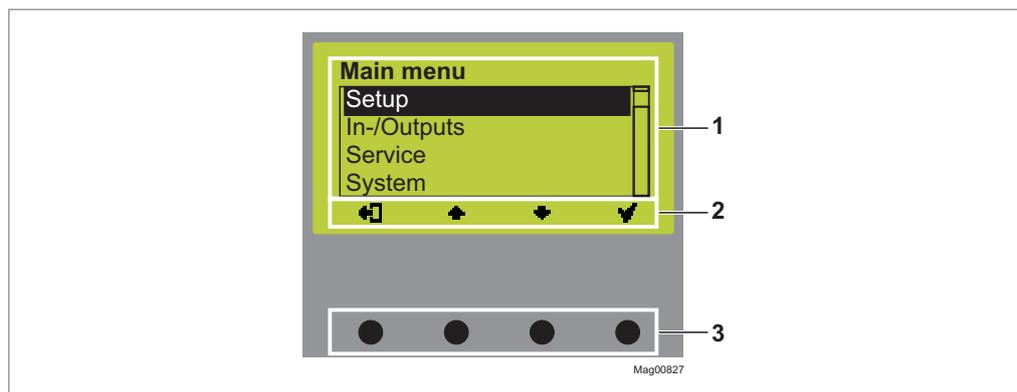


Fig. 23: Control unit MGC elements
1 Menu
2 Current function of the 4 control buttons
3 Control buttons

## 5.4        Displays of the control unit
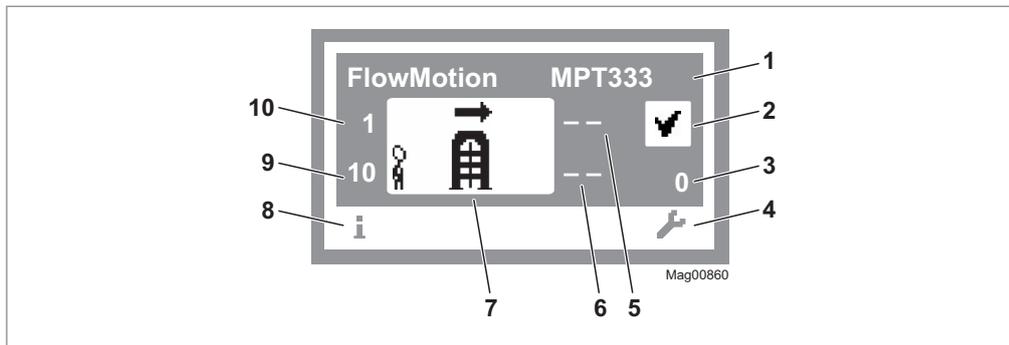


Fig. 24:        Example "Operational view"

1    Pedestrian gate type, here MPT-333 electromotive
2    Status display, here ready for operation
3    Angle of rotation, here 0
4    Current function of the right control button, here accessing menu "Main menu"
5    Validations exit, here locked
6    Hold-open time exit, here locked
7    Operating display, here passage direction left enabled
8    Current function of the left control button, here accessing menu "Information"
9    Holding-open time entry, here 10
10   Validations entry, here 1
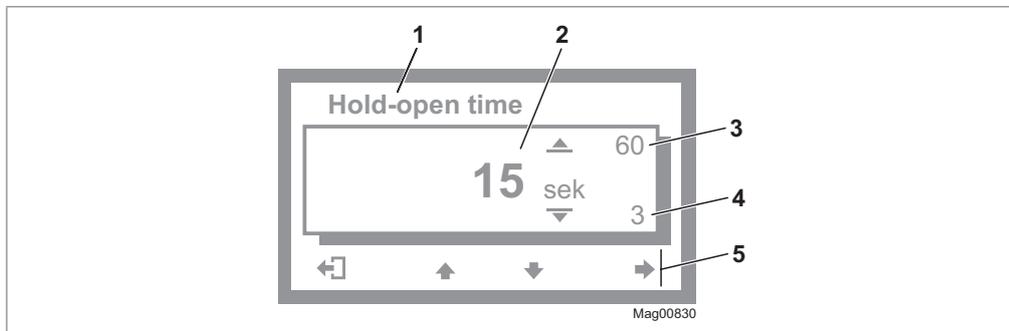


Fig. 25:        Example "Screen Change Value"

1    Parameter
2    Current value
3    Possible upper value
4    Possible lower value
5    Current functions of the control buttons

## 5.5 Symbols in the display

### 5.5.1 Control button functions

The control unit is equipped with 4 control buttons. The function of the control buttons change depending on the current view in the display. The current functions are shown in the display.

| Symbols | Description |
|---------|-------------|
| **i** | › Access "Information" menu. |
| | › Scroll "Information" menu. |
| | Access "Main menu" menu. In the "Main menu" menu you can make all settings. |
| | Leave current menu level. The next-higher menu level is displayed. |
| | › Access next-lower menu level. |
| | › Select desired option or desired value. When the desired option was selected, the symbol is displayed. |
| | Option was selected but not yet stored. |
| | › Within one menu level: Move cursor (market) upwards. |
| | › For setting value: Increase figure. |
| | › Within one menu level: Move cursor (market) downwards. |
| | › For setting value: Decrease figure. |
| | Move cursor one position to the right. |
| | › Delete error message. |
| | › When changing settings: Cancel changing process. |

Table 17: Control button functions

**5.5.2 Further symbols**

| Symbols | Description |
|---|---|
| | Wrong password entered. Access denied. |
| | Reset values to factory settings. To do this, you must enter the password "0000". |
| | The next validation is blocked by the random check function. |
| | There is an information. Check the "Information" menu. To do this, press the left operating button. |
| | There is a warning. Check the "Information" menu. To do this, press the left operating button. |
| | There is an error. Check the "Information" menu. To do this, press the left operating button. |
| | The passage in zone controlled direction cleared is cleared. |
| | The passage in zone not controlled direction cleared is cleared. |
| | The passage is enabled in both directions. |

Table 18: Further symbols

**5.6 Setting display contrast**

The display contrast of the control unit is adjustable after activation while the logo is still displayed. The logo is displayed for 3 seconds.

If you push one of the middle buttons «✚», «✚», the display time of the logo extends by 2 seconds per push. You can thus extend the time to set the display contrast.

› Increase contrast, display grows darker: Press the «✚» button.

› Reduce contrast, display grows lighter: Press the «✚» button.

The set display contrast is saved automatically.

## 5.7 Protecting parameterisation from access

You can apply the access to the main menu with password protection.
↗ Page 54, chapter 6.4.2.

## 5.8 Parameterising value

**Example: Change hold-open time**

The operational view is displayed. ↗ Page 36, Fig. 24.

1.  Press the right button «⌐».

    √ The "Main Menu" menu is displayed.

2.  Select the "Settings" menu with the two middle buttons «⬆», «⬇».

3.  Confirm the selection with the right button «✔».

4.  The "Hold-open time" parameter has a dark background and is therefore selected. If necessary, use the two middle buttons «⬆», «⬇» to select the "Hold-open time" parameter.

5.  Press the right button «✔».

    √ The current hold-open time value is displayed. The cursor flashes on the first digit.

6.  Use the middle buttons «⬆», «⬇» to set the desired digit.

7.  Use the right button «➡» to move the cursor to the right.

    √ The cursor flashes on the second digit.

8.  Use the middle buttons «⬆», «⬇» to set the desired digit.

9.  Press the right button «➡».

10. Use the left button «⬅» to leave the "Hold-open Time" parameter.

    √ The safety prompt "Save changes?" appears.

11. If the changes are to be saved, press the right button «✔». The new hold-open time is activated.
    If the changes are not to be saved, press the left button «✖». The previous hold-open time remains active.

    √ The "Settings" menu is displayed.

12. Press the left button «⬅» repeatedly until the operational view is displayed again.

## 5.9 Switching the "Service" mode on and off

> **IMPORTANT!**
>
> In service mode, all validations from the control unit inputs and via Ethernet are ignored.

**Switching the "Service" mode on**

Switch the "Service" switch for the "Service" mode. The LED lights red. The display backlighting flashes.

**Switching the "Service" mode off**

After the service work, the switch "Service" must be switched. The LED must light green.
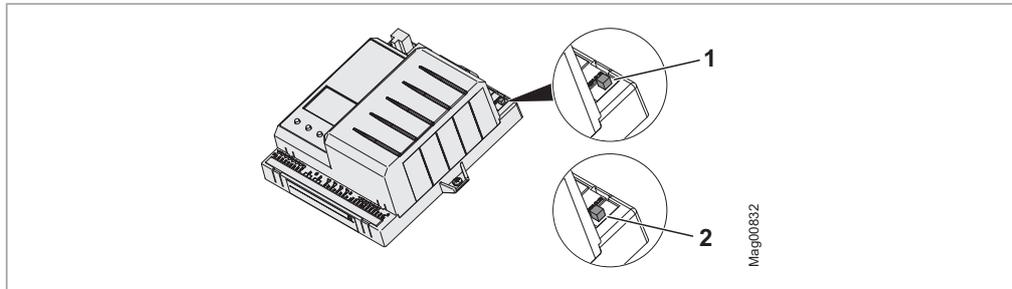
Fig. 26:        Service switch
1    Mode "Service" on
2    Mode "Service" off

**Button function**

In "Service" mode, you can control the turnstile with the two middle control buttons.

> Middle left button «⬛»: Validation for a passage from the zone controlled (ZC) to the zone not controlled (ZNC). This button corresponds to the input function "Open exit".

> Middle right button «⬛»: Validation for a passage from the zone not controlled (ZNC) to the zone controlled (ZC). This button corresponds to the input function "Open entry".

# 6 Description of menus and parameters

## 6.1 "Information" menu

**Accessing and navigating**

The operational view is displayed. ↗ Page 31, Fig. 10.

1. Press left button «**i**».

2. Use the left button «**i**» to scroll within the menu.

3. The "Information" menu can be left as follows:

   › press the left button «**i**» repeatedly until the operational view is displayed again or

   › press the right button «⬅».

| Operational View > Information | |
|---|---|
| **Parameter** | **Description** |
| Error, warning or event messages | Display of the error, warning or event messages that occurred since the last voltage reset, including date and time. |
| | Use the «➕» and «➖» buttons to navigate through the messages. |
| | If no messages are present, the menu is not displayed. |
| Inputs | Displays the current settings for the digital inputs IN1 to IN8. |
| | Separate inputs can be deactivated or inverted. Deactivated inputs are marked with a "–", e.g. "IN8: –". Inputs with inverted functions are marked with a "\|", e.g. "IN4: \| Random check function". |
| Outputs | Displays the current settings for the digital outputs DO1 to DO4 and the relay outputs NO1 to NO3 and NO/NC4 to NO/NC6. |
| | Separate outputs can be deactivated or inverted. Deactivated outputs are marked with a "–", e.g. "DO2: –". Outputs with inverted functions are marked with a "\|", e.g. "NO4/ NC4: \| Passage clear Entry". |
| Module info | Display of the software numbers (software #) and software versions (SW - version) of the control unit and optionally plugged-in plug-in modules. |

Table 19:    Menu "Information"

## 6.2 "Settings" menu

### 6.2.1 Hold-open time

| Operational view > Main menu > Settings > Hold-open time | |
|---|---|
| **Parameter** | **Description** |
| Hold-open time | Set the hold-open time. |
| | The hold-open time is started by a validation by a control device, such as a card reader. A passage should take place within the set hold-open time. If there is no passage during the hold-open time, the direction is blocked. |
| | With the setting 0 s, the direction remains open until a passage takes place. |
| | **Setting range** |
| | › 0 to 60 s |
| | **Factory setting** |
| | › 7 s |

Table 20: Hold-open time

### 6.2.2 Close delay

| Operational view > Main menu > Settings > Close delay | |
|---|---|
| **Parameter** | **Description** |
| Close delay<br>(Closing delay) | This parameter is only available for MPB-311. |
| | The closing of the bicycle door is delayed by the set time. |
| | The start of the close delay depends on the selected option for the "Sensor bicycle door" parameter. |
| | › Option "Induction loops / buttons" for parameter "Sensor bicycle door":<br>The close delay starts when the hold-open time has expired and when the safety loop is no longer occupied. |
| | › Option "Laser scanners" for parameter "Sensor bicycle door":<br>The close delay starts when the hold-open time has elapsed and when there is no person or object in the safety zone. |
| | › Option "Buttons" for parameter "Sensor bicycle door":<br>The close delay starts when the hold-open time has elapsed. |
| | **Setting range** |
| | › 0 to 12 s |
| | **Factory setting** |
| | › 1 s |

Table 21: Close delay

### 6.2.3      Permanent open

| Operational view > Main menu > Settings > Permanent open | |
|---|---|
| **Parameter** | **Description** |
| Permanent open | You use this parameter to specify whether and after what time the permanent open is activated for a permanent signal at the "Open entry" or "Open exit" input. |
| | **Example "After 3 s" option** |
| | If the signal is present at the "Open entry" or "Open exit" input for 3 seconds, the system switches to the "Permanent open" operating mode. As soon as the signal is no longer present at the input, the direction is immediately blocked. |
| | **Case Hold-open time < time "Permanent open"** |
| | If a shorter time has been set for the parameter "Hold-open time" than for the parameter "Permanent open", the system switches to the operating mode "Permanent open" immediately after the hold-open time has elapsed. |
| | **Options** |
| | › Deactivated |
| | › After 3 s |
| | › After 10 s |
| | **Factory setting** |
| | › After 3 s |

Table 22:      Permanent open

### 6.2.4      Interlock

| Operational view > Main menu > Settings > Interlock | |
|---|---|
| **Parameter** | **Description** |
| Interlock | Activate and deactivate the "Interlock" function. |
| | If the interlock has been activated, further rotation of the centre pillar is blocked for 1 second after each passage. This ensures that the centre pillar remains safely in the end position. If many people pass the pedestrian gate (high throughput), the option "Inactive [   ]" may be useful. |
| | **Operating mode "with vend count"** |
| | › Deactivated: The centre pillar is not locked between the passages until all passages have been completed. |
| | › Activated: After each passage, the centre pillar is locked for 1 second. |
| | **Options** |
| | › [   ]: Deactivated |
| | › Activated [ X ] |
| | **Factory setting** |
| | › [   ]: Deactivated |

Table 23:      Interlock

### 6.2.5 Vend count

| Parameter | Description |
|---|---|
| **Operational view > Main menu > Settings > Vend count** | |
| Entry | Shows the current counter for validations for the passages in zone controlled direction. |
| Exit | Displays the current counter for validations of passages in the zone not controlled direction. |
| Max pulse count (Max count validation) | Set the value for the maximum number of pulses. The pulses are counted up to the set value. **Setting range** › 1 to 10 **Factory setting** › 3 |
| Max pulse w/o passage (Maximum number of pulses without passage) | Set the value for the maximum number of pulses without passages. This value is used to check the connected validation device, e.g. card reader. If the counter value is above the set value, a warning message is issued. **Setting range** › 5 to 10 **Factory setting** › 5 |

Table 24:      Vend count

### 6.2.6 Signalling

| Parameter | Description |
|---|---|
| **Operational view > Main menu > Settings > Signalling** | |
| Buzzer/Siren | Activate events for which an acoustic signal is to be triggered. Connect the acoustic signal to the "Buzzer/Siren (alarm)" output. An acoustic signal is possible for the following events: › Validation › Error › Random hit › Passage › Obstacle detection (MPB-311 only) › Closing warning (MPB-311 only) **Options** › [  ]: Deactivated › [ X ]: Activated **Factory setting** › [  ]: Deactivated |

| **Operational view > Main menu > Settings > Signalling** | |
|---|---|
| **Parameter** | **Description** |
| GED mode entry | Set the behaviour of the optional GEDs.<br><br>**Options**<br><br>› Off: The display is dark.<br><br>› Red: The display is permanently red.<br><br>› Green: The display is permanently green.<br><br>› Standby red: The display is red when locked. When released, the display turns green. The display is red during a passage in the opposite direction.<br><br>› Standby off: The display is off when locked. When released, the display turns green. The display is red during a passage in the opposite direction.<br><br>› Standby green: The display is green when locked. When released, the display flashes green. The flashing frequency is increased at the end of the hold-open time. The display is red during a passage in the opposite direction.<br><br>**Factory setting**<br><br>› Standby green |
| GED mode exit | ↗ "GED mode entry" parameter. |

Table 25:     Signalling

**6.2.7    Random check function**

> IMPORTANT!
>
> For certain applications, it makes sense to invert the input assigned with the "Random check function" via the "Invert Inputs/Outputs" menu.

The MGC control unit is equipped with the "Random check function" option. This function allows random bag and identity control of persons.

If a hit was generated by the random check function and the next validation is blocked by the random check function, the following symbol appears on the display of the control unit: «🔒».

For the random check function you can choose between "Counting" or "Random" modes. You activate the random check function via a permanent signal (+24 V DC) at the "Random check function" input. If the random check function has generated a hit, the pedestrian gate is not opened for passage despite a valid validation.

A signal is emitted at the output with the "Random hit" function. You can connect a signal lamp or a siren to this output.

The passage remains blocked until the random hit / validation is confirmed with a 0 V pulse at the "Random check function" input.

| Operational view > Main menu > Settings > Random check function | |
|---|---|
| **Parameter** | **Description** |
| Mode | Set the function of the random check function. |
| | **Options** |
| | › Deactivated: The random check function is not in operation. |
| | › Counting: If the number of passages since activation has reached the set value for the "Hit range" parameter, a hit is reported and the passage is blocked. For example, if you set the value "100" for the "Hit range" parameter, a hit is generated every 100$^{th}$ passage. A hit is confirmed via the "Random check function" input function. After acknowledgement, the random check function counter restarts. As soon as the random check function is activated, all passages are also taken into account in the "Permanent open" operating mode. You can use this function, for example, with simple 1-lane systems to grant access to a certain number of people, such as in a gondola cabin. |
| | › Random: Refer to the following page. |

| Operational view > Main menu > Settings > Random check function | |
|---|---|
| **Parameter** | **Description** |
| Mode<br>(Continued) | **Options (continued)**<br>› Random: You can set the random probability using the "Hit range" and "Count of hits" parameters. By activating the random check function, the set "Count of hits" is randomly generated, which must lie within the set "Hit range". For example, if you set the value "100" for the "Hit range" parameter and "10" for the "Count of hits" parameter, hits are generated randomly for 10 people out of 100.<br>A hit is confirmed via the "Random check function" input function. After acknowledgement, the random check function counter restarts.<br>The "Random" mode is not active in the "Permanent open" operating mode. I.e. in the "Permanent open" operating mode, the passages are ignored for the "Random check function".<br>In "Random" mode, only passages with active individual validation are taken into account so that a random hit is surprising for the user. Even in the case of pedestrian gates with low pedestrian traffic, the user cannot detect beforehand if a check is about to happen.<br><br>**Factory setting**<br>› Deactivated |
| Hit range | The function depends on the selected mode.<br><br>For the "Counting" mode, use this parameter to set the value at which a hit is to be generated.<br><br>For the "Random" mode, set the number range in which the random hits must lie. For example, if you set the value to "100", the random hits must be in the range 1 to 100.<br><br>IMPORTANT! The value for the "Count of hits" parameter can be a maximum of 40 % of the value for the "Hit range" parameter. If the value set for the "Count of hits" parameter is too high, the "Count of hits" parameter is automatically adjusted.<br><br>**Setting range**<br>› 10 to 10000<br>**Factory setting**<br>› 1000 |
| Count of hits | Set the number of hits to be generated in the set Count of hits.<br><br>IMPORTANT! The value for the "Count of hits" parameter can be a maximum of 40 % of the value for the "Hit range" parameter. If the value set for the "Hit range" parameter is too high, the "Hit range" parameter is automatically adjusted.<br><br>**Setting range**<br>› 1 to 1000<br>**Factory setting**<br>› 10 |

| Operational view > Main menu > Settings > Random check function | |
|---|---|
| **Parameter** | **Description** |
| Delete validation | Use the "Delete validation" parameter to specify whether the validation is to be deleted automatically in the event of a random hit. Validations are only deleted if the option "Entry" or "Exit" has been selected for the parameter "Direction". |
| | **Options** |
| | › [ X ]: Activated<br>Select this option if you want the check to take place before the passage. The user leaves the area via a separate passage. |
| | › [  ]: Deactivated<br>Select this option if you want the passage to take place when the hit is confirmed. In this case, the check is carried out after the passage. |
| | **Factory setting** |
| | › [  ]: Deactivated |
| Direction | Select the passage direction for which the random hits are to be generated. |
| | **Options** |
| | › Both: Random hits occur in both passage directions. With this option, validations are not deleted. |
| | › Entry: Random hits occur only for passages in zone controlled direction. |
| | › Exit: Random hits occur only for passages in zone not controlled direction. |
| | **Factory setting** |
| | › Both |

Table 26:     Random check function

### 6.2.8 Sensor bicycle door

| Operational view > Main menu > Settings > Sensor bicycle door | |
|---|---|
| **Parameter** | **Description** |
| Sensor bicycle door | This parameter is only available for MPB-311. |
| | Select sensor / button for bicycle detection. |
| | **Options** |
| | › Induction loops / buttons<br>Connect the induction loops to the DM02 loop detector module. ↗ Page 17, chapter 2.3<br>Connect the buttons to the following inputs: "Sensor / button entry" (↗ Page 11) and "Sensor / button exit" (↗ Page 11). |
| | › Laser scanners<br>Connect the laser scanners to the following inputs: "Sensor / button entry" (↗ Page 11) and "Sensor / button exit" (↗ Page 11). |
| | › Buttons<br>Connect the buttons to the following inputs: "Sensor / button entry" (↗ Page 11) and "Sensor / button exit" (↗ Page 11). |
| | **Factory setting** |
| | › Induction loops / buttons |

Table 27:     Sensor bicycle door

## 6.3     "Inputs/Outputs" menu

### 6.3.1     Inputs

### 6.3.2     Outputs

### 6.3.3 Inverted In-/Outputs

This menu is only intended for MAGNETIC's service and only accessible with a password.

This menu allows you to invert individual inputs and outputs and with it the assigned functions. Customer-side additional relays for signal inversion are therefore not required.

**Example**

The input IN6 is assigned the function "Inhibit opening". In delivery state, this input is parameterised so that no validations are accepted as soon as a voltage of 24 V is applied to this input.

If no validations are to be accepted as soon as a voltage of 0 V is applied to input IN6, invert the "Inhibit opening" function according to the following description.

The operational view is displayed. ↗ Page 31, Fig. 10.

1. Press the right button « ⚡ ».

    √ The "Main Menu" menu is displayed.

2. Select the menu "Inputs/Outputs".

3. Confirm selection with the right control button « ✔ ».

4. Select the menu "Invert Inputs/Outputs".

5. Confirm selection with the right control button « ✔ ».

6. Enter "Service Password".

7. Confirm password with the right control button « ✔ ».

8. Select the menu "Inputs".

9. Confirm selection with the right control button « ✔ ».

10. Select input "Input 6 [   ]".

11. Invert the function of the input with the right button « ✔ ».

    √ Your selection is marked with the symbol [ X ].

12. Use the left button « ⬅ » to leave the "Settings" menu.

    √ The menu "Invert In-/Outputs" is displayed.

13. Press the left button « ⬅ » repeatedly until the operational view is displayed again.

Input IN6 and therefore the assigned function "Inhibit opening" is inverted. In the menu "Information ()", the input IN6 with inverted function is marked with a "|"; in this example, it is "IN6: | Inhibit opening".

## 6.4 "Service" menu

### 6.4.1 Gate HW

> **IMPORTANT!**
>
> As standard, the turnstile is delivered with the "locking (rotating freely when de-energised)" configuration. If you want a different configuration, convert the locking and adjust the parameters "Invert magnet RL1" and "Invert magnet RL2". Possible configurations: ↗ Page 53, Table 29.
>
> For locking conversion, see separate operating instructions ↗ Page 7, chapter 1.2.

| Operational view > Main menu > Service > Gate HW | |
|---|---|
| **Parameter** | **Description** |
| Invert magnet RL1 | This parameter is used to specify the switching signal for the Magnet RL1 for locking. <br> **Options** <br> › [ ]: Deactivated: Locked when de-energised. In the event of power failure, the lock is locked and the centre pillar **cannot** be turned. <br> › [ X ]: Activated: Rotating freely when de-energised. In the event of power failure, the locking is unlocked and the centre pillar can be turned. <br> **Factory setting** <br> › [ X ]: Activated |
| Invert magnet RL2 | This parameter is used to specify the switching signal for the Magnet RL2 for locking. <br> **Options** <br> › [ ]: Deactivated: Locked when de-energised. In the event of power failure, the lock is locked and the centre pillar **cannot** be turned. <br> › [ X ]: Activated: Rotating freely when de-energised. In the event of power failure, the locking is unlocked and the centre pillar can be turned. <br> **Factory setting** <br> › [ X ]: Activated |

| Operational view > Main menu > Service > Gate HW | |
|---|---|
| **Parameter** | **Description** |
| Exit direction | MPT-333 and MPT-311: Unless otherwise ordered, the turnstile is delivered for the "Entrance side right" design. The control unit is parameterised accordingly. MPT-333: ↗ Page 62, chapter 7.1 and MPB-311: ↗ Page 66, chapter 7.3 |
| | MPT-353: Unless otherwise ordered, both control units are delivered with the "Entrance side right" configuration. When standing in front of the MPT-353 in the zone not controlled, the right turnstile is an entry and the left turnstile is an exit. MPT-353: ↗ Page 64, chapter 7.2 |
| | If the version or the configuration "Entrance side right" does not fit, the parameterisation can be changed via the parameter "Exit direction" for the version or configuration "Entrance side left". |
| | Note that if you change the parameter, you must also convert the locking unit in the support beam. |
| | **Options** |
| | › Right: All relevant parameters are parameterised for the version "Entrance side right". On passage in zone controlled direction, the centre pillar can be turned counter-clockwise. |
| | › Left: All relevant parameters are parameterised for the version "Entrance side left". On passage in zone controlled direction, the centre pillar can be rotated clockwise. |
| | **Factory setting** |
| | › Depending on the version ordered |

Table 28:     Gate HW
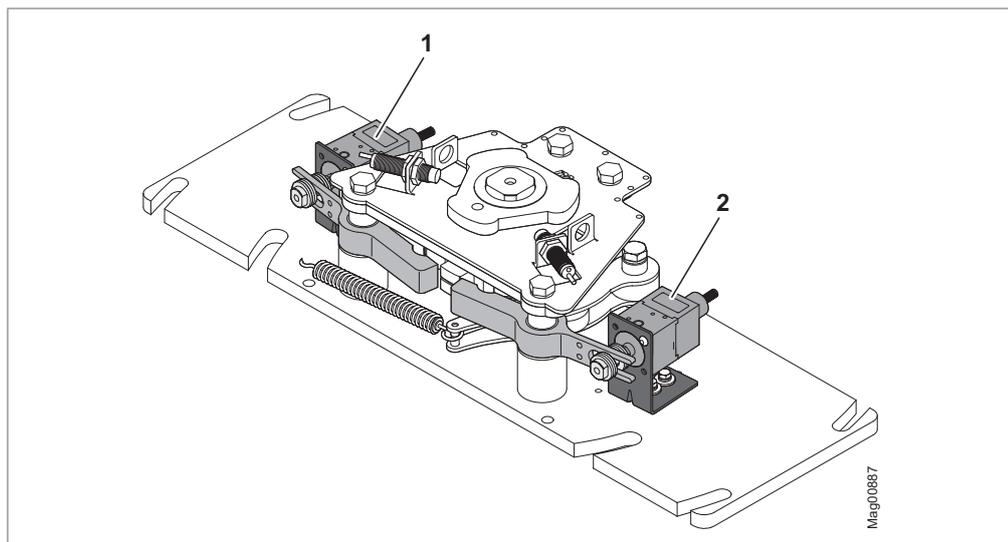


Fig. 27:     Locking unit configuration "rotating freely when de-energised"
1    Magnet RL1
2    Magnet RL2

**Installation version Magnets and Settings MGC**

The following installation versions are possible for the magnets RL1 and RL2. The settings for the parameters "Invert RL1" and "Invert RL2" depend on the installation version.

The parameter "exit direction" determines the direction of rotation of the centre pillar. The settings of the parameter depends on the version ordered.

| Installation version Magnets | | | | Settings MGC | | | |
|---|---|---|---|---|---|---|---|
| Magnet RL1 | | Magnet RL2 | | Parameter: Exit direction | | Parameter: Invert ... | |
| Rotating freely when de-energised | Locked when de-energised | Rotating freely when de-energised | Locked when de-energised | Option: Left | Option: Right | RL1 | RL2 |
| RL1 and RL2 "rotating freely when de-energised" | | | | | | | |
| X | – | X | – | – | X | [ X ] | [ X ] |
| X | – | X | – | X | – | [ X ] | [ X ] |
| RL1 and RL2 "locked when de-energised" | | | | | | | |
| – | X | – | X | – | X | [ ] | [ ] |
| – | X | – | X | X | – | [ ] | [ ] |
| RL1 "rotating freely when de-energised", RL2 "locked when de-energised" | | | | | | | |
| X | – | – | X | – | X | [ ] | [ X ] |
| X | – | – | X | X | – | [ X ] | [ ] |
| RL1 "locked when de-energised", RL2 "rotating freely when de-energised" | | | | | | | |
| – | X | X | – | – | X | [ X ] | [ ] |
| – | X | X | – | X | – | [ ] | [ X ] |

Table 29: Installation version of Magnets and Settings MGC

### 6.4.2 Further parameters

| Operational view > Main menu > Service | |
|---|---|
| **Parameter** | **Description** |
| Cycles | Display of complete passage procedures. |
| Lifetime | Displays the operating hours counter. The operating hours counter records the time, during which the pedestrian gate is supplied with electrical power. |
| System time | Displays the internal date and the internal clock. |
| Main menu password | Activate and deactivate password protection for the main menu. To activate a change of the settings, you must power cycle the power supply. **Options** › Inactive (OFF): You can change the main menu without entering a password. › Active (ON): You can change the main menu only after entering a password. The password is identical with the one for the "Service" menu. **Factory setting** › Inactive (OFF) |

Table 30: Service – Further parameters

## 6.5 "System" menu

| Operational view > Main menu > System | |
|---|---|
| **Parameter** | **Description** |
| Language | Select menu language. **Factory setting** › English |
| Date/Time | Correct date and time of the control unit MGC. |

Table 31: System

## 6.6     "Passage counter" menu

| Operational view > Main menu > Passage counter | |
| --- | --- |
| **Parameter** | **Description** |
| From entry | Display for the number of completed passages in zone controlled direction. If necessary, the value can be changed.<br><br>**Setting range**<br>› 0 to 30000 |
| From exit | Display of the number of passages completed in the zone not controlled direction. If necessary, the value can be changed.<br><br>**Setting range**<br>› 0 to 30000. |

Table 32:     Passage counter

## 6.7     "Information" menu

| Operational view > Main menu > Information | |
| --- | --- |
| **Parameter** | **Description** |
| Serial no | Displays the serial number of the control unit |
| Hardware version | Displays the present hardware version |
| Software # | Displays the present software number |
| SW version | Displays the present software version |
| Temperature | Displays the current temperature in the control unit |
| Logic voltage | Display of the logic voltage, from hardware version E |
| X20-EN | Display of the analogue voltage 0–10 V at the terminal "X20-EN", from hardware version E onwards |
| PSU-FB | Feedback signal of the mains unit (for future expansions), from hardware version E onwards |

Table 33:     Information

## 6.8 Menu "Detector 1 (A-B)"

The menu is only relevant for MPB-311.

The assignment of the induction loops is fixed:

› Induction loop A: Entry (passage from the zone not controlled (ZNC) to the zone controlled (ZC))

› Induction loop B: Exit (passage from the zone controlled (ZC) to the zone not controlled (ZNC))

| Operational view > Main Menu > Detector 1 (A-B) | |
|---|---|
| **Parameter** | **Description** |
| Recalibration | Start reference of the induction loops (activate) |
| Mode A | › **No** induction loop connected: You must select option "Inactive" for this parameter. <br> › Induction loop connected: This parameter setting does not influence the function. <br> **Factory setting** <br> › Monitoring |
| Mode B | › **No** induction loop connected: You must select option "Inactive" for this parameter. <br> › Induction loop connected: This parameter setting does not influence the function. <br> **Factory setting** <br> › Active |
| Sensitivity A | Set the response sensitivity of the induction loop A. The response sensitivity is divided into increments. <br> **Setting range** <br> › 0 to 9 <br> **Factory setting** <br> › 5 |
| Sensitivity B | Set the response sensitivity of the induction loop B. The response sensitivity is divided into increments. <br> **Setting range** <br> › 0 to 9 <br> **Factory setting** <br> › 5 |
| Frequency setting | ↗ Page 57, Table 35. |
| Special functions | This submenu has no function for MPB-311. |
| Information | Displays information via the plug-in module "Detector 1 (A–B)". Here, for example, the serial number, hardware version and software version of the plug-in module are displayed. |

Table 34: Detector 1 (A-B)

| Operational view > Main Menu > Detector 1 (A-B) > Frequency settings | |
|---|---|
| **Parameter** | **Description** |
| Freq. A | Displays the currently measured frequency for induction loop A |
| Freq. B | Displays the currently measured frequency for induction loop B |
| Freq. Shift | Interference influences, e.g. from external loop detectors or induction loops can influence the frequency of induction loops A and B. Use the parameter "Freq. shift" to change the frequency values for induction loops A (channel A) and B (channel B) by approx. 10% and thus reduce the influence on induction loops A and B.<br><br>**Options for channels A and B.**<br>› High: high frequency value<br>› Low: low frequency value<br>**Factory setting**<br>› High |
| Ref val. A | Displays the reference frequency for induction loop A |
| Ref val. B | Displays the reference frequency for induction loop B |

Table 35:        Frequency settings

### 6.8.1        Check the working frequency of the induction loops.

The operational view is displayed.

1.    To check the working frequency of the induction loops, press the left button "ℹ" repeatedly until the menu "Detector 1 (A-B)" is displayed.
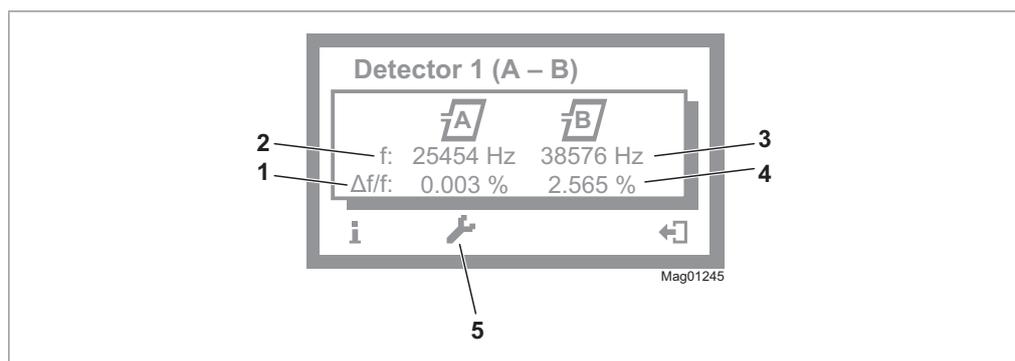


Fig. 28:        View "Detector 1 (A-B)" (example)
1    Relative frequency of induction loop A
2    Currently measured frequency of induction loop A
3    Currently measured frequency of induction loop B
4    Relative frequency of induction loop B
5    Perform reference of the induction loops

2.    Press the right button «⬅».

    √  The operational view is displayed again.

### 6.8.2 Reconciling and setting the operating frequency of the induction loop

**Operating frequency requirements**

The operating frequency must fulfil following requirements:

› When driving over the induction loop with a bicycle, a significant frequency increase must be measurable. Chose stage 5 or 6 for sensitivity. The relative frequency change (Δf/f) must be at least 0.1%. The higher the relative frequency increase, the higher the operating safety of the induction loop.

› The induction loops of a control unit operate alternating, and can therefore not affect each other. However, to avoid interferences by frequency coupling from external loop detectors or other control devices in the direct proximity, a frequency clearance of at least 1000 Hz must be kept to them. For this, the menu "Freq. shift" is used to set the frequency option to "Low" or "High" or to adjust the induction loop coil number.

**Recalibrate the working frequency via the "Information" menu**

The operational view is displayed. ↗ Page 36, Fig. 24.

1.  Press the left button «  » repeatedly, until the menu "Detector 1 (A-B)" is displayed. ↗ Page 57, Fig. 28.

2.  Press the second operating button from the left «  ».

    √ The induction loops are recalibrated. The loop symbols flash during recalibration.

3.  Test the working frequencies.

4.  Press the right button «  ».

    √ The operational view is displayed.

5.  If necessary, set sensitivity etc. via the "Detector 1 (A-B)" menu.
    Path: Operational view > Main Menu > Detector 1 (A-B)

**Frequency value of the un-assigned induction loop unstable**

If the frequency value of an induction loop is unstable, this induction loop is influenced by another induction loop or an external detector. The induction loops connected to the two channels of a detector module do not affect each other.

Depending on the loop geometry and settings of the external detector, set the menu "Freq. shift" to "Low" or "High".

The operational view is displayed. ↗ Page 36, Fig. 24.

1. Press the right button «⌐».

   √ The "Main Menu" menu is displayed.

2. Select the menu "Freq. shift". Path: Main menu > Detector 1 (A-B) > Frequency settings > Freq. shift

3. Confirm selection with the right control button «✔».

4. Select the parameter "Channel A" or "Channel B" with the two middle buttons «✚», «➖».

5. Confirm selection with the right control button «✔».

6. The selected parameter "Channel A" or "Channel B" is displayed.

7. Select the option "Low" or "High" with the two middle buttons «✚», «➖».

8. Use the right button «✔» to select the option. Your selection is marked with the symbol «✔».

9. Use the left button «⬅» to leave the menu.

   √ The safety prompt "Save changes?" appears.

   › If the changes are to be saved, press the right button «✔».

   › If the changes are not to be saved, press the left button «✖».

10. Press the left button «⬅» repeatedly until the operational view is displayed again.

11. Test the working frequency.

## 6.9 "Factory settings" menu

> **IMPORTANT!**
>
> The parameters of the control unit are stored in the three memory areas "Default settings", "Factory settings" and "User settings".
>
> The default settings are identical to the factory settings in these operating instructions. The default settings are firmly store din the firmware and cannot be changed.
>
> The factory settings can be assigned factory- or product-specific settings.
>
> The user settings are the operating parameters.

**Options in the "Factory settings" menu**

The menu "Factory setting" offers the following options:

> ⟩ Restore factory settings: The stored parameters in the memory area "Factory settings" are accepted as operating settings.

> ⟩ User settings as factory settings: The current parameter settings are stored as factory settings. These factory settings can be used to receive project-specific settings.

> ⟩ Default settings as factory settings: The factory settings are overwritten by the default settings.

If you would like to accepted the default settings as operating settings and the factory settings were overwritten first, you need to use the option "Default settings as factory setting" and then the option "Restore factory setting".

**"Restore factory setting" option**

The operational view is displayed. ↗ Page 36, Fig. 24.

1. Press the right button «⤶».

   √ The "Main Menu" menu is displayed.

2. Select the menu "Factory setting" with the two middle buttons «✚», «✚».

3. Confirm selection with the right control button «✔».

4. Enter password "0 0 0 0".

5. Confirm password with the right control button «✔».

   √ The message "Restore to factory settings" appears.

6. Press the right button «✔».

   √ The safety prompt "Save changes?" appears.

   › If the changes are to be saved, press the right button «✔». The current settings are reset to factory settings. A restart is performed.

   › If the changes are not to be saved, press the left button «✖».

7. Press the left button «⟵」» repeatedly until the operational view is displayed again.

**Via service password for all options**

The service password is different from the password "0 0 0 0".

The operational view is displayed. ↗ Page 36, Fig. 24.

1. Press the right button «⤵».

   √ The "Main Menu" menu is displayed.

2. Select the menu "Factory setting" with the two middle buttons «✚», «✚».

3. Confirm selection with the right control button «✔».

4. Enter "Service Password".

5. Confirm password with the right control button «✔».

   √ The message "Restore to factory settings" appears.

6. Select the desired option with the two middle buttons «✚», «✚».

7. Confirm selection with the right control button «✔».

   √ The safety prompt "Save changes?" appears.

   › If the changes are to be saved, press the right button «✔». The current settings are reset to factory settings. A restart is performed.

   › If the changes are not to be saved, press the left button «✖».

8. Press the left button «⟵」» repeatedly until the operational view is displayed again.

# 7 Definitions and versions

## 7.1 Definitions and versions MPT-333

### Left and right

> Left: The passage is to the left of the centre pillar.

> Right: The passage is to the right of the centre pillar.

### Entry and exit

The service door or the cover of the support beam points into the zone controlled.

> Entry: Passage from the zone not controlled (ZNC) to the zone controlled (ZC)

> Exit: Passage from the zone controlled (ZC) to the zone not controlled (ZNC)

### Version "Entrance side right"

| Entry | Exit |
|---|---|
|  |  |
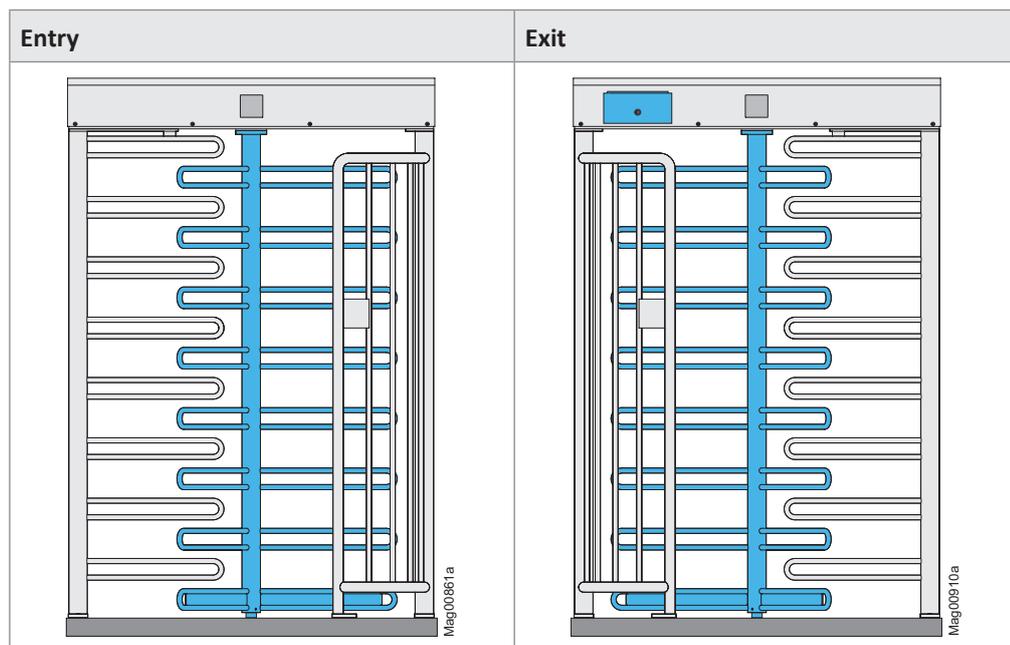
Fig. 29: Version "Entrance side right", here MPT-x3x 3x120° – view from the zone not controlled (ZNC), the entry is to the right of the centre pillar

Fig. 30: Version "Entrance side right", here MPT-x3x 3x120° – view from the - zone controlled (ZC), the exit is to the left of the centre pillar

**Version "Entrance side left"**
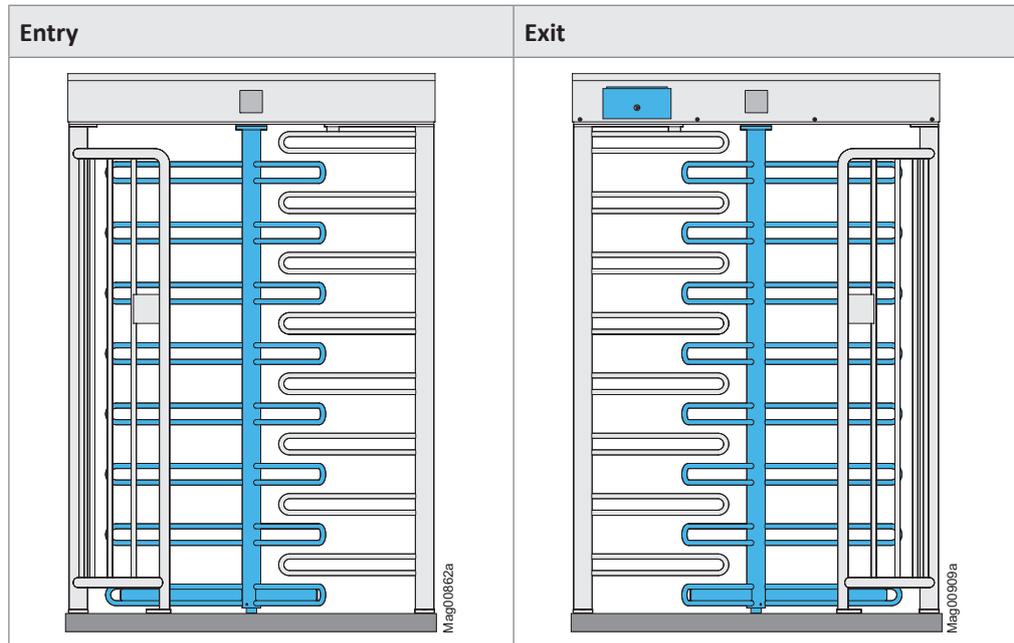
| Entry | Exit |
|---|---|
|  |  |
| Fig. 31: Version "Entrance side left", here MPT-x3x 3x120° – view from the zone not controlled (ZNC), the entry is to the left of the centre pillar | Fig. 32: Version "Entrance side left", here MPT-x3x 3x120° – view from the - zone controlled (ZC), the exit is to the right of the centre pillar |

> **IMPORTANT!**
>
> Unless otherwise ordered, the standard version is "Entrance side right".

## 7.2    Definitions and versions MPT-353

**Left and Right**

› Left: The passage is to the left of the centre pillar.

› Right: The passage is to the right of the centre pillar.

**Versions**

> **IMPORTANT!**
>
> Unless otherwise ordered, both MGC control units are delivered with the "Entrance side right" configuration. When standing in front of the MPT-x5x in the zone not controlled, the right turnstile is an entry and the left turnstile is an exit.

The service doors in the support beam should point towards the zone controlled.
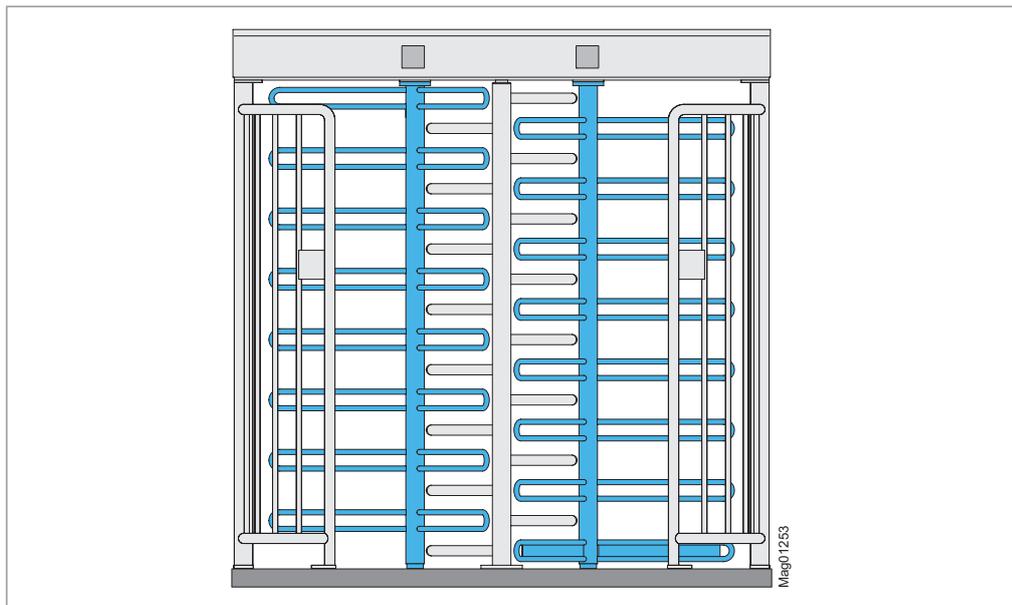


Fig. 33:    View from zone not controlled (ZNC), here MPT-x5x 3x120°
If both control units are supplied with the configuration "Entrance side right", as seen from the zone not controlled, the right turnstile is an entry and the left turnstile is an exit.
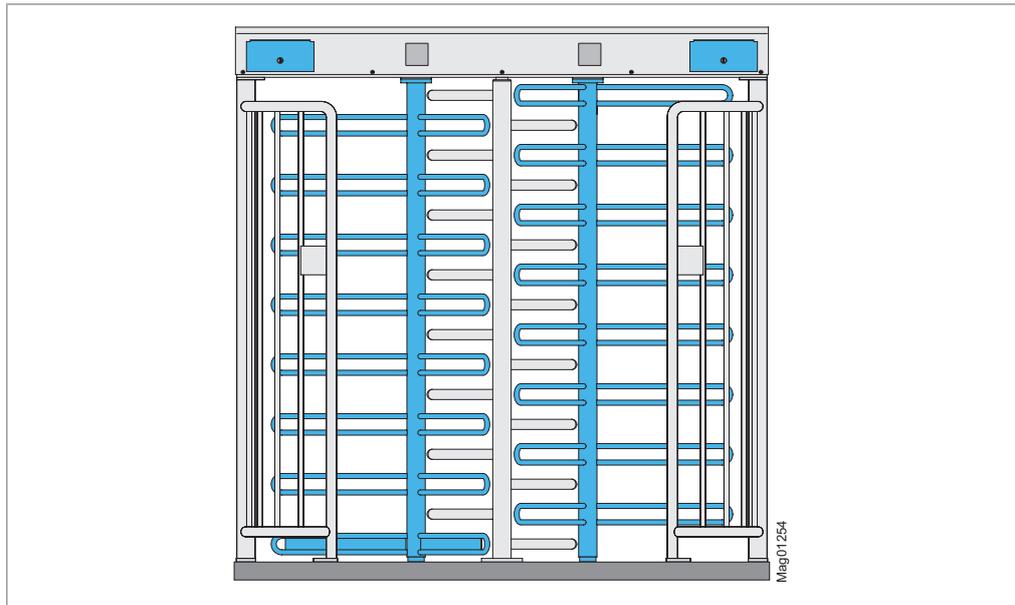
Fig. 34:     View from zone controlled (ZC), here MPT-x5x 3x120°
             If both control units are supplied with the configuration "Entrance side right", as
             seen from the zone controlled, the right turnstile is an exit and the left turnstile
             is an entry.

## 7.3      Definitions and versions MPB-311

**Left and right**

› Left: The person passage is to the left of the centre pillar.

› Right: The person passage is to the right of the centre pillar.

**Entry and exit**

The service door or the cover of the support beam points into the zone controlled.

› Entry: Passage from the zone not controlled (ZNC) to the zone controlled (ZC)

› Exit: Passage from the zone controlled (ZC) to the zone not controlled (ZNC)

> **IMPORTANT!**
> Unless otherwise ordered, the standard version is "Entrance side right" (MPB-311B).

**Version "Entrance side right" (MPB-311B)**

| Entry |
|---|
|  |
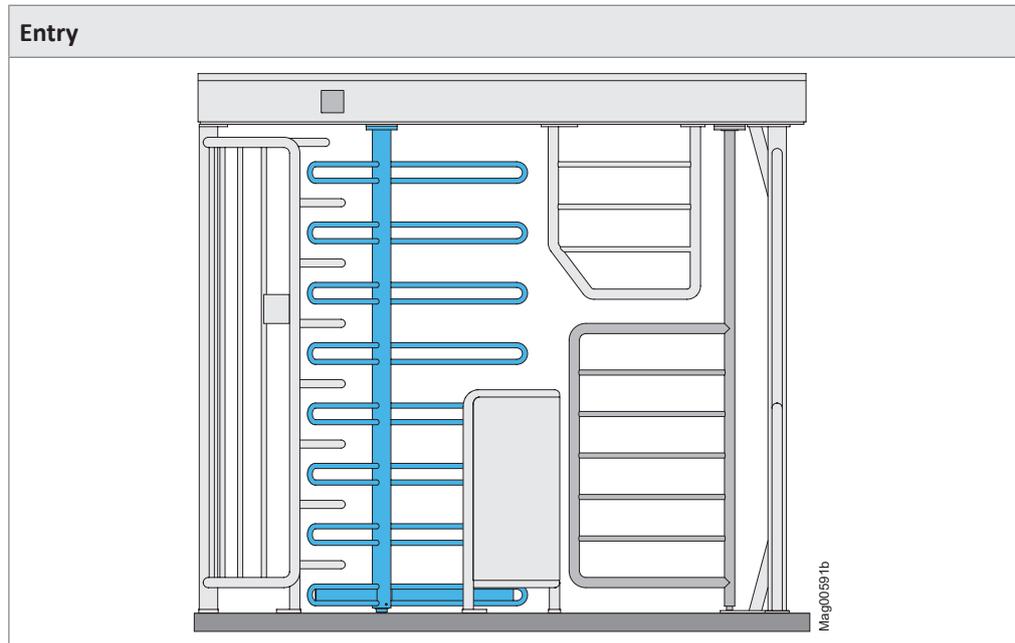
Fig. 35:      Version "Entrance side right" - view from the zone not controlled (ZNC), the entrance is to the right of the centre pillar
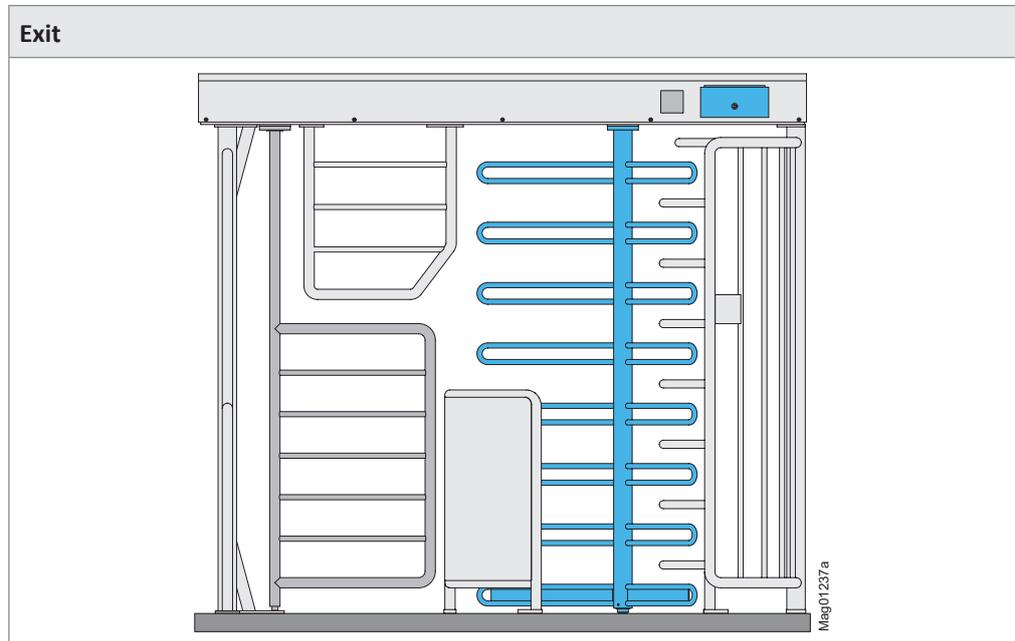
| Exit |
|---|
|  |

Fig. 36:      Version "Entrance side right" - view from the zone controlled (ZC), the exit is to the left of the centre pillar

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**Version "Entrance side left" (MPB-311B)**

| Entry |
|---|
|  |
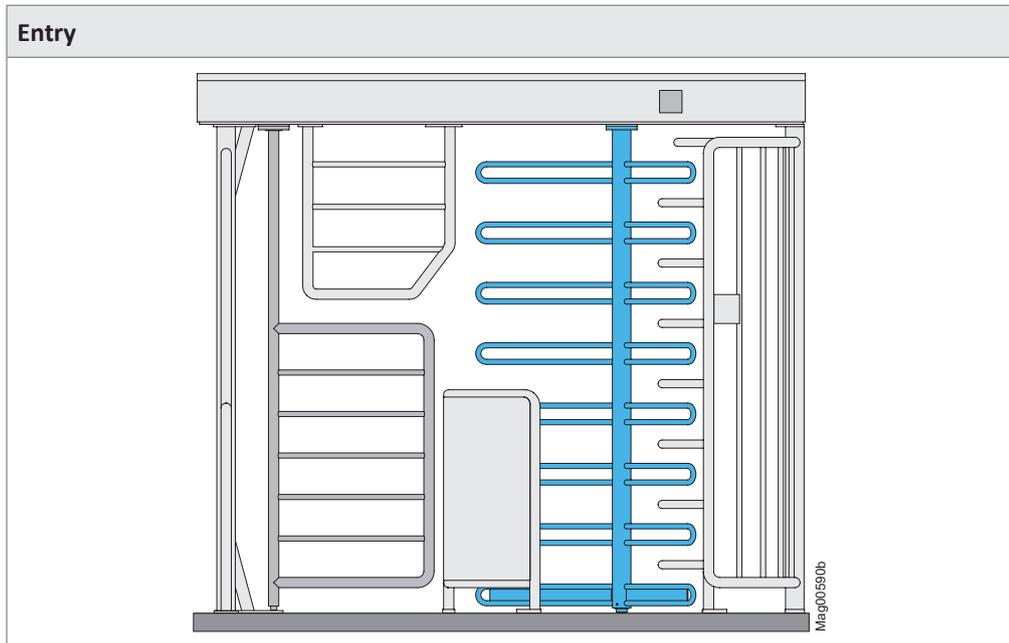
Fig. 37:    Version "Entrance side left" - view from the zone not controlled (ZNC), the entrance is to the left of the centre pillar
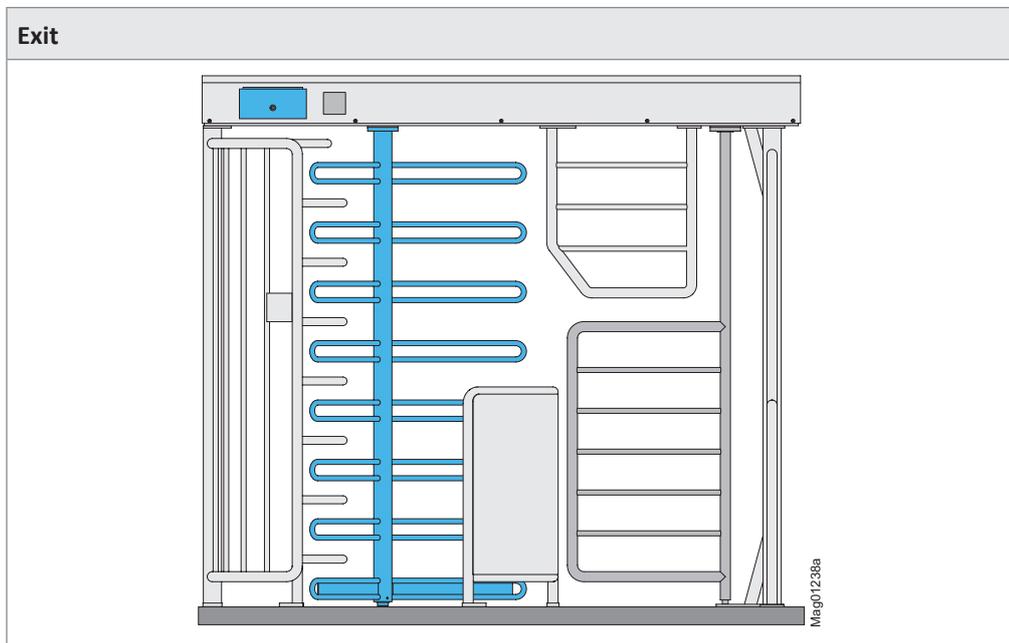
| Exit |
|---|
|  |

Fig. 38:    Version "Entrance side left" - view from the zone controlled (ZC), the exit is to the right of the centre pillar

# 8       Function description MPT-3x3

## 8.1     Function MPT-3x3

The MPT turnstile is used to control pedestrians in outdoor areas with relatively high safety requirements. The turnstile can be operated either in one direction or in both directions.

Normally, the turnstile is closed. Only after validation by means of an external command unit, such as a card reader, will a passage be possible and the centre pillar can be rotated by 120° or 90° depending on the variant. If the centre pillar is not turned completely, a spring moves the centre pillar to the next end position.

Alternatively, the turnstile can be enabled permanently in one direction or in both directions.

As standard, the turnstile is supplied with the "locking rotating freely when de-energised" configuration. In this case, the turnstile can be passed in both directions in the de-energised state. If the turnstile is supplied with the configuration "locking locked when de-energised", the turnstile is locked in both directions.

A random check function is integrated for checking persons or bags. If the random check function reaches the random value of passages, the passage is blocked and a signal is given. Only after the operating personnel has actuated an enable signal, the passage is enabled and the person can pass.

## 8.2 Function sequence MPT-3x3

```
                        ┌──────────────┐
                   ┌───→│    Start     │
                   │    └──────────────┘
                   │           │
                   │           ▼
                   │  ┌────────────────────┐
                   │  │ The control unit   │
                   │  │ receives           │
                   │  │ a validation.      │
                   │  └────────────────────┘
                   │           │
                   │  ┌────────────────────┐
                   │  │ Passage is         │
                   │  │ possible.          │
                   │  └────────────────────┘
                   │           │
                   │  ┌────────────────────┐
                   │  │ The hold-open time │
                   │  │ starts to expire.  │
                   │  └────────────────────┘
```

Start → The control unit receives a validation. → Passage is possible. → The hold-open time starts to expire.

**Has the centre pillar been turned?**
- No → **Has the hold-open time expired?**
  - No → Has the centre pillar been turned by 120° or 90°?
  - Yes →
- Yes → Has the centre pillar been turned by 120° or 90°?

**Has the centre pillar been turned by 120° or 90°?**
- No → (return to: Has the centre pillar been turned?)
- Yes → The hold-open time is reset. The validation is deleted.

The hold-open time is reset. The validation is deleted.

**Is there another validation pending?**
- (Yes → Passage is possible.)
- No → The passage is locked.

The passage is locked. → End

Mag00922b

## 8.3 Start-up and regular movement sequence MPT-3x3

### 8.3.1 De-energised state

The turnstile is available in the following configurations:

› Locking rotating freely when de-energised

› Locking locked when de-energised

If no details were given in the order, the configuration "Locking rotating  freely when de-energised" is supplied.

If a conversion is necessary, the locking must be converted and the parameters adjusted.

**"Lock rotating freely when de-energised" configuration**

With this configuration, the turnstile can be passed in both directions in the de-energised state. The centre pillar can be turned freely.

**"Lock locked when de-energised" configuration**

With this configuration, the turnstile is locked in both directions in the de-energised state. The centre pillar is locked.

If the turnstile is equipped with the optional MAENT100 release lock, the lock can be manually released.

### 8.3.2 Regular movement process

After receiving a validation in one direction, the turnstile is released in the passage direction. Depending on the variant, the centre pillar can be rotated either by 120° or 90°. If the centre pillar is not turned completely, a spring moves the centre pillar to the next end position.

### 8.3.3 Start-up routine (reference run)

After the start, the turnstile is immediately ready for operation.

## 8.4      Operating modes MPT-3x3

### 8.4.1      Pulse operation in both directions

The two inputs "Open entry" and "Open exit" are used to clear passage in the corresponding direction for one passage each. The pulse must be present between 0.2 and 1 sec.

When there is a validation available for one of the passage directions, the hold-open time starts to run off. Within this hold-open time, passage must be commenced. After the hold-open time has expired, the passage is blocked again in this direction.

In this operating mode, validations (pulses) for both passage directions can be stored and processed one after the other.

If validations were stored for both directions, both directions are cleared at first. The hold-open time starts running for both directions immediately.

The processing of the stored validations is independent of the sequence in which the control unit received the validations. This means that if there are validations for both passage directions, passage in both directions is possible. When a passage has been completed, the control unit verifies again for which directions validations are still stored. If validations are still stored, the hold-open time is count down again.

### 8.4.2      Pulse operation in one direction, permanent open in the other direction

Prerequisite: For the parameter "Permanent open" either the option "After 3 s" or "After 10 s" has been selected. "Permanent open" parameter: ↗ Page 43

When a permanent signal is present on one of the two inputs "Open entry" and "Open exit", passage is cleared in the corresponding direction. Pulse operation remains active in the other direction.

If a validation is given for the passage direction in pulse operation, it is still possible to pass the pedestrian gate in the permanent open direction. After a successful passage, the hold-open time for the passage direction is set anew in pulse operation.

After removal of the permanent signal, the corresponding direction is locked at once without completion of the hold-open time.

### 8.4.3 Permanent open in both directions

Prerequisite: For the parameter "Permanent open" either the option "After 3 s" or "After 10 s" has been selected. "Permanent open" parameter: ↗ Page 43

If a permanent signal is present at the two "Open entry" and "Open exit", the control unit switches to the "Permanent open" operating mode for both directions. This means that the passage is enabled in both directions and there are no validation required.

After removal of the permanent signal, the corresponding direction is locked at once without completion of the hold-open time.

## 8.5 Emergency situation MPT-3x3

If the "| Emergency open" input is interrupted during operation, the turnstile switches to the "Permanent open" operating mode. The centre pillar can rotate freely in both directions.

The status is logged via the warning message 0xFF20.

As soon as power is restored at the "| Emergency open" input of the control unit, the turnstile is put back into operation.

## 8.6 Random check function MPT-3x3

# 9 Function description MPB-311

## 9.1 Function MPB-311

The MAGNETIC pedestrian gate MPB is made of a turnstile and a bicycle access.

The pedestrian gate controls access of persons from a zone not controlled to a zone controlled. The separate bicycle access makes it possible to take along a bicycle into the zone controlled.

Basically, the pedestrian gate can be used in both directions. In multi-lane installations with high passage rates, the entry and exit lanes can also be configured for one-way passage.

In its normal state, the pedestrian gate is closed. The turnstile and the bicycle access unlock only after validation by an external command transmitter, e.g. card reader.

The centre pillar is moved depending on the drive version. With the electromechanical version, the centre pillar is moved manually. The end positions are mechanically locked. Furthermore, there will be a return latch after 60°.

The bicycle door can be opened either by induction loops, buttons or laser scanners.

As standard, the turnstile is supplied with the "locking rotating freely when de-energised" configuration. In this case, the turnstile can be passed in both directions in the de-energised state. If the turnstile is supplied with the configuration "locking locked when de-energised", the turnstile is locked in both directions. The bicycle access is always supplied with the "locked when de-energised" configuration. In the de-energised state, the bicycle access is blocked in both directions.

The turnstile is controlled by the MGC control unit. The bicycle door of the bicycle access is controlled via the MBC-110 control unit. The communication between the two control units is realised via the connection unit RIO44. The MGC control unit is used for the customer's control.

The MGC control unit is factory-equipped with at least one MFM01 plug-in module and one DM02 loop detector module. The loop detector module is used to connect the induction loops for the bicycle access. More information: ↗ Page 17, chapter 2.3

If the bicycle door is to be opened via buttons or laser scanners, these signals are connected to the MGC control unit.
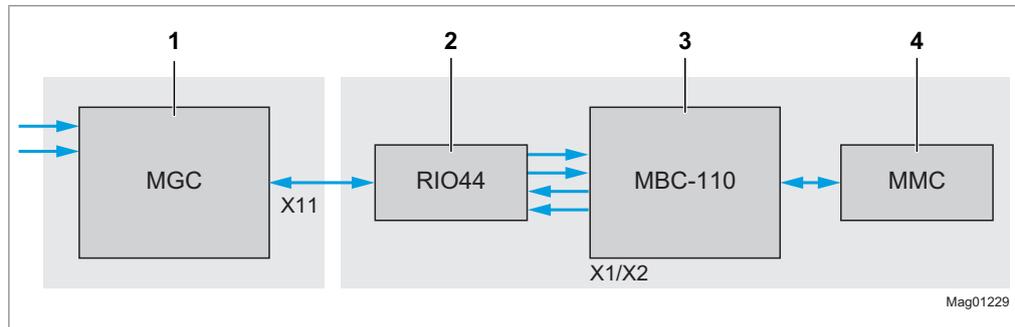


Fig. 39:       Overview control unit MPB-311

1     Control unit MGC: Turnstile control, connection of customer-side control lines, Connection of plug-in module MFM01 and connection of loop detector module DM02
2     Connection unit RIO44
3     Control unit MBC-110: Bicycle access bicycle door control
4     Motor control unit MMC: Control of the motor of the bicycle door

## 9.2 Function sequence MPB-311

```
                        ┌─────────────┐
                        │    Start    │
                        └─────────────┘
                               │
                   ┌───────────────────────┐
                   │ The control unit receives │
                   │     a validation.      │
                   └───────────────────────┘
                               │
                   ┌───────────────────────┐
                   │   Passage is possible.  │
                   └───────────────────────┘
```

Start

The control unit receives a validation.

Passage is possible.

Is the opening loop occupied? — No / Yes

The bicycle door is opened.

The hold-open time starts to expire.

Has the centre pillar been turned? — Yes / No

Has the centre pillar been turned by 120°? — Yes / No

Has the hold-open time expired? — No / Yes / No

The hold-open time is reset. The validation is deleted.

Is there another validation pending? — No

Is the safety loop unoccupied? — Yes

The passage is locked.

The bicycle door is closed.

End

Mag01230

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## 9.3 Start-up and regular movement sequence MPB-311

### 9.3.1 De-energised state

**Turnstile**

The turnstile is available in the following configurations:

› Locking rotating freely when de-energised

› Locking locked when de-energised

If no details were given in the order, the configuration "Locking rotating  freely when de-energised" is supplied.

If a conversion is necessary, the locking must be converted and the parameters adjusted. ↗ Page 51, chapter 6.4.1.

**"Lock rotating freely when de-energised" configuration**

With this configuration, the turnstile can be passed in both directions in the de-energised state. The centre pillar can be turned freely.

**"Lock locked when de-energised" configuration**

With this configuration, the turnstile is locked in both directions in the de-energised state. The centre pillar is locked.

If the turnstile is equipped with the optional MAENT100 release lock, the lock can be manually released.

**Bicycle door**

The bicycle door is always supplied with the "locked when de-energised" configuration. In the de-energised state, the bicycle door is blocked in both directions.

### 9.3.2 Regular movement process

After receiving a validation in one direction, the turnstile is released in the passage direction. The centre pillar can be rotated. If the centre pillar is not turned completely, a spring moves the centre pillar to the next end position.

**Bicycle door**

↗ Page 56, chapter 6.8.

### 9.3.3 Start-up routine (reference run)

After the start, the turnstile is immediately ready for operation.

**Bicycle door**

After switching on, the bicycle door automatically performs a reference run (homing). During the reference run, the bicycle door is turned by approx. 90° in both directions and the respective end stop is searched for in that direction. This process may take up to 60 seconds. After this reference run, the pedestrian gate is immediately ready for operation.

## 9.4 Operating modes MPB-311

### 9.4.1 Pulse operation in both directions

The two inputs "Open entry" and "Open exit" are used to clear passage in the corresponding direction for one passage each. The pulse must be present between 0.2 and 1 sec.

When there is a validation available for one of the passage directions, the hold-open time starts to run off. Within this hold-open time, passage must be commenced. After the hold-open time has expired, the passage is blocked again in this direction.

In this operating mode, validations (pulses) for both passage directions can be stored and processed one after the other.

If validations were stored for both directions, both directions are cleared at first. The hold-open time starts running for both directions immediately.

The processing of the stored validations is independent of the sequence in which the control unit received the validations. This means that if there are validations for both passage directions, passage in both directions is possible. When a passage has been completed, the control unit verifies again for which directions validations are still stored. If validations are still stored, the hold-open time is count down again.

**9.4.2    Pulse operation in one direction, permanent open in the other direction**

Prerequisite: For the parameter "Permanent open" either the option "After 3 s" or "After 10 s" has been selected. "Permanent open" parameter: ↗ Page 43

When a permanent signal is present on one of the two inputs "Open entry" and "Open exit", passage is cleared in the corresponding direction. Pulse operation remains active in the other direction.

If a validation is given for the passage direction in pulse operation, it is still possible to pass the pedestrian gate in the permanent open direction. After a successful passage, the hold-open time for the passage direction is set anew in pulse operation.

After removal of the permanent signal, the corresponding direction is locked at once without completion of the hold-open time.

**9.4.3    Permanent open in both directions**

Prerequisite: For the parameter "Permanent open" either the option "After 3 s" or "After 10 s" has been selected. "Permanent open" parameter: ↗ Page 43

If a permanent signal is present at the two "Open entry" and "Open exit", the control unit switches to the "Permanent open" operating mode for both directions. This means that the passage is enabled in both directions and there are no validation required.

After removal of the permanent signal, the corresponding direction is locked at once without completion of the hold-open time.

**9.5    Bicycle door**

Use the "Sensor bicycle door" parameter to select the sensor/button that is used to open the bicycle door. We recommend the combination "Induction loops / buttons"

The following options are available for the parameter "Sensor bicycle door":

› Induction loops / buttons

› Laser scanners

› Buttons

Only if there is a validation for a pedestrian passage for the turnstile, the bicycle door can be opened via the listed sensors / buttons.

### 9.5.1    Induction loops / buttons

Induction loops are used to detect the bicycle. These are laid in the area of the bicycle door and connected to the loop detector module DM02. Induction loops location plan: See operating instructions "Full height turnstile with bicycle access MPB".

The assignment of the induction loops is fixed:

> Induction loop A: Entry (passage from the zone not controlled (ZNC) to the zone controlled (ZC))

> Induction loop A: Exit (passage from the zone controlled (ZC) to the zone not controlled (ZNC))

The loop detector module is parameterised via the "Detector" menu on the MGC control unit. Menu„Detector":
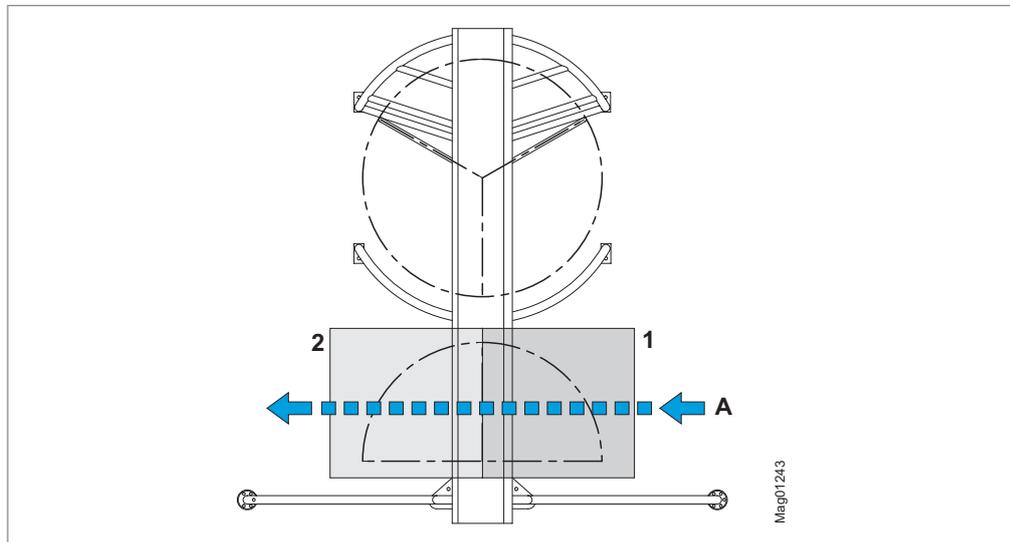


Fig. 40:    Definitions
A    Passage direction (there is a validation in this direction)
1    Opening loop: Induction loop on the side of the bicycle door with validation
2    Safety loop (closing loop): Induction loop on the side of the bicycle door without validation

As soon as there is a validation for a passage and the loop detector module detects a bicycle on the opening loop, the bicycle door is opened. If another bicycle is detected on the safety loop, the bicycle door is not opened.

As the person passes through the turnstile, the person takes the bicycle along through the bicycle access – from the opening loop to the safety loop.

After the passage and after the safety loop is once again unoccupied and as when the close delay has expired, the bicycle door is closed.

You can parameterise a delay for closing the bicycle door. Parameter "Close delay": ↗ Page 42. The close delay starts when the hold-open time has expired and when the safety loop is no longer occupied.

After opening the bicycle door, the safety loop must be occupied within approx. 3 seconds. If the safety loop is not occupied, the bicycle door is closed again.

If there is no passage during the hold open time at the turnstile and there are no further validations for the current passage direction, the bicycle door is closed.

If there are no validations in the passage direction, the hold-open time has expired, the safety loop is unoccupied and the close delay has expired, the bicycle door is closed.

If the safety loop is occupied during the opening of the bicycle door and the centre pillar has not been turned at all or less than 60°, the bicycle door is closed again. This avoids possible collisions between the bicycle door and an object. When the safety loop is once again unoccupied, the bicycle door is opened again after a short delay.

If the safety loop is occupied while the bicycle door is closed, the bicycle door is opened again. If the safety loop is subsequently freed again, the bicycle door is closed again after a short delay.

In addition to the induction loops, you can connect a button to the inputs with the functions "Sensor / button entry" and "Sensor / button exit". The function is identical to that of the "Button" option. ↗ Page 82, chapter 9.5.3.

Bicycles with little metal content, such as carbon bicycles, are not recognised by the induction loops. In this case, the user can open the bicycle door using the button.

### 9.5.2    Laser scanners

Laser scanners are used to detect the bicycle. These are installed above the bicycle door and connected to the inputs with the functions "Sensor / button entry" or "Sensor / button exit". For the "Bicycle door sensor" parameter, you must select the "Laser scanner" option.

As soon as a laser scanner detects a bicycle and a validation is active, the bicycle door opens automatically. After the passage, the bicycle door is closed if the laser scanner does not detect any person or object in the opening direction.

If the laser scanner detects another person or object again closing, the bicycle door remains closed. Depending on the angle of the laser scanner, the safety zone could be interrupted by the bicycle door.

The bicycle door remains open if the laser scanner detects a person or an object and if there is a validation on this side.

### 9.5.3      Buttons

If you select for parameter "Sensor bicycle door" the option "Button", connect the button to the inputs with the functions "Sensor / button entry" and "Sensor / button exit".

As soon as there is a validation for a passage through the turnstile and an opening impulse has been given via the button, the bicycle door is opened. This opening impulse must occur within the hold-open time.

Alternatively, the opening impulse for the bicycle door can be given first, and then the validation for a passage through the turnstile can be given. In this case, the validation for the turnstile must take place within the parameterised hold-open time. Example: If 7 seconds have been parameterised for the hold-open time, the button can be pressed up to 7 seconds before validation and the bicycle door opens. If the button is pressed 8 seconds before validation, the bicycle door remains closed.

After a passage at the turnstile, the hold-open time is reset.

If no close delay has been parameterised for the bicycle door, the bicycle door is closed immediately. If a close delay has been parameterised, the bicycle door is closed after the close delay has elapsed. Parameter "Close delay": ↗ Page 42.

## 9.6      Emergency situation MPB-311

**Turnstile**

If the "| Emergency open" input is interrupted during operation, the turnstile switches to the "Permanent open" operating mode. The centre pillar can rotate freely in both directions.

The status is logged via the warning message 0xFF20.

As soon as power is restored at the "| Emergency open" input of the control unit, the turnstile is put back into operation.

**MPB-311 – bicycle door**

The bicycle door is always supplied with the "locked when de-energised" configuration.

If the "| Emergency open" input is interrupted during operation, the bicycle door is locked in both directions. The bicycle door remains energized.

## 9.7      Random check function MPB-311

# 10 Corrective action

## 10.1 Safety in troubleshooting

**Qualification of personnel**

> Technician

> Qualified electrician

↗ Page 9, chapter 1.4.1.

**Personal protective equipment**

Wear the following personal protective equipment:

> Work clothes

> Protective gloves

> Safety shoes

> Protective helmet.

| ⚠ WARNING | |
|---|---|
| ⚠ | **Inappropriate troubleshooting!** |
| | Inappropriate troubleshooting can cause severe injuries. |
| | > Observe possible movements of the centre pillar. Defective control may lead to inadvertent movement of the centre pillar. |
| | > In case of damaged components, take the pedestrian gate out of operation. |
| | > Use only original spare parts. |
| | > After completion of troubleshooting, ensure that all covers are correctly mounted. |

The following chapters describe possible causes of malfunctions and troubleshooting tasks.

Faults of the types WARNING and ERROR may only be corrected by a trained technician or a trained qualified electrician.

Required qualification: ↗ Page 9, chapter 1.4.1.

## 10.2  Malfunctions pedestrian gate

Malfunction: Display is difficult or impossible to read.

| Possible cause | Corrective action | Removal by |
|---|---|---|
| Display contact set too light or dark. | Correct display contact. ↗ Page 38, chapter 5.6. | Technician |

Malfunction: Centre pillar does not rotate.

| Possible cause | Corrective action | Removal by |
|---|---|---|
| Power supply is not connected. | › Switch on power supply. › Check power supply. | Qualified electrician or technician |
| Error present. The corresponding error message is displayed. | Depending on error message, check components, wiring, etc. | Qualified electrician or technician |
| Power supply is present. Control unit display does not light up. | Control unit defective. Replace the control unit. | Qualified electrician or technician |
| Locking signal present. | Remove locking signal. | Qualified electrician or technician |

## 10.3  Event, warning and error messages – definitions

The control unit differentiates between events, warnings and errors. The corresponding message is displayed.

**Event messages "INFO"**

Event messages inform about events. The pedestrian gate continues to operate normally. Event messages do not influence the outputs of the control unit.

**Warning messages "WARNING"**

Faults that could be reset by the control unit are displayed as warnings. Operation of the pedestrian gate is not or only briefly impaired.

If the function "Warning" has been chosen for an output, this output is deactivated at pending warnings (closed-circuit principle).

**Error messages "ERROR"**

Faults that cannot be reset by the control unit are displayed as errors. The pedestrian gate is put out of service.

> **IMPORTANT!**
>
> With some messages, the control unit tries to reset the cause of the message. If the attempt was successful, the message is displayed as WARNING. If the attempt failed, the message is displayed as ERROR.

## 10.4 Displaying and signalling messages

Messages are displayed and signalled as follows:

› Status display in the MGC.Connect programme: ↗ Page 25, Fig. 6.

› On the display of the MGC control unit.

› The output with the function "| Error" is deactivated in case of an error (ERROR) (closed-circuit principle). This function is not parameterised ex works. ↗ Page 14, chapter 2.2.

› The output with the function "| Warning" is deactivated in case of a warning (WARNING) (closed-circuit principle). This function is not parameterised ex works. ↗ Page 14, chapter 2.2.

## 10.5     Procedure in case of a fault / message

> **ℹ️**
> IMPORTANT!
>
> Faults of the types WARNING and ERROR may only be corrected by a trained technician or a trained qualified electrician.
>
> Required qualification: ↗ Page 9, chapter 1.4.1.

> **ℹ️**
> IMPORTANT!
>
> In the "Service" tab of the "MGC.Connect" programme, you can generate a current system report for the pedestrian gate. The system report contains an event log with additional information about a fault / message such as "Node name". ↗ Page 29, chapter 4.6.

1. Correct the fault according to the following chapters:

   › Node name "Gate Controller": ↗ Page 87, chapter 10.6.1.

   › Node Name "Detector": ↗ Page 88, chapter 10.6.2.

   › All others: ↗ Page 89, chapter 10.6.3.

2. Perform reset. ↗ Page 89, chapter 10.7.

3. Acknowledge message.

## 10.6 Event, warning and error messages (troubleshooting)

### 10.6.1 Event, warning and error messages – Logic control (control unit)

| Number | Designation | Possible cause | Corrective action |
|---|---|---|---|
| 3120<br>ERROR | Mains power failure | Short-term power failure detected. | Check supply voltage and mains quality. |
| 5530<br>ERROR | EEPROM checksum | Checksum of parameters not correct | › Reset parameters to factory settings. ↗ Page 60, chapter 6.9.<br>› If required, contact Service. |
| 6000<br>ERROR | Module update error | A firmware update was not performed correctly. | › Restart the control unit.<br>› If the error remains, perform the update again via the service module. |
| 6102<br>ERROR | Software error systembus | Within the control, an error is pending in communication. | › Check SW versions of all plug-in modules. If necessary, update via the service module.<br>› If all FW versions are up to date, contact service. |
| 6105<br>ERROR<br>(MPB-311 only) | Homing failed | Bicycle door not mounted correctly. Cam plate not positioned correctly. | › Check the mounting of the bicycle door and correct if necessary. See operating instructions "Full height turnstile with bicycle access MPB" |
| FF20<br>WARNING | Emergency open | 0 V or no signal is present at the "Emergency open" input. | › Check input signal.<br>› If not used, deactivate the input function. |
| FF21<br>WARNING | Max. pulse without passage | The set maximum number of pulses without passage has been reached. | › Check card reader / validation device, e.g. card reader.<br>› Check the "Max pulse w/o passage" parameter. ↗ Page 44, chapter 6.2.5. |
| FF22<br>ERROR | Sensors B1 / B2 | States or state changes at the sensor inputs not plausible or invalid. | › Check wiring.<br>› Check sensors. |

| Number | Designation | Possible cause | Corrective action |
|---|---|---|---|
| FF25<br>WARNING<br>(MPB-311 only) | Bicycle door: Fault/Error | Bicycle door is not functioning perfectly. | › Check whether there is an error on the MBC or MMC for the bicycle door. Correct the error. ↗ Page 90, chapter 11<br><br>› If there is no error on the MBC and MMC, reset the MGC. ↗ Page 89, chapter 10.7<br><br>› If the error occurs repeatedly, record the log file using the SM01 service module and contact service. |
| FF26<br>WARNING<br>(MPB-311 only) | Bicycle door: Impact detection | The bicycle door has met an obstacle during opening or closing. | › Remove obstacle. |
| FF27<br>WARNING<br>(MPB-311 only) | Bicycle door: Mechanical fault | Locking jammed. | Check the function of the locking and readjust or repair if necessary. |

Table 36:      Event, warning and error messages – Logic control (control unit)

## 10.6.2      Event, warning and error messages – Detector

| Number | Designation | Possible cause | Corrective action |
|---|---|---|---|
| FF4A<br>ERROR | Hardware error | Internal HW functional test failed | › Perform reset. ↗ Page 89, chapter 10.7. |
| FF4B<br>WARNING | Error loop A or C | Short-circuit or open circuit on induction loop A or C | › Correct loop error and perform recalibration.<br><br>› If no induction loop is connected, select the"Inactive" option in the"Detector" menu. |
| FF4C<br>WARNING | Error loop B or D | Short-circuit or open circuit on induction loop B or D | › Correct loop error and perform recalibration.<br><br>› If no induction loop is connected, select the"Inactive" option in the"Detector" menu. |

Table 37:      Event, warning and error messages – Detector

### 10.6.3    Event, warning and error messages – All modules

| Number | Designation | Possible cause | Corrective action |
|---|---|---|---|
| 6010<br>WARNING | Watchdog reset | SW error | If required, contact Service. |
| 8110<br>WARNING | Bus fault | Warning | If required, contact Service. |
| 8120<br>WARNING | Bus HW fault | Warning | › Check the DIP switch next to the service interface (ON position).<br>› If necessary, remove devices at the service interface. |

Table 38:    Event, warning and error messages – All modules

## 10.7    Performing reset

If you use one of the following options, the control unit will perform a reset:

› Switch of power supply and switch it on again after 10 seconds.

› Press the two middle operating buttons on the control unit display for 5 s.

› In the "MGC.Connect" programme, click on the "Service" tab and select the "Reset" button.

| NOTICE |
|---|
| **Restarting quickly!**<br>Restarting the pedestrian gate too quickly can lead to damage of the equipment!<br>› Wait at least 10 seconds after switching off the pedestrian gate before you switch the mains power on again. |

# 11 Bicycle door troubleshooting – MBC-110 and MMC-120 (MPB-311 only)

## 11.1 Bicycle door faults

**Fault**: The bicycle door moves too slowly.

| Possible cause | Corrective action | Removal by |
|---|---|---|
| Motor is overheated. | As soon as the motor has cooled down, the speed will return to normal. | – |
| The I²t surveillance has reduced speed to protect the motor. | As soon as the motor has cooled down, the speed will return to normal. | – |
| A mechanical obstacle disables the movement. | Remove obstacle. | Operator |

**Fault**: The bicycle door does not move

| Possible cause | Corrective action | Removal by |
|---|---|---|
| Cabling inaccurate or defective. The green LED must be lit permanently at the MMC-120. | Green LED on the MMC-120 is not lit:<br><br>Check that there is +42V between terminals DC+ and DC–. If not, check the wiring and power supply / mains unit. | Qualified electrician or technician |
| | Green LED blinks:<br><br>› Safety input signal is missing: Check input of the MBC-110. 24 V must be applied. The red LED on IN1 must be illuminated.<br>› Check the CAN cables between the control units.<br>› Check the CAN address and termination at all control units. | Qualified electrician or technician |
| The MMC-120 shows an error. The red LED shows the error code. | Counting the number of blink pulses and look up the error code. | Qualified electrician or technician |
| Check if the MBC-110 display is showing an error. | Read the error code in the display: Look up the error code. | Qualified electrician or technician |
| Emergency input has possibly been interrupted. Red LED at IN1 of the MBC-110 must be illuminated. Red LED at IN1 of the MBC-110 must be illuminated. | If the red LED is not illuminated, check the emergency input. | Qualified electrician or technician |

**Fault**: Display such as, e.g., gate end display does not work.

| Possible cause | Corrective action | Removal by |
|---|---|---|
| Incorrect connection of the Barrier End Display. | Check wiring and connection of the Barrier End Display. | Qualified electrician or technician |

## 11.2 Faults on control unit MBC-110

### 11.2.1 MBC-110 – LEDs, display and DIP switch settings

The inputs and outputs of the MBC-110 indicate their switching status through LEDs.

› Red LED is switched on: Input is activated.

› Red LED is switched off: Input is not activated.
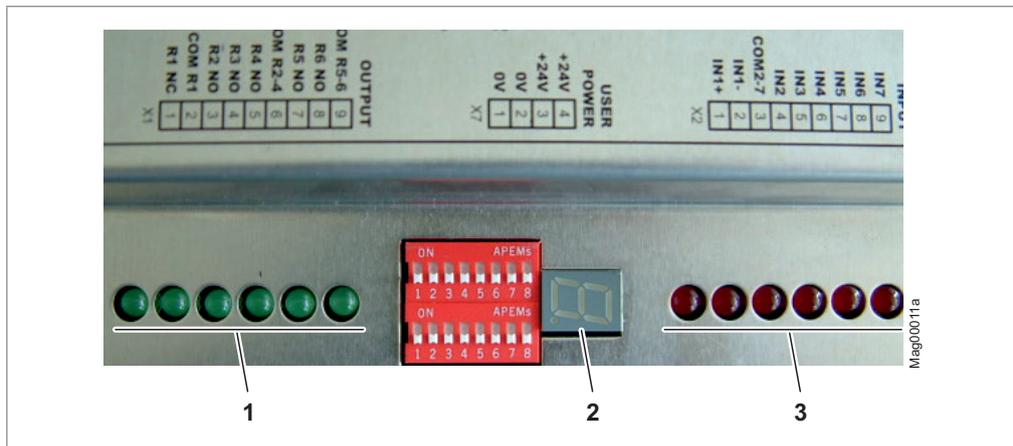


Fig. 41:       LEDs and display on the control unit MBC-110
1     Green LEDs indicate the switching status of the customer interface outputs
2     One-digit display
3     Red LEDs indicate the switching status of the customer interface inputs

The MBC-110 control unit is equipped with two blocks of 8 DIP switches each.

> **IMPORTANT!**
>
> The setting for DIP switch S2.7 depends on the built-in locking. The other settings of the DIP switches must not be changed.

| DIP switch | x.1 | x.2 | x.3 | x.4 | x.5 | x.6 | x.7 | x.8 |
|---|---|---|---|---|---|---|---|---|
| S1 | OFF | ON | OFF | ON | OFF | OFF | OFF | OFF |
| S2 | OFF | OFF | OFF | OFF | OFF | OFF | ↗ Page 92 | ON |

Table 39:       DIP switch setting on MBC-110

| DIP switch | Locking rotating freely when de-energised | Locking locked when de-energised |
|---|---|---|
| S1.7 | OFF | OFF |
| S2.7 | OFF | ON |

Table 40:      DIP switch setting S1.7 and S2.7 on MBC-110

### 11.2.2      MBC-110 – example of error code display

If the DIP switch S1.8 is OFF, the display MBC-110 shows an error code in case of an error.

The numerals and letters in the fault code are displayed successively for 2 seconds at a time.

**Example:** The error code E05 is displayed as follows.

1. E (Error)
2. Pause
3. 0
4. Pause
5. 5
6. Pause
7. Step 1 to 6 is repeated.


During normal operation mode the point continuously flashes at 0.5 Hz.

### 11.2.3 MBC-110 – possible error codes

| Error code | Fault description | Automatic reset |
|---|---|---|
| E01 | Strike detection with runtime monitoring | Yes |
| E02 | Emergency entrance is activated | Yes |
| E05 | Wrong direction | Yes |
| E06 | Wrong direction, high security | No |
| E07 | Vandalism | Yes |
| E20 | Fault occurred on servo | No |
| E21 | Output stage of servo 0 cannot be activated | No |
| E22 | Nodeguarding error Servo 0 | No |
| E41 | Wrong program mode | No |
| E42 | Turnstile blocked by drive unit | No |
| E50 – E57 | Software error | No |
| E5D | CRC error EEPROM | No |
| E5E | CRC error flash | No |
| E5F | Watchdog fault | No |
| E60 | CAN bus error: Error when initialising CAN protocol stack | No |
| E61 | CAN bus error: Bus OFF | No |
| E62 | CAN bus error: Error when initialising CAN bus | No |
| E63 | CAN bus error: Error CAN servo address | No |
| E65 | I2C bus error | No |
| E66 | CAN bus error: Fault in CANopen stack | No |
| E70 | Servo with wrong firmware detected. Download required | No |
| E72 | Servo with wrong application detected. Download required | No |
| E74 | Servo with wrong application software detected. Download required | No |
| E76 | Servo with wrong hardware detected | No |
| E78 | Servo software cannot be cleared | No |
| E7A | No communication with servo bootloader | No |
| E7C | Fault during firmware download to the servo | No |
| E7E | Fault when activating firmware on the servo | No |

Table 41:    Error code MBC-110

## 11.3 Faults on control unit MMC-120

The following faults may only be repaired by qualified electricians.

| LED | Description | Possible cause / corrective action |
|-----|-------------|-----------------------------------|
| Green LED is OFF. | No power supply | Check power supply. |
| Green LED is flashing. | Power supply is present. No signal at emergency input IN1 of the MBC-110.<br><br>CAN connection between MBC-110 and MMC-120 defective. | Check the signal at emergency input IN1 of the MBC-110. |
| Green LED is ON. | Normal operation | – |
| Red LED is OFF. | No error code | – |
| Red LED is ON. | External error with emergency stop | Check for error in MBC-110 or in MMC-120. |
| Red LED is flashing. | Error: Number of blink pulses indicates the error code. | ↗ Page 94, Table 43. |
| Red and green LED are ON. | Application program has been erased.<br><br>Boot loader is waiting for downloading the application program. | Download has been interrupted. |

Table 42:     Description of the LEDs on the MMC-120

| Error code | Description | Possible cause |
|-----------|-------------|----------------|
| 2 | Resolver error | Plug not properly inserted, short circuit |
| 4 | Motor phase error | › Motor cable not connected.<br>› Wiring defective |
| 5 | Lifeguarding CAN | CAN communication with MBC-110 interrupted. |
| 6 | Short circuit to ground | Short circuit between motor phase and ground |
| 7 | Motor phases shorted | Short circuit between two motor phases |
| 8 | DC bus Over-voltage | DC bus voltage too high (> 56 V) |
| 9 | DC bus Under-voltage | DC bus voltage too low (< 17 V) |
| 11 | Over-temperature end-stage | Heat sink temperature too high (> 80°C) |
| 20 | I²t surveillance motor | Motor overloaded. |

Table 43:     Faults on control unit MMC-120

# 12 Menu structure
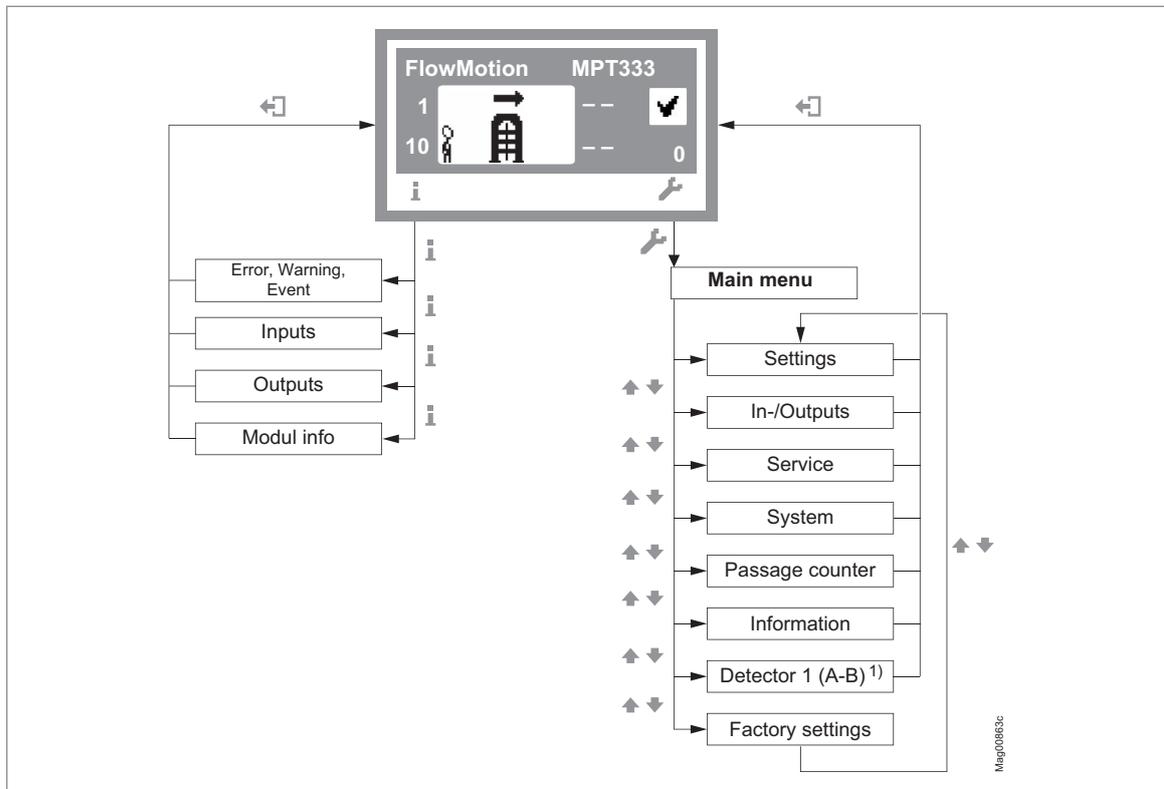


Fig. 42: "Information" and "Main menu" menu, operational view on example MPT-333
1) only with MPB-311
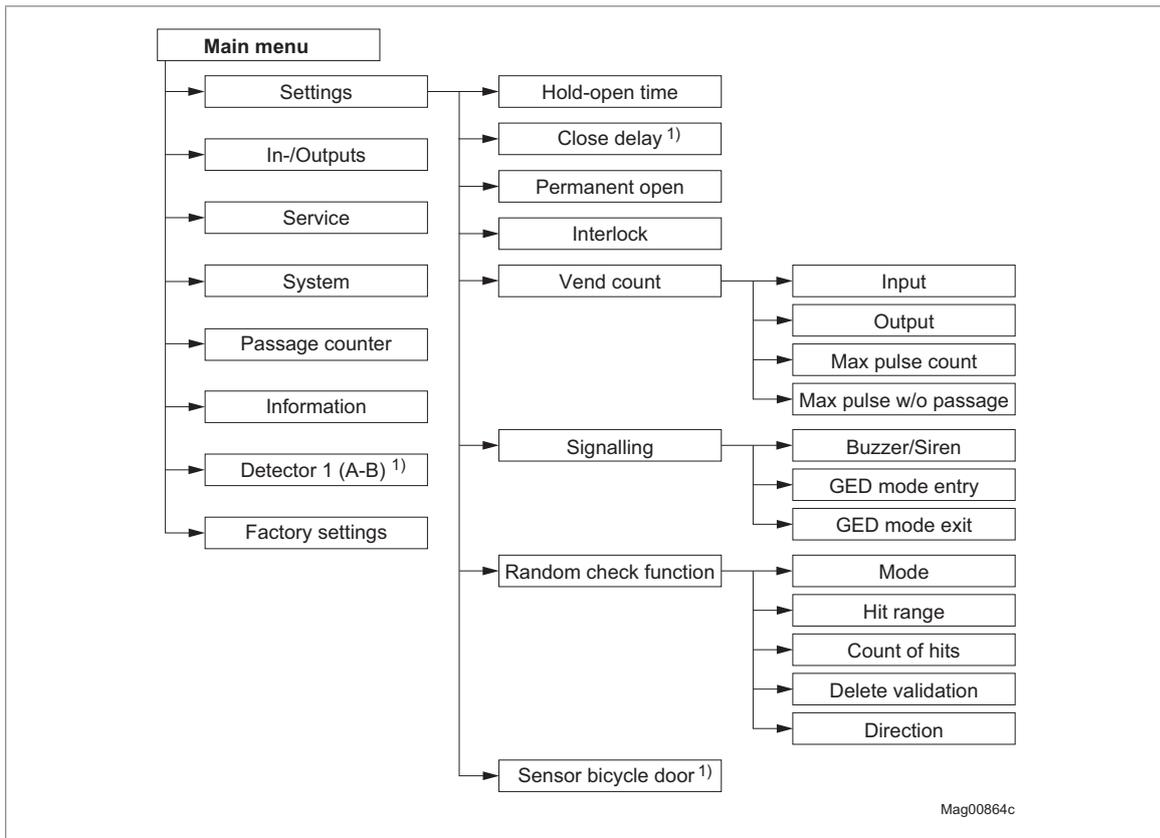
Fig. 43: "Settings" menu
1) only suitable for MPT-333 and MPT-353
2) only for MPB-311
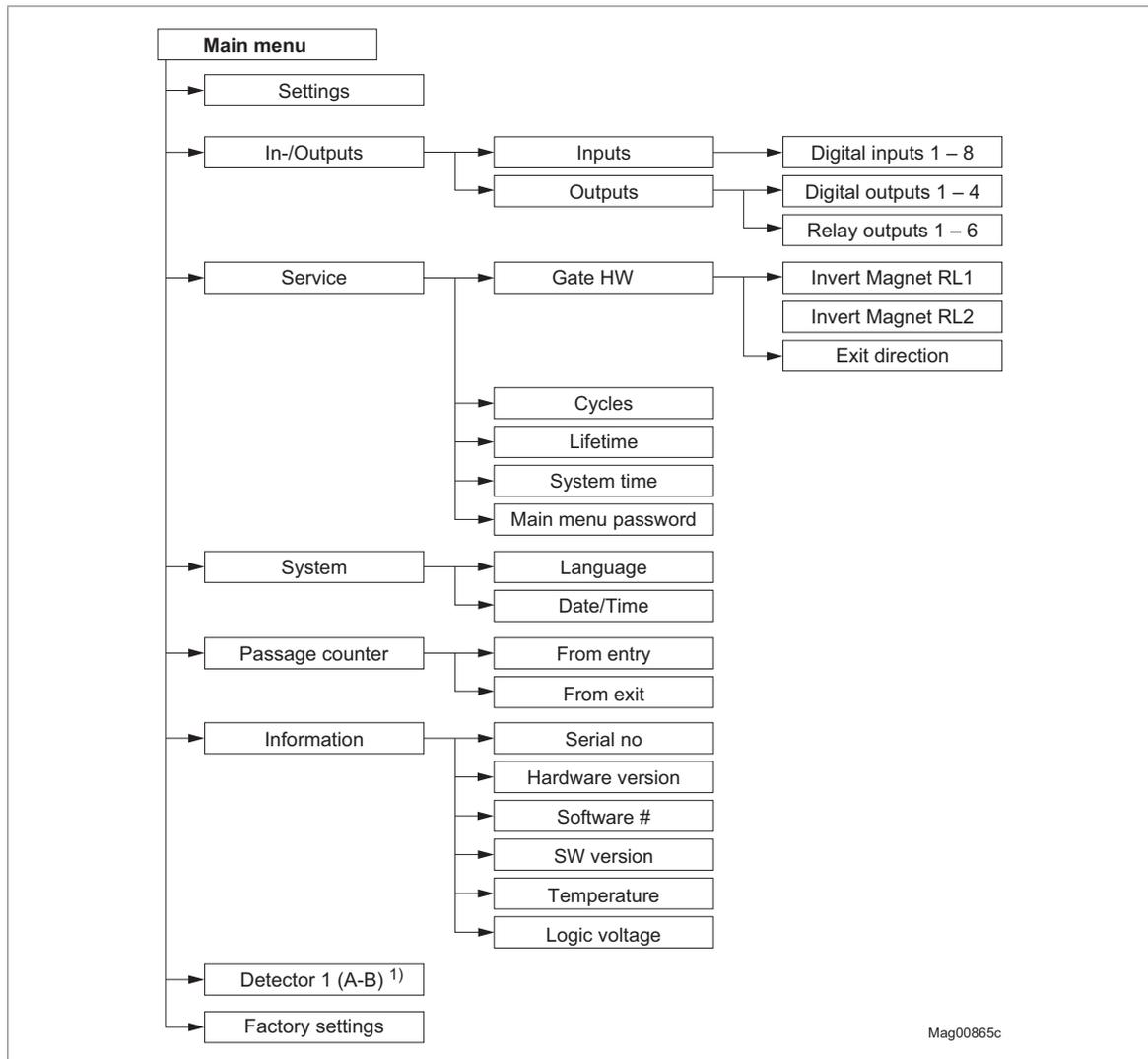
Fig. 44: "Inputs/Outputs", "Service", "System", "Passage counter", "Information" and "Factory settings" menu
1) only for MPB-311
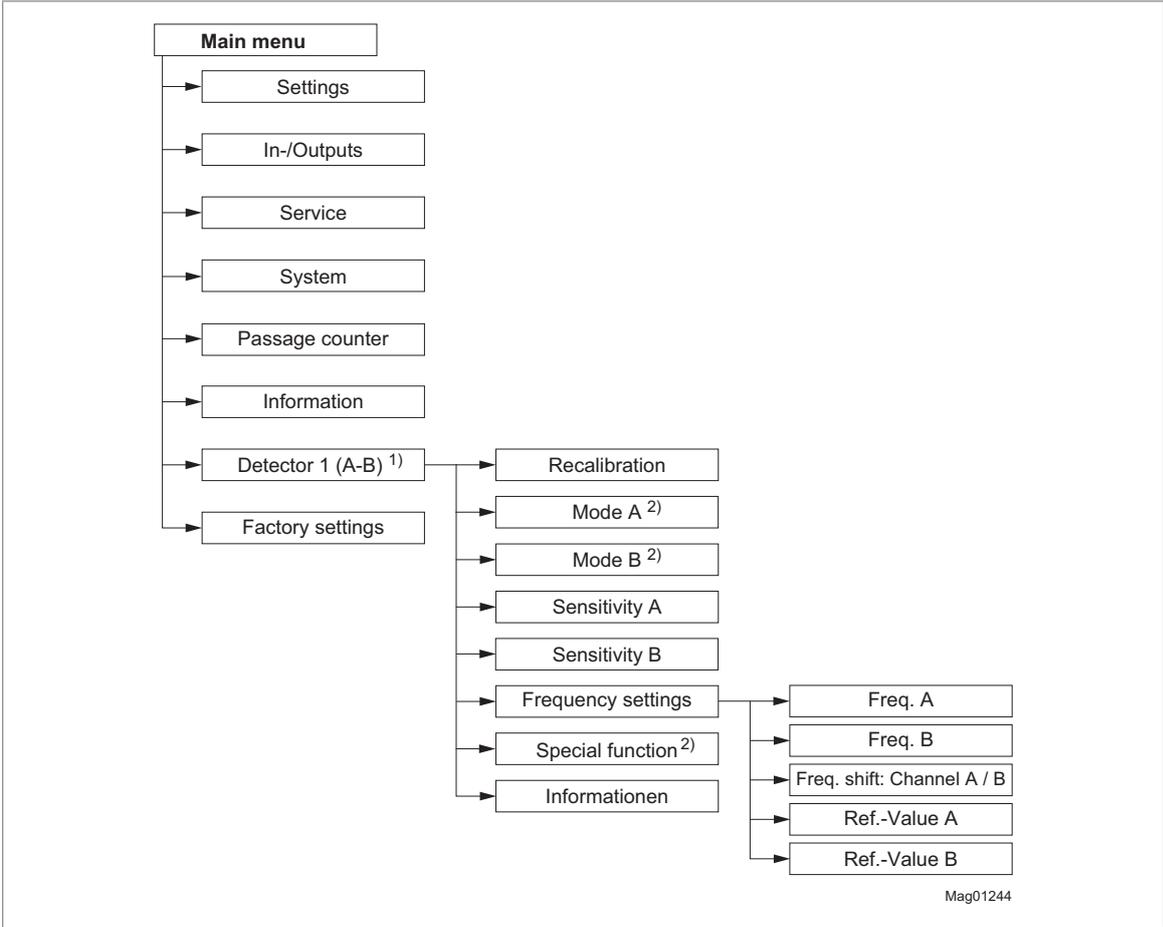
Fig. 45: "Detector 1 (A-B)" menu
1) only for MPB-311
2) Parameter / submenu for MPB-311 without function

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