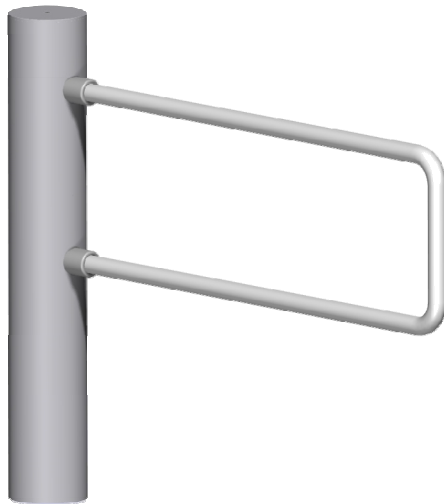


## Operating Instructions

### Swing Door MPS-122



# Translation of the original operating instructions

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# 1 General

## 1.1 Information regarding the operating instructions

These operating instructions provide important information on how to deal with the MAGNETIC swing door MPS-122. Prerequisite for safe working is the observance of all specified safety notes and instructions.

In addition, the local accident prevention regulations valid at the pedestrian barrier's area of application and general safety regulations have to be complied with.

Carefully read the operating instructions before starting any work! They are a product component and must be kept well accessible to the personnel at all times.

When passing the pedestrian barrier on to third parties, the operating instructions must also be handed over.

Components from other suppliers may have their own safety regulations and instructions for use. These must also be observed.

## General

### 1.2 Pictogram explanation

#### Warning notes

Warning notes are characterised by pictograms in these operating instructions. The warning notes are followed by signal words expressing the scale of the hazard.

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

#### **⚠ 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 points to a potentially dangerous situation, which can lead to death or severe injuries if it is not avoided.

#### **⚠ CAUTION**



The signal word CAUTION points to a potentially dangerous situation, which can lead to minor injuries if it is not avoided.

#### **NOTICE**



The signal word NOTICE points to a potentially harmful situation, which can lead to property damage if it is not avoided.

#### Hints and recommendations



#### **NOTE!**

*... highlights useful hints and recommendations as well as information for an efficient and trouble-free operation.*



### **1.3 Limitation of liability**

All specifications and notes in these operating instructions were compiled with consideration to the valid standards and regulations, the state of the art as well as to our long-standing knowledge and experience.

The manufacturer is not liable for damage caused by:

- Non-observance of the operating instructions
- Improper use
- Deployment of non-trained personnel
- Arbitrary modifications
- Technical changes
- Use of non-approved spare and wear parts.

The actual scope of supply may differ from the explanations and illustrations described in this manual in case of special designs, if additional order options are made use of, or due to latest technical changes.

### **1.4 Copyright protection**

Surrendering the operating instructions to third parties without written permission of the manufacturer is not permitted.

Content details, texts, drawings, pictures and other illustrations are protected by copyright and are subject to industrial property rights. Any improper use shall be liable to prosecution.

Any type and form of duplication – also of extracts – as well as the exploitation and/or communication of the contents are not permitted without the manufacturer's written declaration of consent.

## General

### 1.5 Scope of delivery

The scope of delivery comprises:

- 1 x Swing door with integrated drive and integrated control units MBC and MMC
- 1 x Locking element
- 1 x USB-extension
- 1 x Drilling jig
- 1 x Fastening kit (only within Europe)
- 1 x Software on data carrier

Supplied documentation:

- 1 x Operating instructions
- 1 x Electric circuit diagram

Optionally available:

- MPS-Diag Windows software for setting functions and parameters and for error diagnosis

### 1.6 Warranty

Subject to the condition that the operating instructions are observed, and that no inadmissible operations are carried out on the technical equipment, and that the installation has suffered no mechanical damage, MAGNETIC grants a warranty on all mechanical and electrical components of the extent as stated in its standard terms of sales and delivery or as contractually agreed in writing.

### 1.7 Disclaimer

MAGNETIC expressly disclaims all implied and statutory warranties, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose with respect to the product and the statutory warranty of non-infringement of third party rights set forth in section 2312(3) of the uniform commercial code.

## 1.8 Customer service

Your vendor is available to you for technical information

For the address, see invoice, delivery note or the reverse of these instructions.



**NOTE!**

*In order to enable fast handling note the data of the type plate such as type code, serial number, etc. before calling.*

## 1.9 EC-Declarations of conformity

EC-Declarations of conformity (pursuant to EC Machinery Directive 2006/42/EC, Annex II) refer to page 85.

## 1.10 Environmental protection

### NOTICE



**Improper disposal!**

In case of improper disposal of the pedestrian barrier or components, damage to the environment may result.

- Observe the local and national laws and directives.
- Disassemble pedestrian barrier according to resources. Sort resources and supply them to recycling.

## 2 Safety

### 2.1 Intended use

The MAGNETIC pedestrian barrier MPS is intended exclusively for managing the admission in to areas with restricted access.

In general, the swing door is integrated in the fence and gate systems.

The pedestrian barrier is intended for passage of persons who can pass the pedestrian barrier safely, quickly and without help. For persons who cannot pass the pedestrian barrier safely, quickly or without help, such as little children, older persons or persons with impairments, separate access options must be provided.

The integrated MAGNETIC control units MBC and MMC are intended exclusively for controlling the MAGNETIC pedestrian barrier MPS.

### **WARNING**



#### **Non-intended use!**

Any use of the pedestrian barriers other than intended and/or in a different manner can cause hazardous situations.

- Only use the pedestrian barrier and the control units for the intended use.
- All specifications in these operating instructions have to be strictly complied with.

Any types of claims due to damage arising from improper use are excluded. The operator alone shall be responsible for any damage arising from improper use.

## 2.2 Operator's Responsibility

The operator must comply with the statutory obligations regarding work safety.

In addition to the work safety notes in these operating instructions, the safety, accident prevention and environmental provisions applicable for the area the pedestrian barrier is used in must be complied with.

In particular, the operator must:

- gather information on applicable work protection provisions.
- determine additional danger in a danger analysis.
- implement the required code of conduct for operation of the pedestrian barrier on site in operating instructions.
- regularly verify throughout the pedestrian barrier's time of use that the operating instructions drawn up by him comply with the current state of the regulations.
- adapt the operating instructions to any new provisions, standards and usage conditions - where required.
- clearly determine the responsibilities for installation, operation, maintenance and cleaning of the pedestrian barrier.
- ensure that all employees that are working at or with the pedestrian barrier have read and understood the operating instructions.
- Furthermore, the operator must train personnel regarding the use of the pedestrian barrier at regular intervals and provide information on possible dangers.

Furthermore, the operator is responsible for:

- keeping the pedestrian barrier in perfect technical order and condition at all times.
- maintaining the pedestrian barrier according to the maintenance intervals and performing the safety inspections as stipulated.
- checking all protective facilities for completeness and proper function at regular intervals.

The operator is also responsible that the danger area of the pedestrian barrier cannot be accessed by any unauthorised persons, and in particular not by children, under any circumstances.


## 2.3 Changes and modifications

Changes and modifications of the pedestrian barrier can cause unforeseen danger.

A written authorisation of the manufacturer is absolutely required before executing any technical changes and modifications at the pedestrian barrier, the control unit or the control program.

## 2.4 Specialists and operating personnel

### 2.4.1 Requirements

<b>⚠ WARNING</b>	
	<p><b>Inadequate qualification!</b></p> <p>Improper handling can lead to considerable bodily injuries and property damage.</p> <ul style="list-style-type: none"> <li>– Activities must only be carried out by the individuals designated for that purpose.</li> </ul>

The operating instructions specify the following qualification requirements for the different fields of activity:

- **Instructed people**  
have been instructed during instructions provided by the operator with regard to the work assigned to them and possible hazards arising from improper conduct.
- **Specialised staff**  
are able, due to their technical training, knowledge and experience as well as their knowledge of the pertinent regulations to carry out work assigned to them independently and to recognise potential hazards.
- **Electrical specialists**  
are able, due to their technical training, knowledge and experiences as well as knowledge of the relevant standards and regulations, to execute tasks on electrical systems and to independently recognise possible hazards.  
In Germany, the electrical specialist must comply with the provisions of accident prevention regulation BGV A3 (e.g. master electrical fitter). Appropriate regulations apply in other countries. The regulations valid there must be observed.

It must be expected that only those people are deployed who carry out their work reliably. People, whose ability to respond is affected, e.g. by drugs, alcohol or medicines, must not be used.

Furthermore, the age and profession-specific regulations valid at the operating location must be observed when selecting personnel.

## 2.5 Personal protective equipment

It is necessary to wear personal protective equipment when dealing with the machine so as to minimise health hazards.

Before carrying out any work, properly put on the necessary protective equipment such as work clothes, protective gloves, safety shoes and wear during work.

## 2.6 Occupational safety and special dangers


The remaining risks resulting from the hazard analysis are specified in the following section.

Observe the safety notes listed here and the warning notes mentioned in the other chapters of these instructions to reduce health hazards and to avoid dangerous situations.


### 2.6.1 Danger pictograms on the pedestrian barrier MPS-122

The relevant dangerous areas on the pedestrian barriers can be identified by the following pictograms:

#### Electric voltage

<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>... indicates life threatening situations caused by electric voltage. Non-observance of the safety instructions causes severe injuries or death. Necessary work may only be carried out by an electrical specialist.</p> <p>This pictogram is fixed on the following component:</p> <ul style="list-style-type: none"> <li>– Cover sheet at the edge profile.</li> </ul>

#### Danger of crushing


<b>⚠ WARNING</b>	
	<p><b>Danger of crushing!</b></p> <p>... indicates the presence of components and items moving towards each other. Non-observance of the safety instructions can lead to severe injuries.</p> <p>This pictogram is fixed on the following component:</p> <ul style="list-style-type: none"> <li>– Edge profile, below the mechanic stops.</li> </ul>

## Safety


### 2.6.2 Hazard notes and occupational safety

For your own safety and for the protection of the pedestrian barrier, the following information must be observed and complied with:

#### Electric voltage


<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none"> <li>– Switch off the power supply immediately in case of damage to the insulation and arrange repair.</li> <li>– Only electrical specialists may carry out work on the electrical system.</li> <li>– Switch off power supply and secure against reactivation before performing any work. Test for absence of voltage!</li> <li>– Never bypass or deactivate fuses.</li> <li>– When replacing fuses observe the correct amperage specification.</li> <li>– Keep moisture and dust away from live parts. Moisture or dust may cause a short circuit.</li> </ul>

#### Electric voltage – missing safety installations


<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>The safety installations that are required according to regional and local regulations must be provided by the customer. Usually these are:</p> <ul style="list-style-type: none"> <li>– Residual current device (RCD)</li> <li>– Circuit-breaker</li> <li>– Lockable 2-pole main switch according to EN 60947-3.</li> </ul>




**Improper transport**

<b>⚠ WARNING</b>	
	<p><b>Danger by falling down or tilting of a pedestrian barrier!</b></p> <p>The weight of the pedestrian barrier or heavy parts of it can seriously injure a person and cause serious crushing!</p> <ul style="list-style-type: none"> <li>– Have all transport work performed by specialists only.</li> <li>– Depending on the dead weight and size of the components, use a pallet on which the pedestrian barrier can be moved by means of a forklift.</li> <li>– For lifting a pedestrian barrier, use suitable lifting gear that is designed for the weight of the pedestrian barrier.</li> <li>– Lifting and carrying the pedestrian barrier or heavy parts of it from the pallet should be done by a minimum of two people.</li> </ul>

**Heavy weight**


<b>⚠ WARNING</b>	
	<p><b>Lifting heavy loads!</b></p> <p>The weight of heavy objects can severely injure a person's back or supportive system.</p> <ul style="list-style-type: none"> <li>– Lifting and carrying the pedestrian barrier and heavy components should be done by a minimum of two people.</li> </ul>

**Insufficient fixing**


<b>⚠ WARNING</b>	
	<p><b>Insufficient fixing!</b></p> <p>Insufficient fixing at the pedestrian barrier or any single component can severely injure a person and cause severe crushing.</p> <ul style="list-style-type: none"> <li>– Only qualified and skilled personnel are allowed to assemble the pedestrian barrier and the appropriate components.</li> <li>– Before operation of the pedestrian barrier, ensure the firm fixing of the tie anchors.</li> <li>– Check the firm fixing of all screws according to maintenance schedule.</li> </ul>

## Safety

### Inadmissible operation

<b>⚠ WARNING</b>	
	<p><b>Inadmissible operation!</b></p> <p>An inadmissible operation can cause severe injuries.</p> <ul style="list-style-type: none"> <li>– Before operating the pedestrian barriers check all electrical and mechanical functions.</li> </ul>

### Sharp edges and spiky corners

<b>⚠ CAUTION</b>	
	<p><b>Sharp edges and spiky corners!</b></p> <p>Sharp edges and spiky corners can cause skin abrasions and cuts.</p> <ul style="list-style-type: none"> <li>– Work carefully near to sharp edges and spiky corners.</li> <li>– In case of doubt wear protective gloves.</li> </ul>

### Signposting

<b>⚠ CAUTION</b>	
	<p><b>Unrecognisable labels and signs!</b></p> <p>Labels and signs can become dirty or unrecognisable in the course of time.</p> <ul style="list-style-type: none"> <li>– Always keep safety, warning and operating notes in a well readable condition.</li> <li>– Immediately renew damaged or unrecognisable signs or labels.</li> </ul>

### 3 Technical data

#### 3.1 Dimensions

##### 3.1.1 Swing door in bracket version

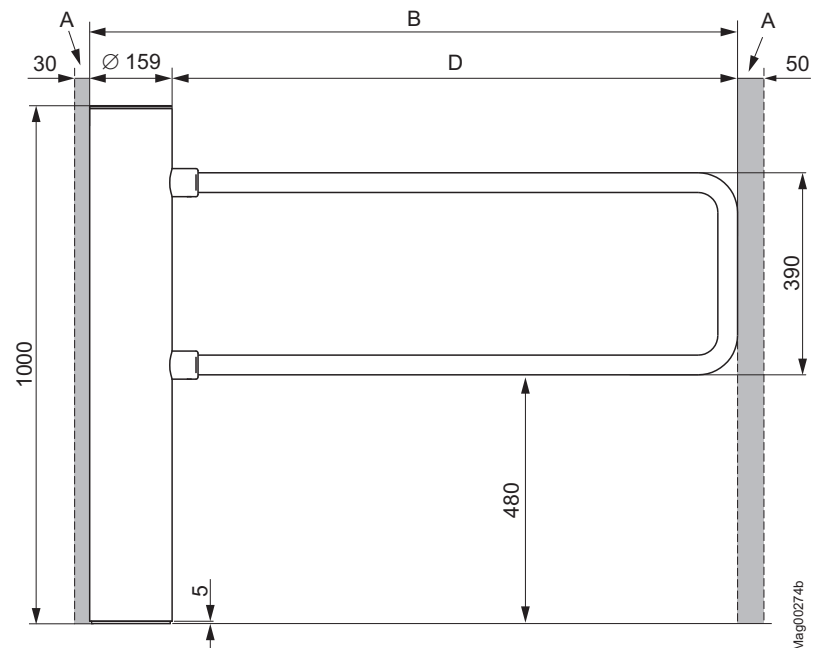


Fig. 1: Dimensions for swing door in bracket version

- A Safety distances to avoid crushing
- B Total width
- D Bracket length, Standard: 1090 mm, max. 1800 mm

## Technical data

### 3.1.2 Swing door in wing version

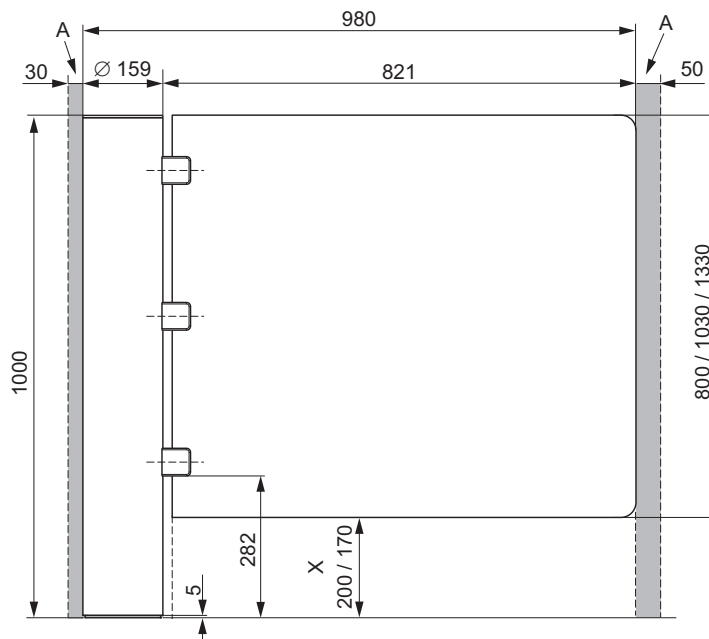


Fig. 2: Dimensions for swing door in wing version

- A Safety distances to avoid crushing  
 X Floor distance: 200 mm at wing height 800 mm,  
 170 mm at wing heights 1030 mm and 1330 mm

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## 3.2 Electrical connection

Designation	Unit	MPS-122	
		230 V 50 Hz <sup>1)</sup>	115 V 60 Hz <sup>1)</sup>
Supply voltage	V AC / Hz	110 to 250 / 50 – 60 Hz	
Current consumption MPS in the resting position	A	0.14	0.16
Power consumption MPS in the resting position	W	12	11
Max. current consumption MPS in movement	A	0.19	0.29
Max. power consumption MPS in movement	W	24	25
Starting current (approx. 30 ms)	A	1.7	1.7
Control voltage	V DC	42	

1) The values are without heating. Activate heating via the programme "MPS-Diag". With the heating activated, the values increase.

Table 1: Electrical connection

### 3.3 Operating conditions

Designation	Unit	MPS-122
Ambient temperature range	°C	–25 to +45
Storage temperature range	°C	–30 to +70
Relative humidity	% r.F	max. 95 %, non-condensing
Protection class	–	IP 44

Table 2: Operating conditions

### 3.4 Weight

Designation	Unit	MPS-122
Weight	kg	40

Table 3: Weight

### 3.5 Performance data

Designation	Unit	MPS-122
Runtime for 90°	s	adjustable from 1.5 to approx. 4.0

Table 4: Performance data

## Design and function

### 4 Design and function

#### 4.1 Design

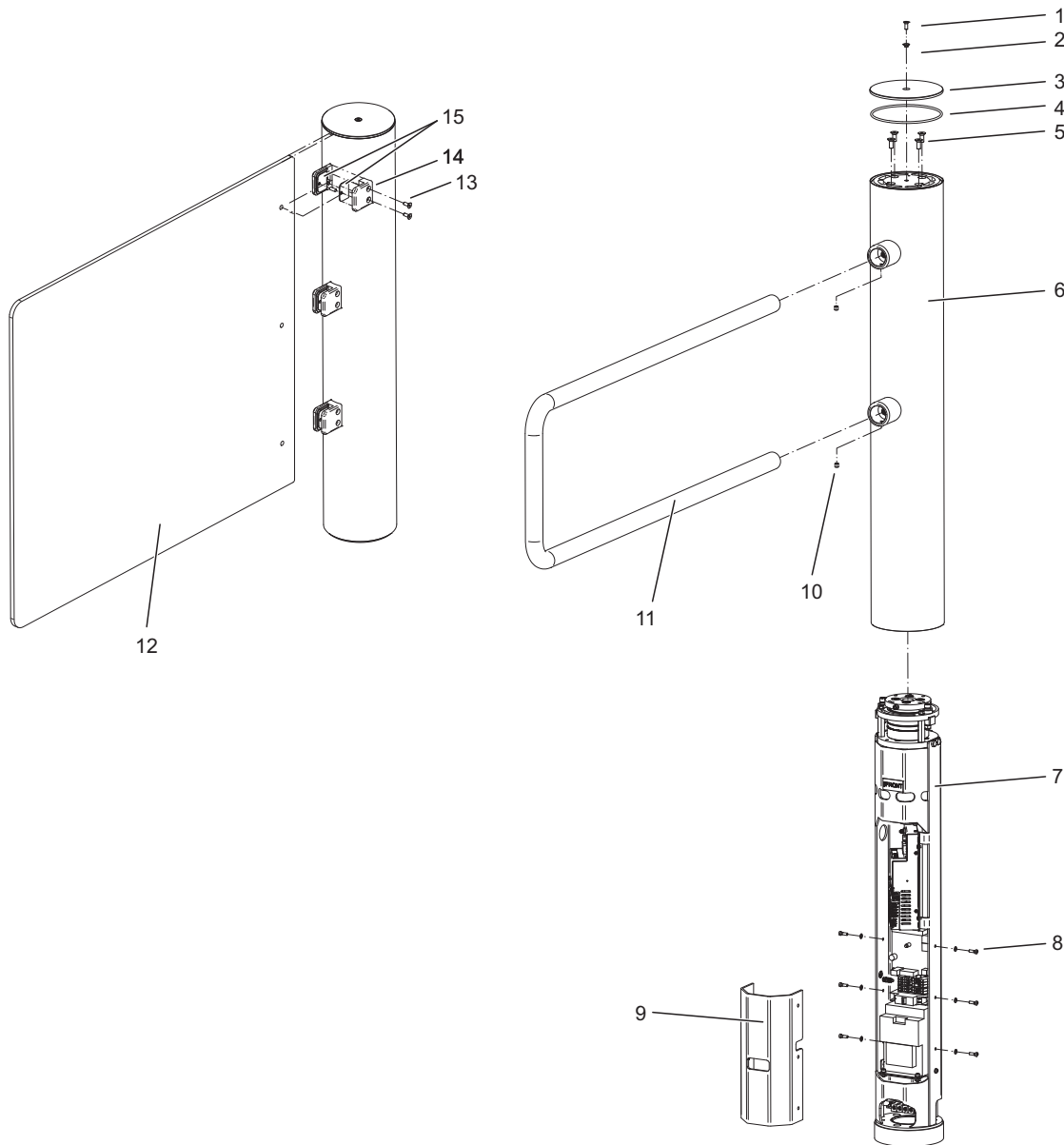


Fig. 3: Design MPS

- |   |   |    |                                       |
|---|---|----|---------------------------------------|
| 1 | Countersunk screw M6 x16                              | 9  | Cover                                 |
| 2 | Isolation sleeve                                      | 10 | Threaded pin                          |
| 3 | Top cover disc  | 11 | Locking element in bracket version    |
| 4 | O-Ring  | 12 | Locking element in wing version       |
| 5 | Countersunk screws M8 x 20                            | 13 | Countersunk screw M6 (6 pieces)       |
| 6 | Outer tube  | 14 | Holder for locking element (3 pieces) |
| 7 | Edge profile (with drive, control units, transformer) | 15 | Rubber inserts (6 pieces)             |
| 8 | Disc/screws M5 x 16                                   |    |                                       |

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## 4.2 Definition left and right swing door

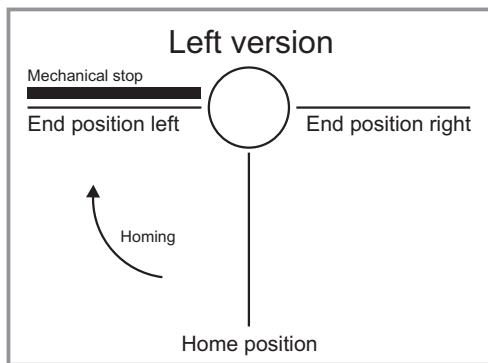


Fig. 4: Version "Left swing door"

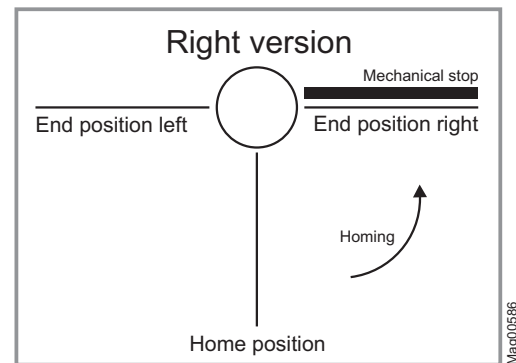


Fig. 5: Version "Right swing door"

## 4.3 Function

The swing door MPS is a pedestrian barrier to control access of persons in simple safety applications, usually under supervision.

The swing door is also used as a supplement for our turnstiles and wing barriers, in particular for areas where bulky objects must be taken along or persons separated in a wheelchair-accessible manner.

The swing door can be operated in two directions. Ex works, the swing door is configured for bidirectional operation with a 2 x 90° opening angle. The opening angles may be changed between 10 and 300° by software. Additional parameters such as speed, hold-open time, etc. can be changed by software. The swing door is opened by external access control systems and via digital inputs. It is closed fully automatically after the end of an adjustable hold-open time.

The drive system, comprising a Magnetic High Torque Motor MHTM<sup>®</sup> in connection with a planetary gear, ensures a strong and precise sequence of movements. Software can be used to lock the locking element in the two end positions and in the home position, via an electro-mechanical tooth coupling.

If the locking element is pushed from one of its positions by application of strong force, the locking element will swivel automatically back to this position after the force is removed.

The entire drive is nearly maintenance- and wear-free and works without end switch.


If the voltage fails, the swing door can swivel freely in both directions.

## Transport, mounting and installation


# 5 Transport, mounting and installation

## 5.1 Safety


### General

<b>⚠ WARNING</b>	
	<p><b>Inappropriate mounting and installation!</b></p> <p>Inappropriate mounting and installation can cause severe injuries!</p> <ul style="list-style-type: none"> <li>– Only qualified personnel, authorised by the operator and instructed appropriately, may carry out installation tasks.</li> <li>– Prior to work, ensure that there is sufficient assembly space.</li> <li>– Pay attention to tidiness and cleanness at the assembly site! Loosely stacked or lying around components and tools are accident sources.</li> <li>– Ensure the pedestrian barrier is correctly arranged and all components are properly seated.</li> <li>– Install all fastening elements correctly.</li> </ul>

### Improper transport

<b>⚠ WARNING</b>	
	<p><b>Improper transport!</b></p> <p>The weight of the pedestrian barrier or its components can severely injure a person and cause severe crushing!</p> <ul style="list-style-type: none"> <li>– Have them transported by specialists only.</li> <li>– Depending on the dead weight and size of the components, use a pallet on which the barrier module can be moved by means of a forklift.</li> <li>– Lift pedestrian barrier or heavy parts of it with suitable lifting gear (slings, etc.). The lifting gear must be designed for the weight of the pedestrian barrier.</li> <li>– Lifting and carrying the pedestrian barrier should be done by a minimum of two people.</li> </ul>

### Heavy weight

<b>⚠ WARNING</b>	
	<p><b>Lifting heavy loads!</b></p> <p>The weight of heavy objects can severely injure a person's back or supportive system.</p> <ul style="list-style-type: none"> <li>– Lifting and carrying the pedestrian barrier and heavy components should be done by a minimum of two people.</li> </ul>



**Improper transport****NOTICE****Damage to the pedestrian barrier or other objects!**

Substantial material damage can result from improper transport.

- Have all transport work performed by specialists only.
- When unloading the packages and during in-plant transportation always proceed with greatest care and caution.
- Observe the dimensions of the pedestrian barrier.
- Loading, unloading as well as moving the pedestrian barrier must take place with greatest care.
- Only remove packaging directly before assembly.

**Personal protective equipment**

The following must be worn during all assembly and installation work:

- Work clothes
- Protective gloves
- Safety shoes.

## Transport, mounting and installation

### 5.2 Requirements for mounting and installation

The following steps are to be completed prior to mounting and installation:

- Laying the foundation.
- Installing the empty conduits.

### 5.3 Foundation and empty conduits

#### Foundation

The foundation must meet the following requirements:

→ See page 27, Fig. 6.

- Sufficient load-carrying capacity: Concrete or corresponding continuous industrial floor
- Have a skid-proof surface.
- Foundation depth: at least 800 mm, frost-protected foundation depth to be adjusted to the local situation.
- Horizontal and even, max. deviations 2 mm/m<sup>2</sup>.

For plate lining, ensure that the enclosed dowels securely grip in the foundation. If required, use longer tie anchors. These tie anchors must be provided on site.



**NOTE!**

*The functional safety of the pedestrian barrier hinges on the accuracy of the foundation.*

---

#### Empty conduits and lines

The empty conduits must meet the following requirements:

→ See page 27, Fig. 6 and page 28, Fig. 7.

- Separate empty conduits for mains cable and control lines.
- Conduits have to be planned to a sufficient length. The lines must protrude approx. 5 m from the empty conduits.



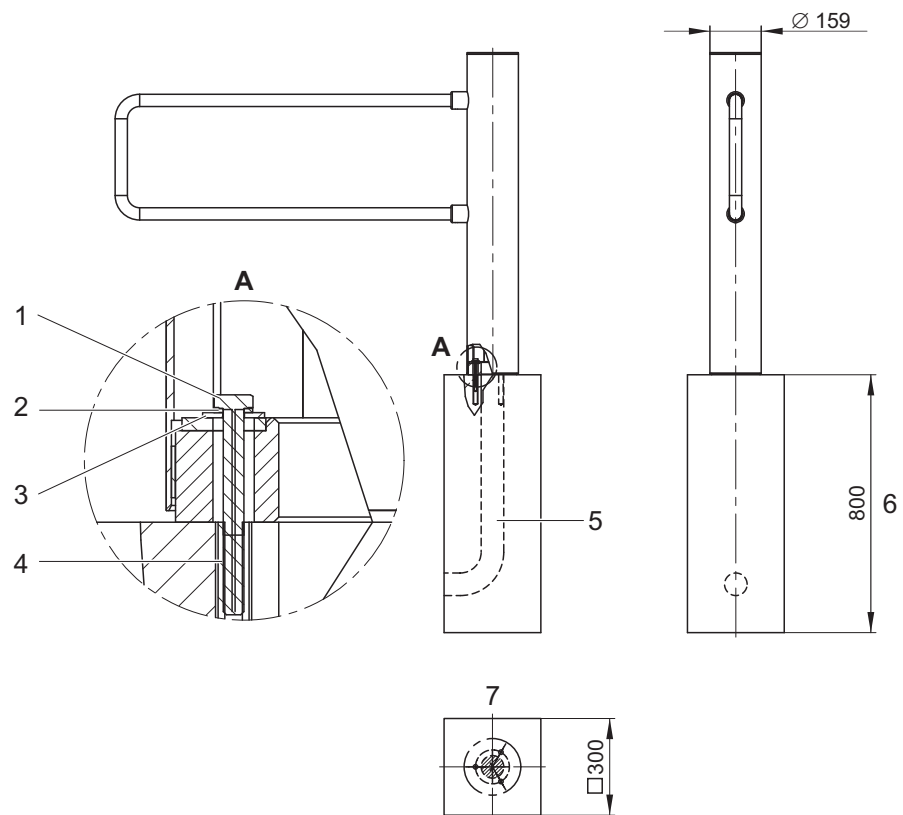
**NOTE!**

*To provide a trouble-free operation, use separate conduits for data cables and mains cables.*

---

#### Drilling template

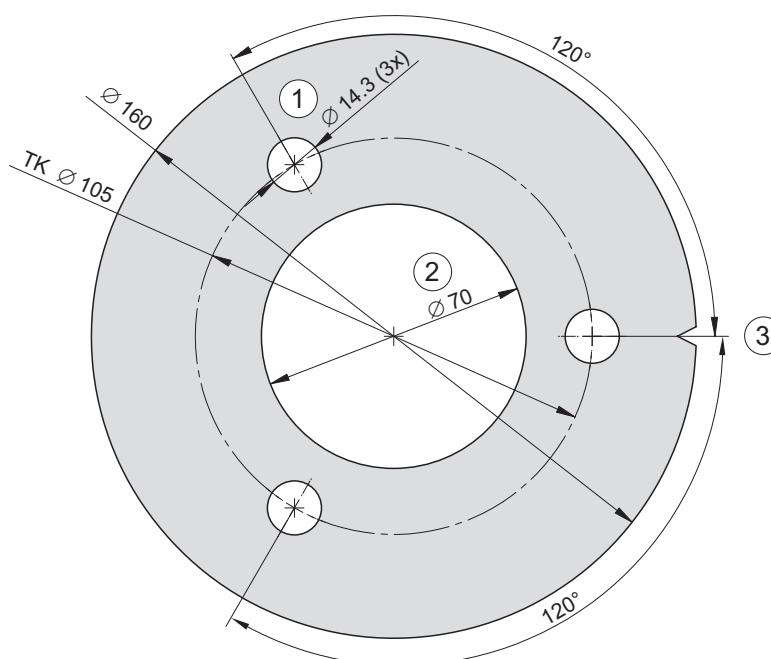
A drilling template for the tie anchors is enclosed.

**5.3.1 Foundation plan, fixing and drilling plan**


*Fig. 6: Foundation plan and fixing*

- 1 Recessed head screw M8 x 80
- 2 Spring washer
- 3 Disc
- 4 Tie anchor with inner thread M8
- 5 Empty conduits
- 6 Frost depth: at least 800 mm
- 7 Foundation

## Transport, mounting and installation



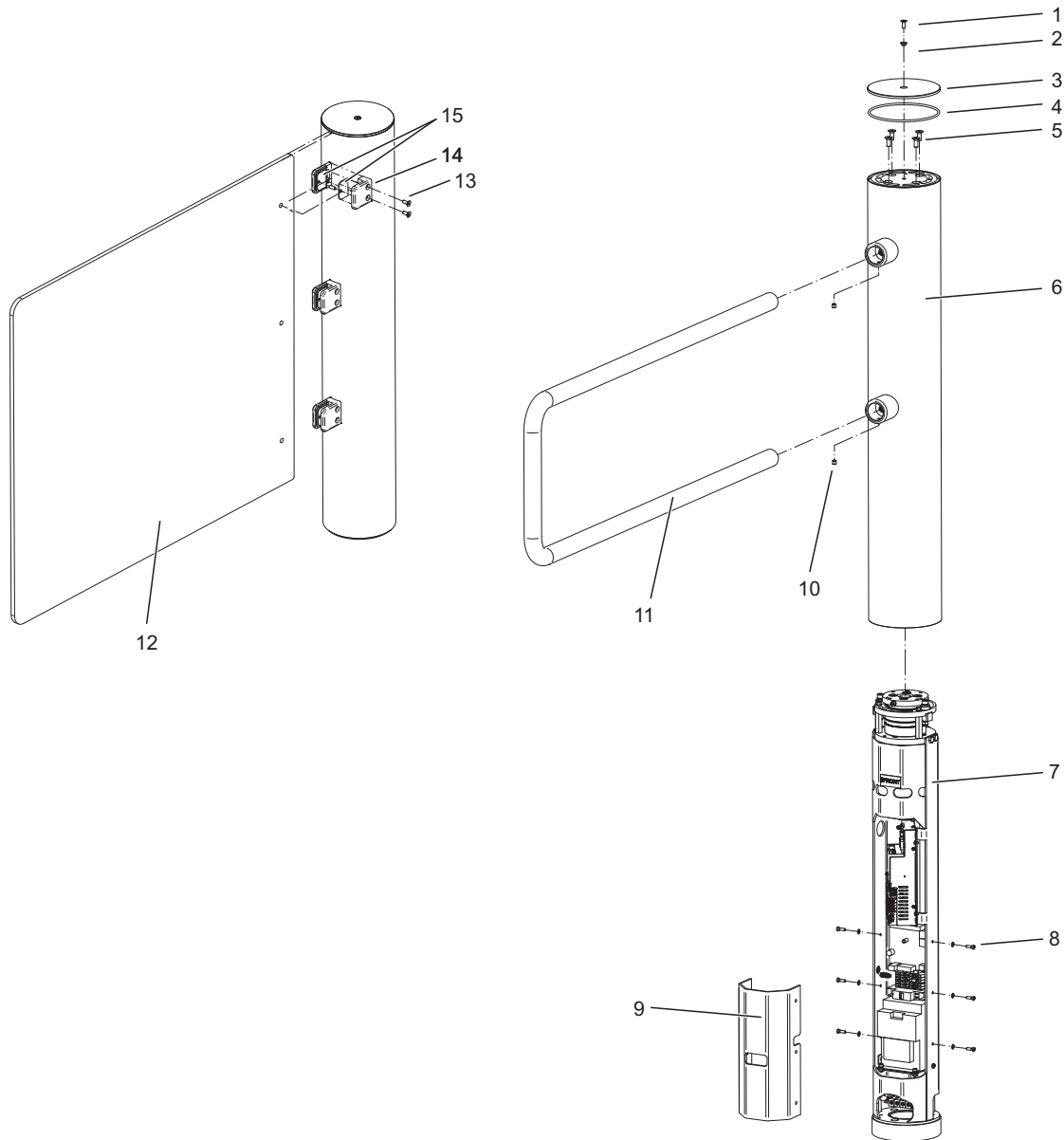
Mag00634

Fig. 7: Drilling plan

- 1 Drilling hole: Diameter 14.3, drilling depth: 90 mm
- 2 Area for conduits
- 3 Alignment of edge profile (opening) and locking element (home position)

## 5.4 Mounting the swing door

### 5.4.1 Design



Mag00627a

Fig. 8: Design MPS

- |   |   |    |                                       |
|---|---|----|---------------------------------------|
| 1 | Countersunk screw M6 x16                              | 9  | Cover                                 |
| 2 | Isolation sleeve                                      | 10 | Threaded pin                          |
| 3 | Top cover disc  | 11 | Locking element in bracket version    |
| 4 | O-Ring  | 12 | Locking element in wing version       |
| 5 | Countersunk screws M8 x 20                            | 13 | Countersunk screw M6 (6 pieces)       |
| 6 | Outer tube  | 14 | Holder for locking element (3 pieces) |
| 7 | Edge profile (with drive, control units, transformer) | 15 | Rubber inserts (6 pieces)             |
| 8 | Disc/screws M5 x 16                                   |    |                                       |

## Transport, mounting and installation

### 5.4.2 Mounting the swing door on the foundation

#### Prerequisites

- The foundation has cured.
- The conduits have been placed.
- The locking element is not installed yet.
- Use enclosed attachment material. The swing door is fastened on the foundation with 3 tie anchors.



#### NOTE!

For mounting the swing door on the foundation, you need to partially disassemble the swing door.

1. Loosen countersunk screw M6 of the cover disc.

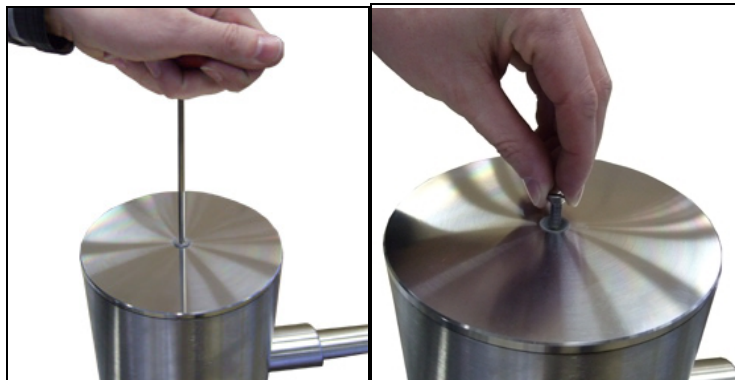


Fig. 9: Remove countersunk screw

2. Remove the cover disc and the O-ring.



Fig. 10: Remove cover disc

## Transport, mounting and installation

3. Loosen the 4 countersunk screws M8 and remove them.

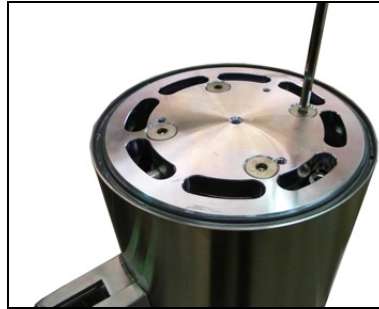


Fig. 11: Remove countersunk screws

4. Pull out outer tube and remove it.
5. Loosen screws and remove cover.

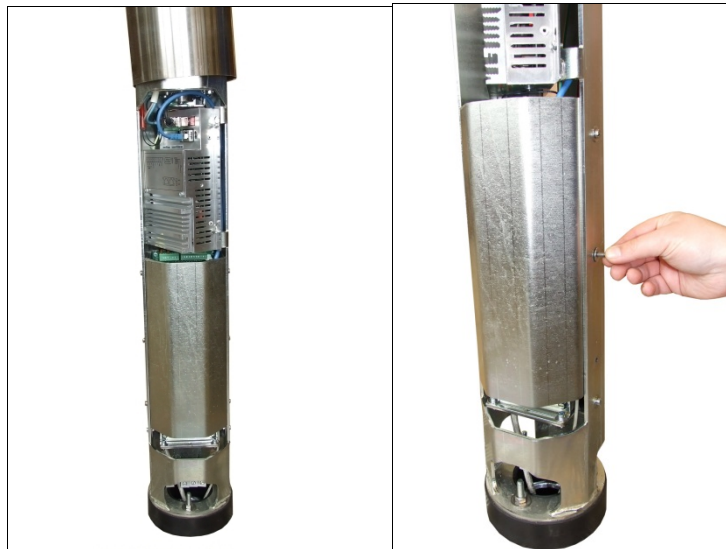


Fig. 12: Left: Outer tube, right: Cover

6. Setting bores. You have the following options for this:
  - Place edge profile at the intended site so that the section in the housing as indicated in Fig. 12 is about central in the direction of the desired home position. Mark bores. Put edge profile aside. Setting bores.  
The home position is the resting position of the locking element.
  - Place the bores according to the drilling plan.  
→ See page 27, Fig. 6 and page 28, Fig. 7.
7. Carefully remove any sand and swarf from the bore holes and their immediate vicinity.
8. Set the anchor rods with the glue cartridges and let them cure according to the enclosed description. Observe curing time of the cartridges.

## Transport, mounting and installation

9. Put the edge profile into the intended location. Insert the supply lines from below.

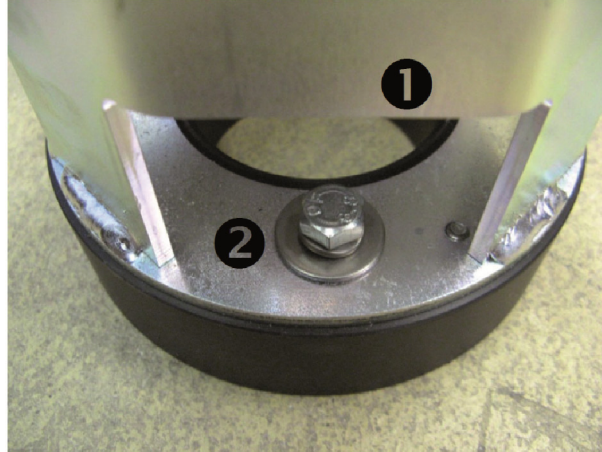


Fig. 13: Attach edge profile

- 1 Edge profile
  - 2 Screws M8 x 80, spring washer, washer (each 3 x)
10. Attach edge profile on the foundation with 3 screws, spring washers and washers. Observe that the lines are not damaged.
  11. Install cover.
  12. Install outer tube.
  13. Install the cover disc with the O-ring.



### NOTE!

*If the swing door is immediately connected electrically and taken into operation, the cover, outer tube and cover disc may be installed after commissioning. → For electrical connection, see page 33, chapter 6. → For commissioning, see page 44, chapter 8.*




## 6 Electrical connection


### 6.1 Safety

→ See also safety notes on page 15, chapter 2.6 "Occupational safety and special dangers".

#### Electric voltage


<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none"> <li>– Switch off the power supply immediately in case of damage to the insulation and arrange repair.</li> <li>– Only electrical specialists may carry out work on the electrical system.</li> <li>– Switch off power supply and secure against reactivation before performing any work. Test for absence of voltage!</li> <li>– Never bypass or deactivate fuses.</li> <li>– When replacing fuses observe the correct amperage specification.</li> <li>– Keep moisture and dust away from live parts. Moisture or dust may cause a short circuit.</li> </ul>

#### General

<b>⚠ WARNING</b>	
	<p><b>Inappropriate installation!</b></p> <p>Inappropriate installation can cause severe or lethal injuries.</p> <ul style="list-style-type: none"> <li>– Only qualified personnel, authorised by the operator and instructed appropriately, may carry out installation tasks.</li> <li>– Pay attention to tidiness and cleanliness at the assembly site! Loosely stacked or lying around components and tools are accident sources.</li> <li>– Install all fastening elements correctly.</li> </ul>

## Electrical connection

### Electromagnetic interference

<b>NOTICE</b>	
	<p><b>Electromagnetic interferences may cause malfunctions of the pedestrian barrier or adjacent devices!</b></p> <p>The pedestrian barrier is approved for industrial use. Operation in other electro-magnetic environmental conditions may cause interferences or malfunctions.</p> <ul style="list-style-type: none"> <li>– Place control lines and mains cables into separate conduits</li> <li>– Use cables according to the electrical circuit plan.</li> <li>– Only install and apply additional parts approved by MAGNETIC.</li> <li>– The electrical and electronically additional parts must be EMC verified and must not exceed the indicated EMC threshold values.</li> </ul>

### Personal protective equipment

The following must be worn during all electrical work:

- Work clothes
- Protective gloves
- Safety shoes.

## 6.2 Installing electrical protective devices

The safety installations that are required according to regional and local regulations must be provided by the customer. Usually these are:

- Residual current device (RCD)
- Circuit-breaker
- Lockable 2-pole main switch acc. to EN 60947-3.

## 6.3 Performing electrical connections


**NOTE!**

The wire cross-section of the mains cable must be between 1.5 and 4 mm<sup>2</sup>. Observe national provisions on line length and associated line cross-section.

**Prerequisites**

- The locking element is not installed yet.


**DANGER!**
**Mortal danger by electric voltage!**

1. Disconnect supply line from power supply. Ensure that the system is powered down. Secure against reactivation.
2. Remove the cover disc with the O-ring.
3. Remove outer tube.
4. Install cover.
5. Connect the mains cable to the terminals L, N and PE according to the following figure.

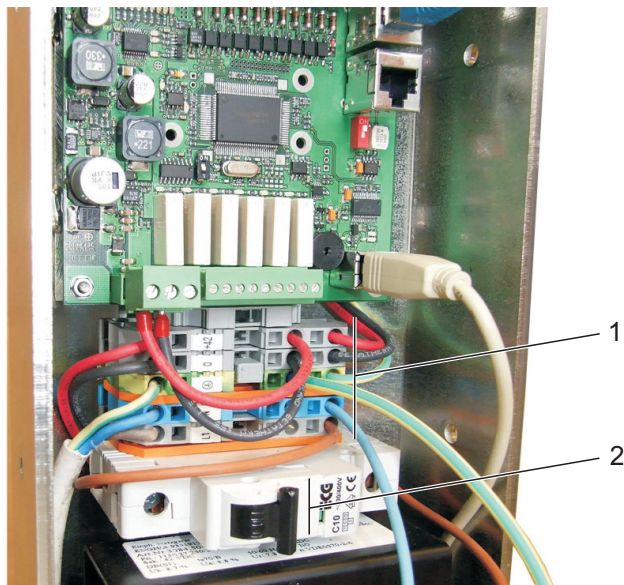


Fig. 14: Power connection and main switch

- 1 Terminals L, N, PE
- 2 2-pin main switch

Mag00264

## Electrical connection

6. Connect control lines to the MBC-111. → See page 37, chapter 6.4.
7. Switch on swing door via 2-pin main switch.
8. Check functions. → See page 44, chapter 8.
9. Install cover.
10. Install outer tube.
11. Install the cover disc with the O-ring.

## 6.4 Connecting control lines to MBC-111

The control and feedback lines are connected at the control unit MBC-111. → See included circuit diagram.

### 6.4.1 Digital inputs

- all inputs are insulated by opto couplers
- Input voltage 24V ±10%
- Input current 10 mA per input
- Impulse length for inputs 100 ms to 300 ms

Input	Function	Description
1	Emergency situation (Emergency)	<p>This input enables free passage of the swing doors in case of an emergency. The input is fail-safe, i.e. the swing door is only operative when a continuous signal is present.</p> <p>When the continuous signal disappears, the motor is switched off immediately. The locking element can be moved freely.</p> <p>The input acts directly on the motor end stage through a second channel. It is superordinate over all other inputs. If several swing doors are to be opened at the same time using an external emergency STOP switch, the inputs must be insulated with additional relays to avoid coupling of the voltages between the different swing doors</p>
2	Open passage left	<p>Opening pulse for passage to the left.</p> <p>If the signal continues to be present, the hold-open time is re-triggered.</p>
3	Open passage right	<p>Opening pulse for passage to the right.</p> <p>If the signal continues to be present, the hold-open time is re-triggered.</p>
4	Closing superordinated (locking)	<p>Input for superordinated closing of the swing door. Opening signals at the inputs 2 and 3 are ignored. Opening of the swing door above input 1 (emergency situation) continues to be possible.</p>
5	Manual reset	<p>Input for manually resetting the controller after voltage outages. Input is only required when the function "manual reset" was also activated.</p>
6 to 8	Not reserved	–
9	Button connection.	<p>Button for parameterising the home position and hold-open time</p>

Table 5: Digital inputs

## Electrical connection

### 6.4.2 Relay outputs

- Isolated relay contacts, wired in groups
- Switched voltage 5 – 48V
- Switched current 10 mA – 1 A

Relay output	Function	Description
K1	Global error and alarm output (voltage outage)	<p>When certain errors occur, a continuous signal is given at this output; it continues as long as the error persists. Refer also to the following note.</p> <p>Possible errors are:</p> <ul style="list-style-type: none"> <li>■ Runtime of the locking element too long = obstacle detected</li> <li>■ CAN communication with end stage is impaired</li> <li>■ Hardware error in end stage</li> <li>■ Software error in end stage</li> <li>■ Homing function running</li> <li>■ Power failure</li> <li>■ Manual reset expected (only if fitted)</li> </ul>
K2	Locking element in the home position	A permanent signal is delivered via this output for as long as the locking element is in the home position.
K3	Locking element in the left end position	A permanent signal is delivered via this output for as long as the locking element is in the left end position.
K4	Locking element in the right end position	A permanent signal is delivered via this output for as long as the locking element is in the right end position.
K5	Counting pulse when the left end position is reached	A counting pulse lasting 500 ms is delivered via this output when the left end position is reached.
K6	Counting pulse when the right end position is reached	A counting pulse lasting 500 ms is delivered via this output when the right end position is reached.

Table 6: Relay outputs



#### NOTE!

*Voltage outage is indicated at the global error output; therefore, relay 1 is operated invertedly. This means that the relay is closed as long as there is no error. As soon as one the global errors described above occurs, the relay falls off.*

## 7 Mechanical settings and final installation

### 7.1 Adjusting the mechanical end stops

#### 7.1.1 Aligning outer tube

The attachment for the locking element at the outer tube must be approximately centrally aligned in the direction of the home position. The home position is the resting position of the locking element.

1. Remove the cover disc with the O-ring.
2. Turn the outer tube so that the cut-out in the top cover disc is about centred above the stop screw.

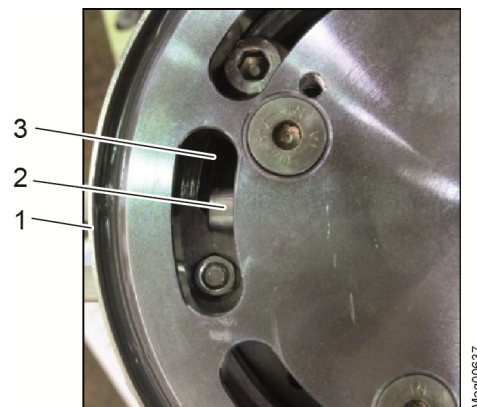


Fig. 15: Alignment of stop screw

- 1 Outer tube
- 2 Stop screw
- 3 Cut-out

## Mechanical settings and final installation

### 7.1.2 Adjusting the mechanical end stops

#### Right end stop

1. Turn outer tube to the right until the stop screw touches the right end stop.
2. Loosen the screw of the right end stop and move it until the end stop is about 92° to the right of the desired home position.



Fig. 16: Adjusting the right end stop

3. Tighten the bolt firmly.

#### Left end stop

4. Turn outer tube to the left until the stop screw touches the left end stop.
5. Loosen the screw of the left end stop and move it until the end stop is about 92° to the left of the desired home position.




Fig. 17: Adjusting the left end stop

6. Tighten the bolt firmly.
7. Taking the swing door into operation. → See page 44, chapter 8. Check during commissioning if targeting the positions works correctly. If the positions are not targeted correctly, adjust the end stops again.
8. Install the O-ring with cover disc.



## 7.2 Mounting locking element

### Danger of crushing

<b>⚠ CAUTION</b>	
	<p><b>Danger of crushing!</b></p> <p>While the swing door is supplied with voltage, control commands can move the locking element. If these movements are made unexpectedly, they may cause crushing.</p> <ul style="list-style-type: none"> <li>– If possible, disconnect the swing door from the voltage.</li> <li>– Consider possible movements of the locking element for all work.</li> </ul>

### 7.2.1 Mounting brackets

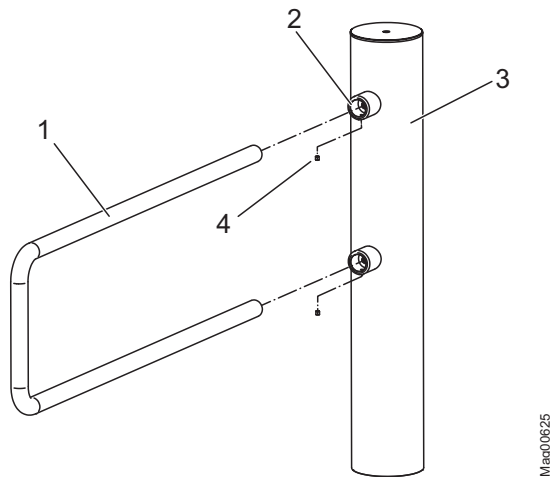


Fig. 18: Mounting brackets

- 1 Bracket
- 2 Outer tube
- 3 Holder
- 4 Threaded pin M8 (2)




#### **CAUTION!**

#### **Danger of crushing!**

1. Disconnect swing door from power supply. Ensure that the system is powered down. Secure against reactivation.
2. Turn the threaded pins M8 out of the holders.
3. Push the brackets into the holders at the outer tube.
4. Fasten the brackets in the holders with the threaded pins.

## Mechanical settings and final installation

### 7.2.2 Mounting wings

<b>NOTICE</b>	
	<p><b>Risk of breakage!</b></p> <p>Mounting the glass wing without the rubber inserts may cause the glass wing to break. In this case, the glass wing is excluded from warranty.</p> <ul style="list-style-type: none"> <li>– Only install the glass wing with the 6 rubber inserts. The rubber inserts must be placed between glass wing and holder halves.</li> </ul>

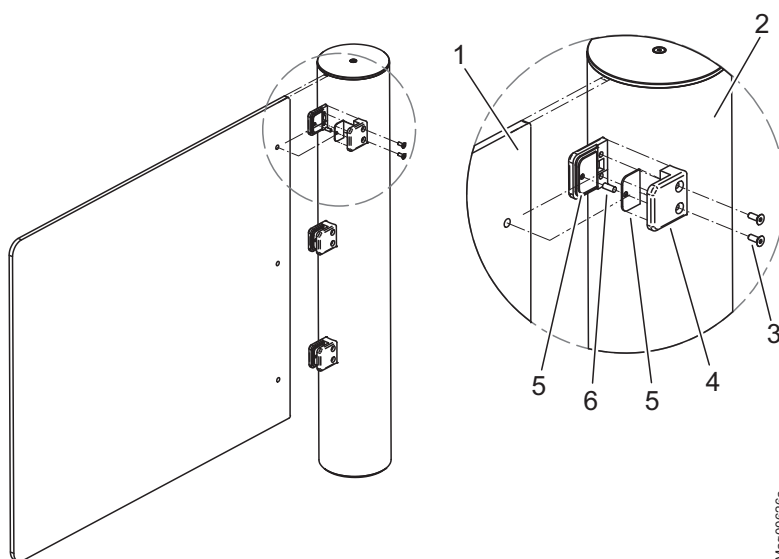


Fig. 19: Mounting glass wings

- 1 Glass wings
- 2 Outer tube
- 3 Screws M6 (6)
- 4 Front holder half (3)
- 5 Rubber inserts (6)
- 6 Safety pin



#### CAUTION!

#### Danger of crushing!

1. Disconnect swing door from power supply. Ensure that the system is powered down. Secure against reactivation.
2. Thoroughly clean the glass wing with glass cleaner.
3. Loosen all 6 screws M6 at the 3 holders.
4. Remove the front holder halves and rubber inserts.
5. Put the glass wing on the safety pins.

## Mechanical settings and final installation


6. Put on the rubber inserts and holder halves.
7. Tighten the screws M6.
8. Secure the screws with Loctite.

## Commissioning and settings


# 8 Commissioning and settings

## 8.1 Safety


### Inappropriate commissioning!

<b>⚠ WARNING</b>	
	<p><b>Inappropriate commissioning!</b></p> <p>Inappropriate commissioning can cause severe or lethal injuries.</p> <ul style="list-style-type: none"> <li>– Commissioning and settings must be performed by specialists only.</li> <li>– Prior to start of works ensure that the outer tube is correctly mounted.</li> </ul>

### Electric voltage

<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none"> <li>– Switch off the power supply immediately in case of damage to the insulation and arrange repair.</li> <li>– Only qualified electricians may carry out work on the electrical system.</li> <li>– Switch off power supply and secure against re-activation before performing any work. Test for absence of voltage!</li> <li>– Never bypass or deactivate fuses.</li> <li>– When replacing fuses observe the correct amperage specification.</li> <li>– Keep moisture and dust away from live parts. Moisture or dust may cause a short circuit.</li> </ul>

### Danger of crushing

<b>⚠ CAUTION</b>	
	<p><b>Danger of crushing!</b></p> <p>While the swing door is supplied with voltage, control commands can move the locking element. If these movements are made unexpectedly, they may cause crushing.</p> <ul style="list-style-type: none"> <li>– Consider possible movements of the locking element for all work.</li> </ul>

**Personal protective equipment**

The following must be worn during commissioning:

- Work clothes
- Protective gloves
- Safety shoes.

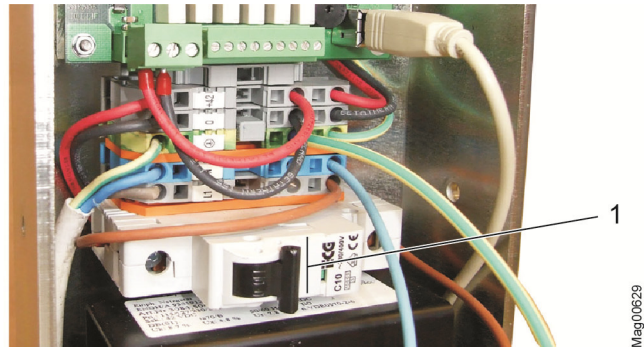
**8.2 Switching the swing door on and off**

Fig. 20: Switching the swing door on and off

1 2-pin main switch

1. Remove the cover disc with the O-ring.
2. Remove outer tube.
3. Install cover.
4. Switching the swing door on or off via the 2-pin main switch.
5. Install cover.
6. Install outer tube.
7. Install the cover disc with the O-ring.

## Commissioning and settings

### 8.3 Initial commissioning

#### Free movement path

Ensure that the swing door can take up operation unhindered. The movement path of the locking element must be free.

#### Initial commissioning

1. Switch on power supply. If required, switch on the locking element via the 2-pin main switch.
2. At initial commissioning, the software for the motor control unit MMC-120 may be loaded from the logic control unit first. This process may take up to one minute. Do not switch off the power supply during this time, since this would require repeating the process. This process will not be necessary when switching on the power supply in future.
3. The swing door performs homing. First the two mechanical end stops and then the home position are controlled. If required, adjust the end stops. → See page 39, chapter 7.1.



**NOTE!**


*Functions and parameters can be changed via the programme "MPS-Diag".*

*→ See page 54, chapter 10.*

---

## 8.4 Setting the home position and hold-open time via button

### Danger of crushing

<b>⚠ CAUTION</b>	
	<p><b>Danger of crushing!</b></p> <p>While the swing door is supplied with voltage, control commands can move the locking element. If these movements are made unexpectedly, they may cause crushing.</p> <ul style="list-style-type: none"> <li>– Consider possible movements of the locking element for all work.</li> </ul>

You may set the home position and the hold-open time via a button. The button is below the cover disc. → See page 22, Fig. 3

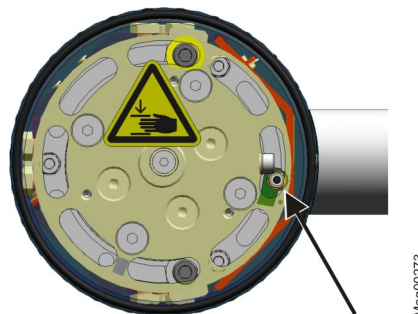


Fig. 21: Button for setting the home position and hold-open time

### 8.4.1 Setting the home position

#### Free movement path

Ensure that the swing door can take up operation unhindered. The movement path of the locking element must be free.

You may perform homing via the button at the control unit.

1. Push the button. The buzzer emits a signal every time the button is pushed. After 5 seconds, the buzzer emits a signal at 6 Hz twice.



#### NOTE!

If you do **not** push the button again within the next 10 seconds, the process will be cancelled. The buzzer emits a signal at 2 Hz twice and the locking element swivels back to its original home position. The original home position remains valid.

## Commissioning and settings

2. Swivel the locking element to the desired home position.
3. Confirm the position by pushing the button again within the next 10 seconds. The buzzer confirms the new homing position with a continuous signal of 2 second.



### NOTE!

*If you do **not** push the button again within the next 10 seconds, the process will be cancelled. The buzzer emits a signal at 2 Hz twice and the locking element swivels back to its original home position. The original home position remains valid.*

4. After 3 seconds, the locking element automatically swivels to the first end stop. The buzzer emits a signal at a cycle of 1 Hz during the movement.
  5. The locking element briefly remains in the first end position.
  6. The locking element automatically swivels to the second end stop. The buzzer emits a signal at a cycle of 1 Hz during the movement.
  7. The locking element briefly remains in the second end position.
  8. The locking element automatically swivels to the new home position. The buzzer emits a signal at a cycle of 1 Hz during the movement.
  9. After one second, the buzzer emits two signals at 6 Hz.
- The home position is set.

### 8.4.2 Setting the hold-open time

You may set the hold-open time using the button at the control unit.

- Setting range: 1...25 s
- Factory setting: 8 s

1. Push button three times within 5 seconds. The buzzer emits a signal every time the button is pushed. After 5 seconds, the buzzer emits a signal at 6 Hz twice.



### NOTE!

*If you do **not** push the button three times within 5 seconds, the process will be cancelled. The original hold-open time remains valid. The buzzer emits a signal at 2 Hz twice.*



## Commissioning and settings

2. Push the button to set the desired hold-open time. One push corresponds to one second.  
Examples: Push the button once for a hold-open time of one second. Push the button 25 times for the maximum hold-open time of 25 seconds.
3. Wait for 5 seconds. After 2 seconds, the buzzer emits a signal at 6 Hz twice. The number of pushes of the button is assumed for the hold-open time.

The hold-open time is set.



**NOTE!**

*If you do **not** push the button for 5 seconds, the number of pushes of the button is assumed for the new hold-open time value.*

---

## Function description

# 9 Function description

## 9.1 Power-off state

When there is no voltage, the motor is powered down. It is unlocked. The swing doors can be turned freely.

## 9.2 Start-up routine

After switching on the operation voltage, the reset version set is checked first.

In case of the setting "manual reset", the control is first waiting for a reset pulse at the "manual reset" input and then performs homing. With the "autoreset" setting, homing is performed at once.

## 9.3 Homing

The swing door first performs "Homing", i.e. it first determines where the locking element is located by first looking for the mechanical end stop. This takes place at a reduced speed and reduced motor torque. During "Homing", the buzzer gives warning signals. Depending on whether a left or right swing door has been selected, Homing takes place in different directions.

At a left swing door, the locking element slowly swivels clockwise to the mechanical end stop after power returns. After reaching the end stop, the locking element slowly swivels counter-clockwise into the position defined as home position (factory settings: 90°). After the home position is reached, the swing door is ready for operation.

At a right swing door, the locking element slowly swivels counter-clockwise to the mechanical end stop after power returns. After the end stop is reached, the locking element slowly swivels clockwise into the position defined as home position (factory setting: 90°). After the home position is reached, the swing door is ready for operation.

Depending on the setting for the function "Brake locked in the home position", the brake is tripped accordingly when the home position is reached.

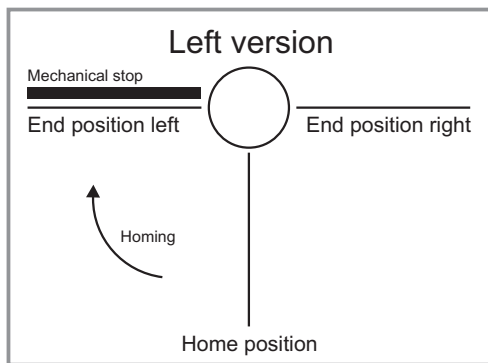


Fig. 22: Homing at a left swing door

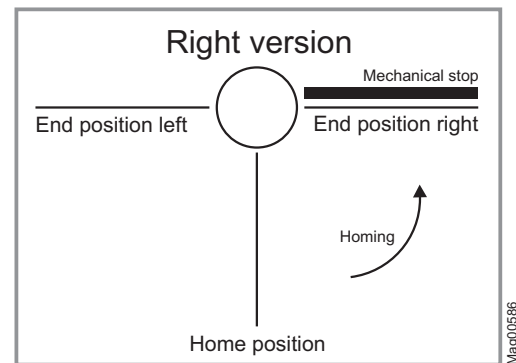


Fig. 23: Homing at a right swing door

## 9.4 Regular movement process

In the two end positions and the home position, the swing door is held by a motor at a high motor torque. If the function "Activate brake" is chosen for one or several positions, the motor in the corresponding position is powered down and the brake is powered instead.

If no release has been given for one of the two opening directions, the locking element is in the home position. Once an attempt is made to move the locking element from the home position, the brake is activated. See page 52, chapter 9.5.

After a release impulse is reached for one direction, the swing door is opened in the passage direction. When the end position is reached, the locking element is moved into position by the motor.

After the hold-open time is over, the swing door closes on its own, i.e. the locking element swivels back to the home position.

## Function description

### 9.5 Special cases within motion sequence

#### 9.5.1 Obstacle recognition during the movement

The behaviour can be set via the parameter "Stalled behaviour (Behaviour when obstruction detected)". → See page 62, chapter 10.4.5.

The locking element can be stopped in mid-movement, e.g. when a user does not continue on or a luggage piece is caught. Depending on the selected function, one of the following measures is performed:

- There is no reaction.
- The locking element continues to push with a reduced force and speed.
- The locking element returns to the original position and starts the movement again at once.
- The locking element swivels back only a little bit, reverses and swivels on into the original direction again.

#### 9.5.2 Turning back during the movement

The behaviour can be set via the parameter "Brake options".  
→ See page 61, chapter 10.4.2.

##### Option "Brake on if vandalism" is activated

If an attempt is made to move the locking element in the wrong direction, the brake is activated at once. After a break, the brake is loosened again. If the attempt to push the locking element in the wrong direction is continued, the brake is activated again.

Once the outer force on the locking element is removed, the lock is loosened and the locking element is automatically moved into the intended direction.

##### Option "Brake always off" is activated

Turning back the locking element against the motor torque during the movement is possible at any time without damaging the swing door. Once the outer force on the locking element is removed, the locking element is automatically moved to the intended position.

### 9.5.3 Attempted vandalism

The behaviour can be set via the parameter "Brake options".  
→ See page 61, chapter 10.4.2.

#### **Option "Brake on if vandalism" is activated**

Once an attempt is made to move the locking element from the home position, the brake is activated. If the locking element is pushed or pulled with higher force than the holding force of the brake, the brake will give and tighten again at once. This permits using the locking element further in small steps. If the vandalism attempt is cancelled, the locking element swivels back to the home position.

#### **Option "Brake always off" is activated**

The home position is only held by the motor torque. If pushing or pulling the locking element at a higher force than the holding force of the motor, the locking element can be swivelled against the motor torque. Once the outer force on the locking element is removed, the locking element turns back to the home position.

### 9.5.4 Emergency

If the input IN1 "Emergency" is interrupted during operation, the swing door enters a safe state. The motor powers down at once. The control system returns to operation when there is voltage at the input IN1 again.

## Setting swing door parameters – "MPS-Diag"

### 10 Setting swing door parameters – "MPS-Diag"

The swing door MPS-122 is configured ex works so that it can be commissioned without additional programming for applications with an opening angle of  $2 \times 90^\circ$ .

Functions and parameters can be changed on site via the programme "MPS-Diag". The programme is included on a data carrier.

Additionally, a laptop/PC and USB extension are needed.

System requirements

- Windows as of WIN 2000
- USB interface as of 1.1
- Programme and operating instructions on included flash drive

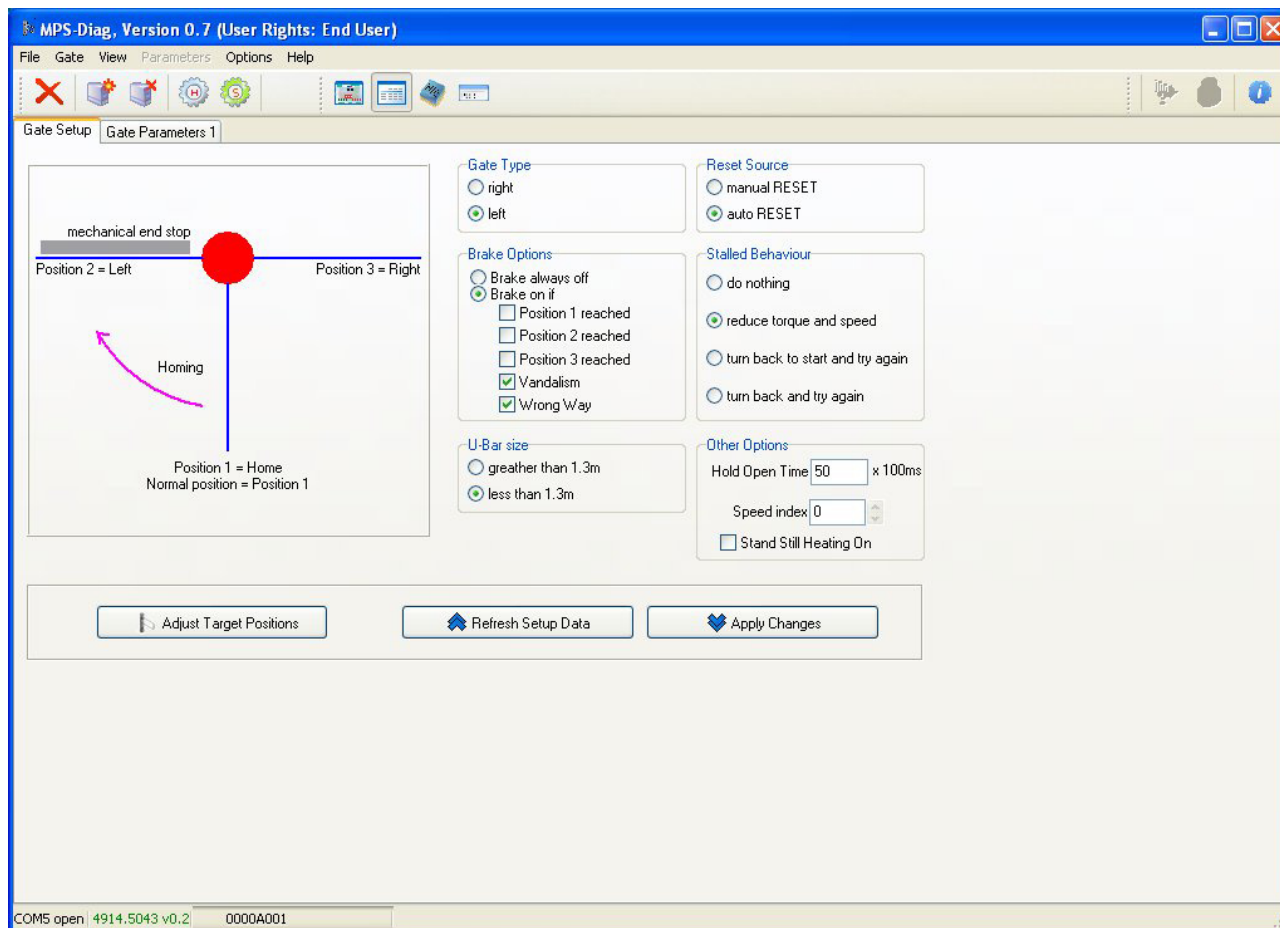


Fig. 24: MPS-Diag programme

## Setting swing door parameters – "MPS-Diag"

### 10.1 Driver installation under Windows 7

To establish a connection with your swing door MPS using the programme "MPS-Diag", you need to install the necessary drivers and enter the port number in the programme "MPS-Diag".

#### Driver installation possibilities

There are the following options for driver installations:

Automatic driver installation via setup assistant:

- The latest driver from the internet is installed.
- The included driver is installed.

Manual driver installation:

- The latest driver from the internet is installed.
- The included driver is installed.



#### NOTE!

For more information on the driver, see <http://ftdichip.com/Support/Documents/AppNotes.htm>

---

#### 10.1.1 Automatic driver installation via setup assistant

##### Using the driver from the internet

1. Plug the USB cable into the USB socket of the computer.
  - Windows 7 automatically recognises the newly connected hardware and looks for a matching driver online. The message "Installing device driver software" appears on the display.
  - The driver is installed automatically.
  - After successful installation, the screen shows the message "USB Serial Port (COM). The device driver software was installed successfully".
2. Start setup of the programme "MPS-Diag".
3. Perform installation according to setup assistant.
4. As a last step, the view "Terminating the MPS-Diag" appears.
5. Deactivate the check box "Install USB driver".
6. Click the button "Finish".
7. Use the "Device Manager" to determine the port number and enter it in the programme "MPS-Diag". → See page 57, chapter 10.1.3.
  - If the entry in the device manager is missing, you need to install the included driver. → See following chapter.

## Setting swing door parameters – "MPS-Diag"

### Use included driver

If the installation of the driver by plugging in the USB cable does not work automatically, you need to install the driver subsequently.

1. Start setup of the programme "MPS-Diag".
2. Perform installation according to setup assistant.
3. As a last step, the view "Terminating the MPS-Diag" appears.
4. Activate the check box "Install USB driver" to install the included driver automatically.
5. Click the button "Finish".
6. Use the "Device Manager" to determine the port number and enter it in the programme "MPS-Diag". → See page 57, chapter 10.1.3.
  - If the entry in the device manager is missing, you need to install the driver manually. → See following chapter.

### 10.1.2 Manual driver installation

#### Using the driver from the internet

1. Open the window "Device Manager".
2. Click the entry "USB serial port". The window "Properties USB serial port" is opened.
3. Click the button "Update driver". The screen "Update driver software" appears.
4. Select the option "Automatically search for driver software".
  - Your operating system searches your computer first, then the internet.
  - The driver is installed automatically. After successful installation, the message "The driver software was installed successfully" will be displayed.
5. Use the "Device Manager" to determine the port number and enter it in the programme "MPS-Diag". → See page 57, chapter 10.1.3.
  - If the entry in the device manager is missing, you need to install the included driver manually. → See following chapter.
  - Alternatively, you may also download the latest driver under the following link: <http://ftdichip.com/Drivers/VCP.htm>

#### Use included driver

If you don't have an internet connection, you can simply use the included driver. The driver is located in the directory: "...\bin\Driver\USB\FTDI".

1. Unpack file.
2. In the tab "Driver", click the button "Update driver".
3. Click the option "Automatically search for computer for driver software".
4. Enter or select the path for the driver.



## Setting swing door parameters – "MPS-Diag"

5. Click the button "Continue". The driver is installed.
6. After successful installation, the message "The driver software was installed successfully" will be displayed.
7. Use the "Device Manager" to determine the port number and enter it in the programme "MPS-Diag". → See following chapter.

### 10.1.3 Entering the port number in the programme "MPS-Diag"

#### Successful driver installation

1. Click the icon "Desktop".
  2. Select the menu field "Properties". The window "Basic information" is opened.
  3. Click the entry "Device Manager". The device manager is opened.
- If installation was successful, "Connections (COM & LPT)" will list the "USB Serial Port" with a port number. The port number depends on your computer's configuration.

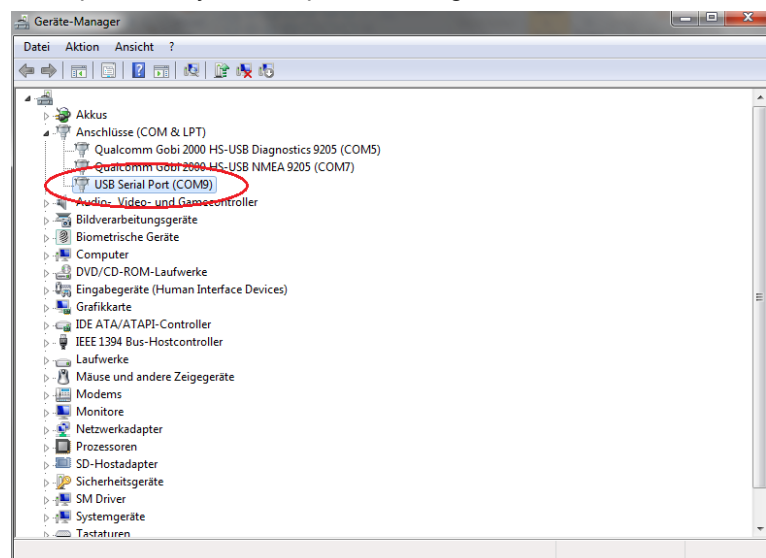


Fig. 25: Entry "USB serial port with port number" (here COM9) at successful installation

4. Call programme MPS-Diag
5. Select menu item "Settings".
6. Enter the port number.

## Setting swing door parameters – "MPS-Diag"

### Failed driver installation

- If installation was not successful, no port number is indicated for the connection "USB Serial Port".

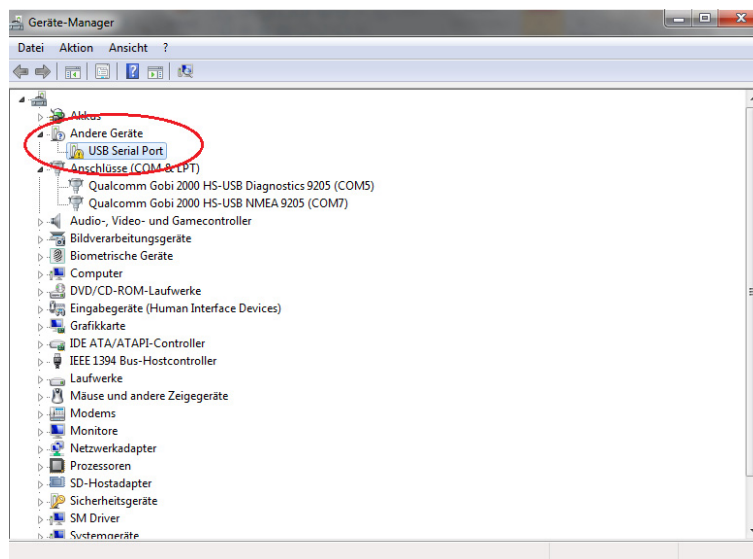



Fig. 26: Missing port number" if the installation has failed

Choose another way of installing the driver. → See page 55, chapter 10.1.1 and page 56, chapter 10.1.2.

## 10.2 Connecting laptop to control device MB-111

### Danger of crushing

<b>⚠ CAUTION</b>	
	<p><b>Danger of crushing!</b></p> <p>While the swing door is supplied with voltage, control commands can move the locking element. If these movements are made unexpectedly, they may cause crushing.</p> <ul style="list-style-type: none"> <li>– Consider possible movements of the locking element for all work.</li> </ul>

The USB connection for the control unit MBC-111 is in the socket area of the swing door.

1. Loosen countersunk screw M6 of the cover disc.
2. Remove the cover disc and the O-ring.
3. 4 Loosen the countersunk screws M8 and remove them.
4. Pull out outer tube and remove it.
5. Connect the laptop to the USB connection of the control unit MBC-111 via the USB connection.

## Setting swing door parameters – "MPS-Diag"



Fig. 27: Connect the laptop to the control unit MBC-111.

### 10.3 Using the MPS-Diag programme

1. Install the programme "MPS-Diag" on a laptop or computer
2. Start the included programme "MPS-Diag" via Setupxxx.exe and execute the instructions of the installation routine.
3. A virtual COM port driver is installed during installation. The port number of the serial interface is determined as follows:
  - Plug in connection cable.
  - Read the port number in the menu "Device Manager > Connections (COM and LPT)".
4. Start the programme "MPS-Diag".
5. If required, select the desired language via the menu "Settings > Language". Restart the programme.
6. Select your computer's COM port in the menu "Settings".

## Setting swing door parameters – "MPS-Diag"

### 10.4 Function and parameter settings

Function and parameter settings are made through the Windows programme MPS-Diag.

The following functions can be set:

- Design left / right
- Brake activated / not activated in the three positions, in case of vandalism or when pressed in the wrong direction
- Present locking element size
- Reset source
- Behaviour when obstruction detected
- Hold-open time
- Speeds
- Heating active while standing
- Programming the two end positions and the home position
- Resetting all parameters to factory settings

#### 10.4.1 Version left / right

This selection point informs the control whether it is a right or a left version of the swing door. In the "right" version, the locking bracket swivels against the right mechanical end stop when homing. In the "left" version, the locking bracket swivels against the right mechanical end stop when homing.

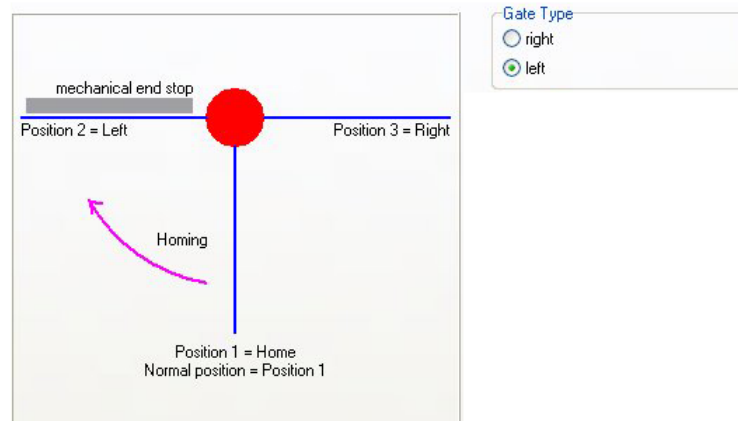


Fig. 28: Explanation on version "Right" and "Left", here the directions for the left swing door are presented

## Setting swing door parameters – "MPS-Diag"

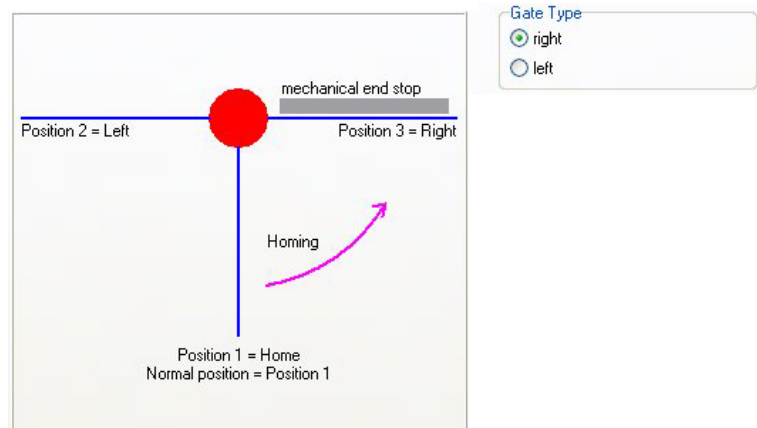
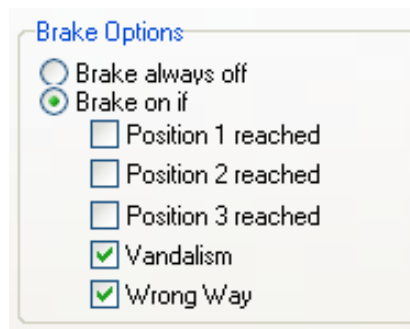


Fig. 29: Explanation on version "Right" and "Left", here the directions for the right swing door are presented

### 10.4.2 Brake activated / not activated

This option is used to inform the control if the brake is to be activated when one of the three positions is reached, in case of vandalism or when pressed in the wrong direction. The setting can be made independently for each of the five options.



The 'Brake Options' window contains the following settings:

- Brake always off
- Brake on if
  - Position 1 reached
  - Position 2 reached
  - Position 3 reached
  - Vandalism
  - Wrong Way

Fig.30: Possible settings for the brake

## Setting swing door parameters – "MPS-Diag"

### 10.4.3 Select size of the locking element

Choose the length of the locking bracket via the selection point.



Fig. 31: Select length of the locking bracket

Always select the setting "more than 1.3 m" for swing doors in the wing version.

### 10.4.4 Select reset source

This option can be used to specify whether, once power has been restored, the controller first waits for a pulse at the "manual reset" pulse or whether it starts to home immediately.

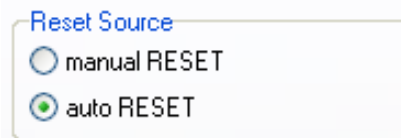


Fig. 32: Select reset source

### 10.4.5 Stalled behaviour (Behaviour when obstruction detected)

This selection point determines the behaviour of the swing door when an obstacle is recognised.

- Do nothing: There is no reaction.
- Reduce force and speed: The locking element continues to push with a reduced force and speed.
- Reverse completely and start anew: The locking element returns to the original position and starts the movement again at once.
- Reverse slightly and start anew: The locking element swivels back only a small bit, reverses and swivels on into the original direction again.

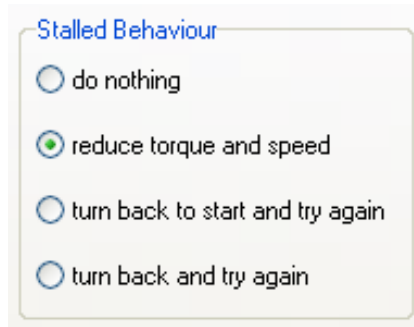
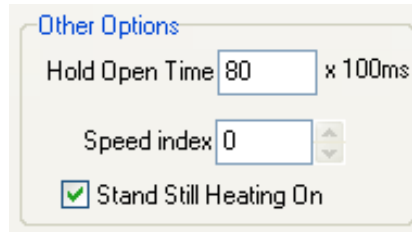


Fig. 33: Stalled behaviour (behaviour when obstruction detected)

## Setting swing door parameters – "MPS-Diag"

### 10.4.6 Set hold-open time

The "hold-open time" parameter is used to set the hold-open time between 0 and 25 seconds in steps of 100 ms. Entering 50 means 5 seconds.



Other Options

Hold Open Time  x 100ms

Speed index

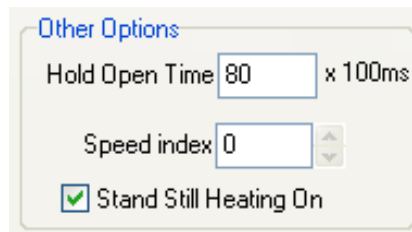
Stand Still Heating On

Fig. 34: Set hold-open time

### 10.4.7 Set speed

The parameter "Speed" sets one of the three specified speeds "0 (slow)", "1 (medium)" or "2" (fast). The speed applies to regular operation.

If you have chosen "more than 1.3 m" for the parameter "U-bar size", the parameter "Speed" only has the option "0 (slow)". Observe that you always have to choose "above 1.3 m" for glass wings. → For the parameter "U-bar size", see page 62, chapter 10.4.3.



Other Options

Hold Open Time  x 100ms

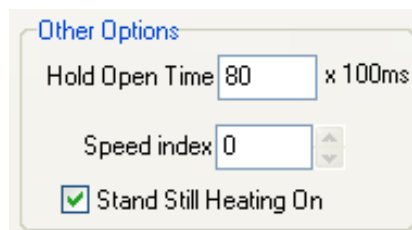
Speed index

Stand Still Heating On

Fig. 35: Set speed

### 10.4.8 Heating active while standing

This option is used to determine if heating is activated while standing. The heating is needed if the swing door is used at ambient conditions below 0°C.



Other Options

Hold Open Time  x 100ms

Speed index

Stand Still Heating On

Fig. 36: Switch on standing heating.

## Setting swing door parameters – "MPS-Diag"

### 10.4.9 Teaching the three possible positions

The MPS is delivered with 2 x 90° opening angles by default. However, the three positions can be changed independently. For this, there is an input mask in MPS-Diag.



Fig. 37: Activate screen mask for adjusting the target positions

Setting the target positions is a process with several stages.

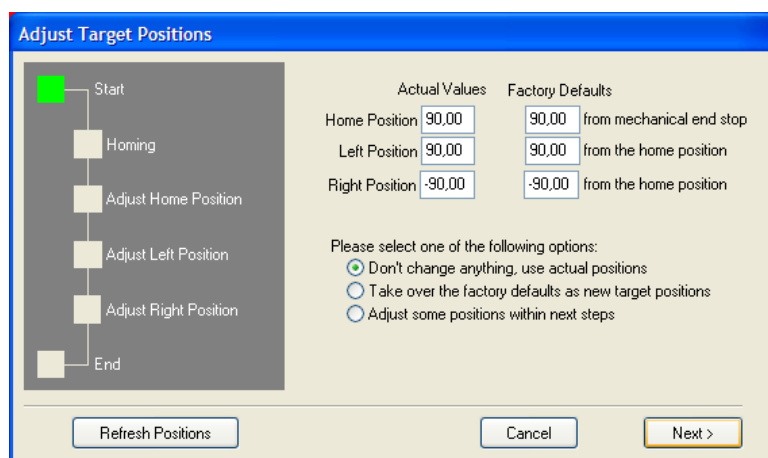


Fig. 38: Setting the target positions

1. Perform homing. Put the MBC control into service mode for this. Then you can adjust the three positions.

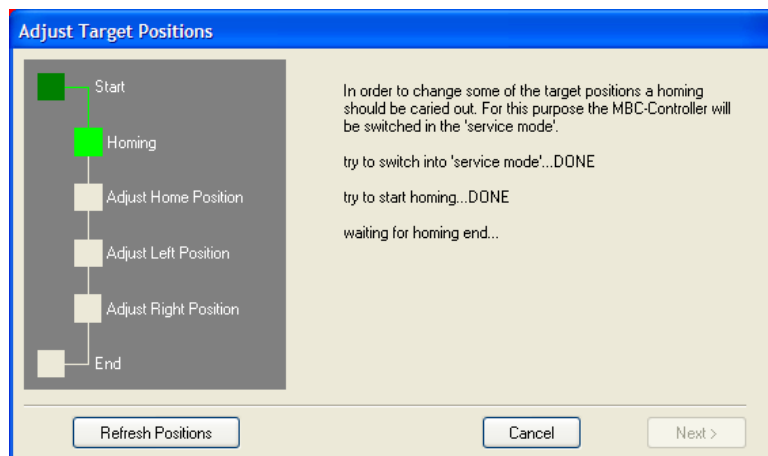
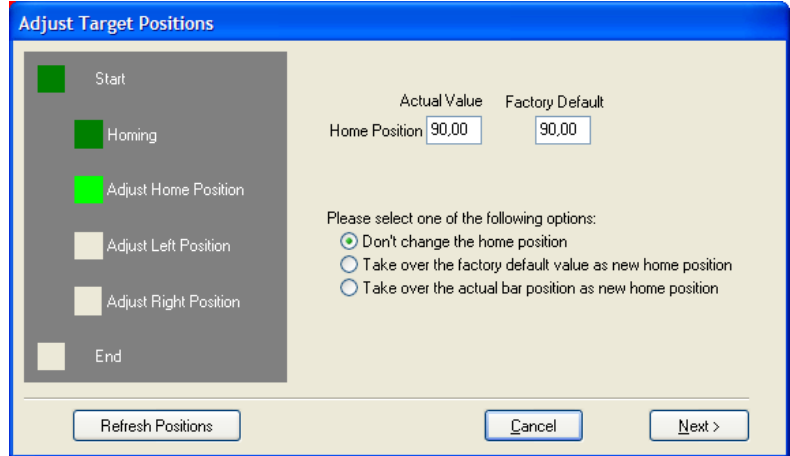


Fig. 39: Perform homing



## Setting swing door parameters – "MPS-Diag"

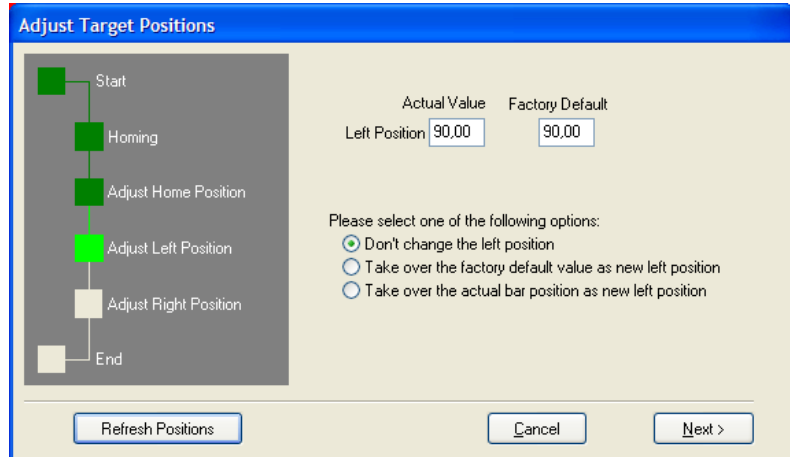
### 2. Adjust "home position".



The dialog box is titled "Adjust Target Positions". On the left, a vertical list of steps is shown with colored squares: Start (dark green), Homing (dark green), Adjust Home Position (bright green), Adjust Left Position (light grey), Adjust Right Position (light grey), and End (light grey). On the right, there are two columns: "Actual Value" and "Factory Default". The "Home Position" row shows both values as 90,00. Below this, a text prompt says "Please select one of the following options:" followed by three radio buttons: "Don't change the home position" (selected), "Take over the factory default value as new home position", and "Take over the actual bar position as new home position". At the bottom are three buttons: "Refresh Positions", "Cancel", and "Next >".

Fig. :40 Adjust home position

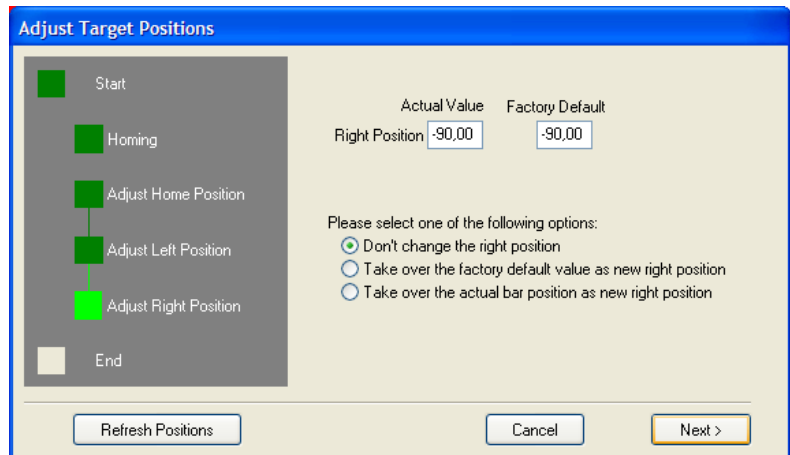
### 3. Adjust "left position".



The dialog box is titled "Adjust Target Positions". The left-side step list is identical to the previous screenshot, but "Adjust Left Position" is now highlighted in bright green. The "Actual Value" and "Factory Default" for "Left Position" are both 90,00. The radio button options are: "Don't change the left position" (selected), "Take over the factory default value as new left position", and "Take over the actual bar position as new left position". The "Next >" button is highlighted in yellow.

Fig. 41: Adjust "left position"

### 4. Adjust "right position".



The dialog box is titled "Adjust Target Positions". The left-side step list is identical, but "Adjust Right Position" is now highlighted in bright green. The "Actual Value" and "Factory Default" for "Right Position" are both -90,00. The radio button options are: "Don't change the right position" (selected), "Take over the factory default value as new right position", and "Take over the actual bar position as new right position". The "Next >" button is highlighted in yellow.

Fig. 42: Adjust "right position"

## Setting swing door parameters – "MPS-Diag"

5. Confirm changes by clicking the button "Close". The MBC control is restarted.

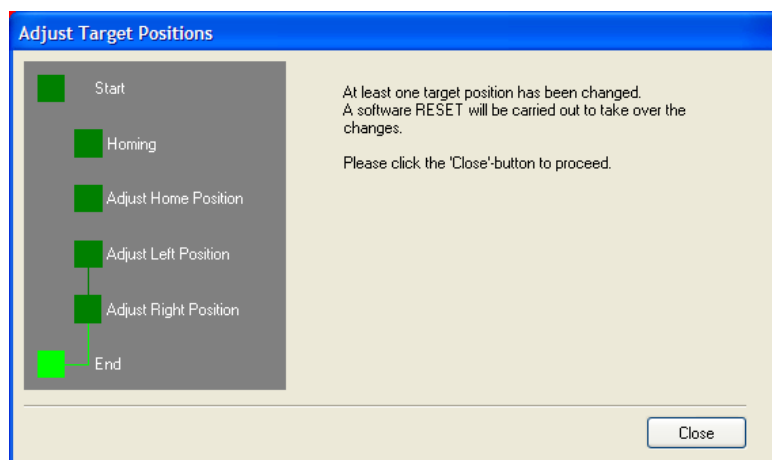


Fig. :43 Reset control MBC

### 10.4.10 Reset all parameters to factory settings

This option can be used to restore the factory settings for all parameters.

1. Open menu "View" and select the item "Parameter".



Fig. 44: Menu "Parameter"

2. The menu "Parameter" is displayed in the title bar.
3. Click menu "Parameter"
4. Select menu item "Restore all parameters to factory settings"



Fig. 45: Select menu item "Restore all parameters to factory settings"

## Setting swing door parameters – "MPS-Diag"

5. Safety confirmation "All parameters are reset to factory settings. Do you want to continue?"

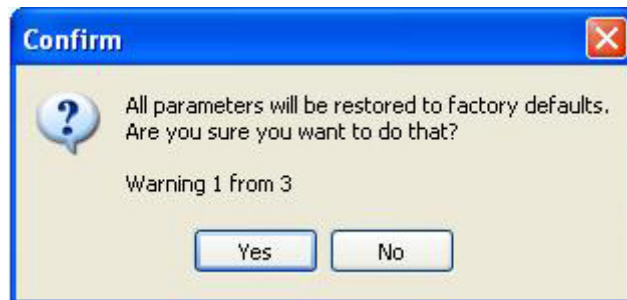


Fig. 46: Safety confirmation

- Clicking "Yes" resets all parameters to factory settings.
- Clicking "No" cancels the process.

### 10.5 Firmware download

To update the control device firmware, the "MPS-Diag" programme is needed.

1. Open menu "View" and select the item "Firmware".

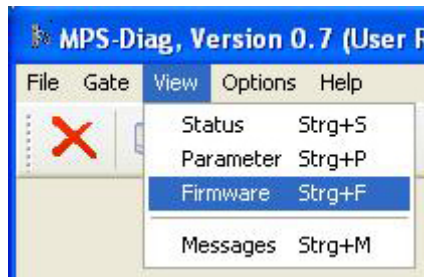


Fig. 47: Menu "View"

## Setting swing door parameters – "MPS-Diag"

2. A dialogue window appears. The dialogue window display depends on the control type. If communication with the control is impossible, the MBC field will show a question mark.

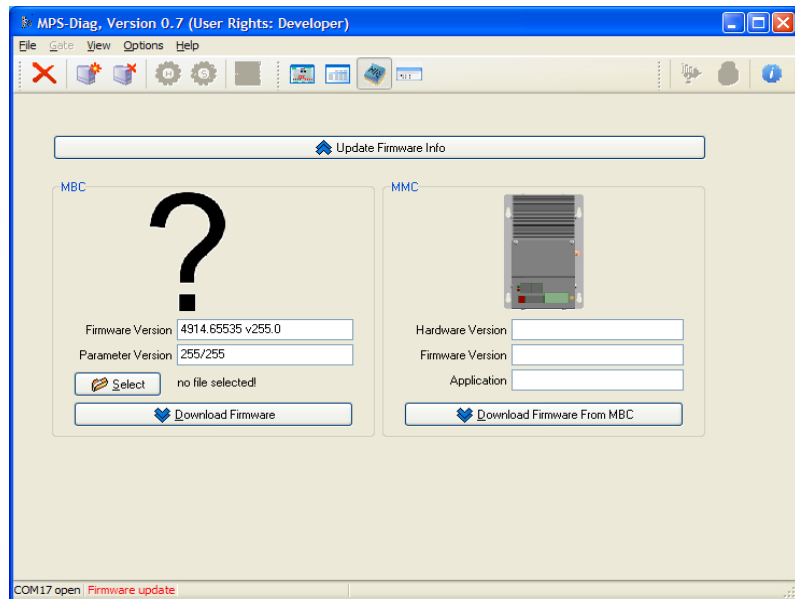


Fig. 48: Menu "Firmware update" (here: no communication)

When communication to the control is present, proceed as follows for downloading a new firmware version:

3. Select the firmware file through the button "Select".
4. Click the button "Download Firmware".

The further process depends on the control type and the file selected. For a MBC111 control, the file type chosen should be a ".mcp" file.

You may also select an ".s" file (Motorola S-Record). This download will take longer.

## Setting swing door parameters – "MPS-Diag"

### 10.5.1 Firmware download using a ".mcp file"

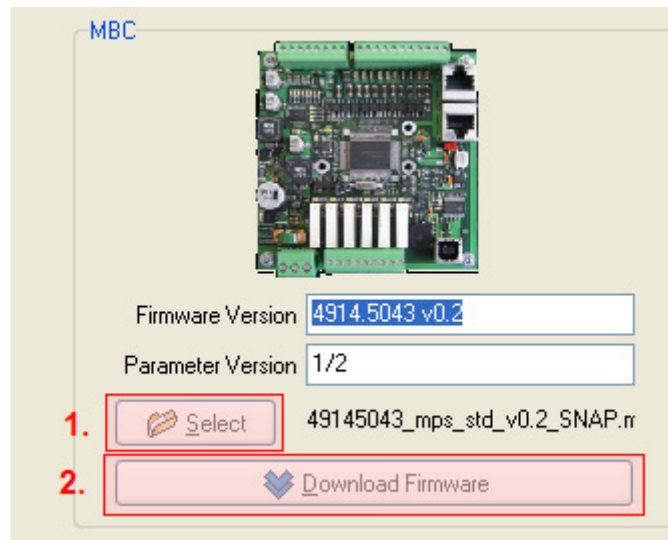


Fig. 49: Button "Download Firmware"

1. After clicking the button "Download firmware", the programme status bar shows the download progress.

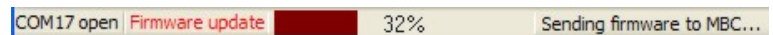


Fig. 50: Download progress

2. When the download is completed, perform voltage reset.

### 10.5.2 Firmware download using an ".s file"

Only use firmware download using an ".s" file with a MBC111 control if the bootloader is no longer accessible.

1. Select the firmware file through the button "Select".
2. Select the file type in the file selection dialogue.

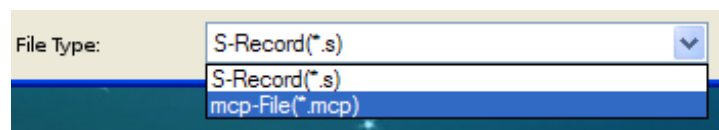


Fig. 51: File type selection

3. Click the button "Download Firmware".
4. Select the integrated control with the dialogue window "Control selection".

## Setting swing door parameters – "MPS-Diag"

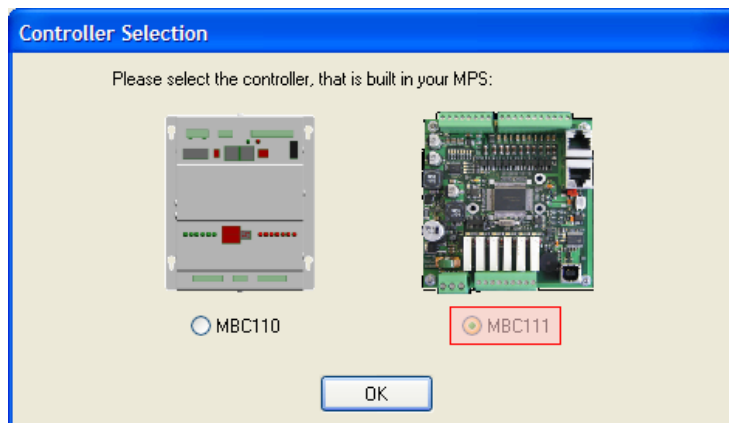


Fig. 52: Control selection

- The dialogue "Confirmation" is displayed.

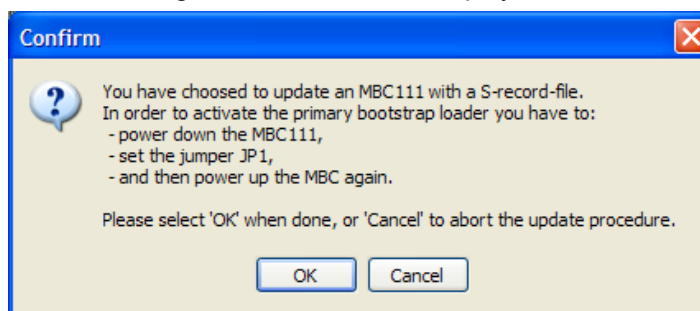


Fig. 53: Dialoge "Confirmation"

- Observe the dialogue instructions precisely.
- When you have performed all steps, click the "OK" button.
- When the connection to the bootloader is established, the download will start. The download progress is displayed in the status bar.
- After firmware transmission the "Information" dialogue is shown.

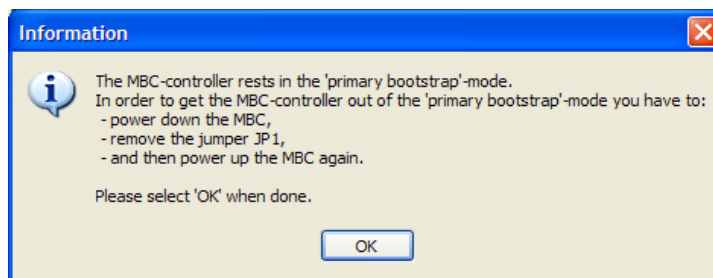


Fig. 54: Dialog "Information"

- Observe the dialogue instructions precisely.
- When you have performed all steps, click the "OK" button. The download is completed.

## 10.6 Download between MBC-111 and MMC-120

Each time the MBC-111B is booted after voltage is switched on again, software verification is performed between the MBC-111 and the connected motor control device MMC-120. It verifies that the motor control device has the right software and the right software version for the MBC-111 application software.

If verification shows that the motor control device has the wrong software or software version, the correct software is automatically loaded from MBC-111 to MMC-120. The software can also be manually loaded from MBC-111 to MMC-120 through the Windows programme MPS-Diag.

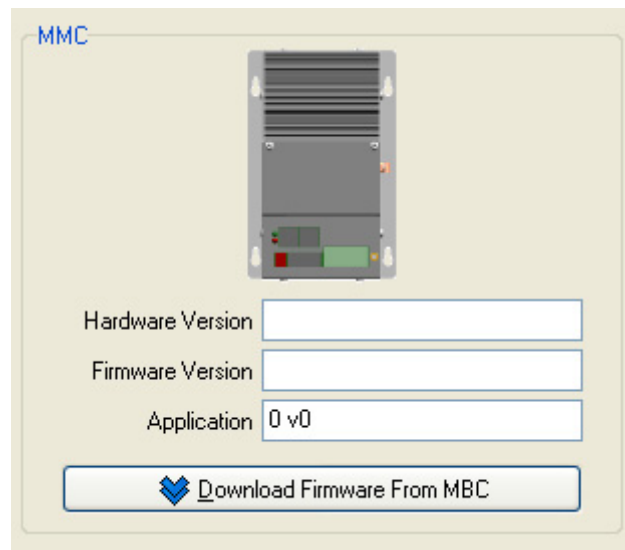


Fig. 55: Programming via the MPS-Diag programme

## Setting swing door parameters – "MPS-Diag"

### 10.7 Reading errors

Reading the error codes right at the MBC-111 or MMC-120 is only possible after disassembly after removing the outer tube with the locking element. Therefore, the programme MPS-Diag offers the possibility of reading errors from the MBC-111 and MMC-120 controls through the serial interface.

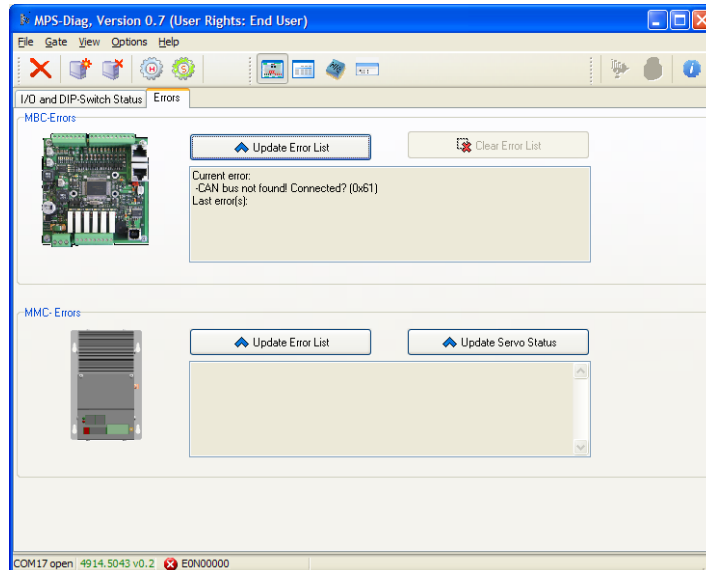


Fig. 56: Reading MBC-111 and MMC-120 errors



## Setting swing door parameters – "MPS-Diag"

### 10.8 Status request

Reading the conditions of the in- and outputs right at the MBC-111 is only possible after disassembly after removing the outer tube with the locking element. Therefore, the programme MPS-Diag offers the possibility of reading the status of the in- and outputs through the serial interface.



#### NOTE!

*The states of the DIP switches for parametrisation of the CAN bus cannot be read via MPS-Diag. This is only possible directly at the control. Therefore, these settings must be checked before the MPS is assembled!*

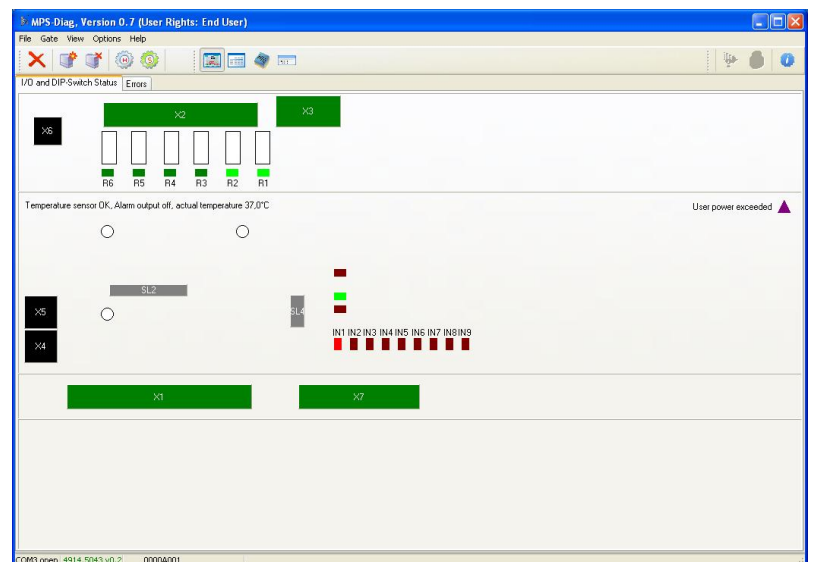



Fig. 57: Reading states of the inputs and outputs and DIP switches

## 11 Cleaning and maintenance


### 11.1 Safety

→ See also safety notes on page 15, chapter 2.6 "Occupational safety and special dangers".


#### Electric voltage

<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none"> <li>– Switch off the power supply immediately in case of damage to the insulation and arrange repair.</li> <li>– Only qualified electricians may carry out work on the electrical system.</li> <li>– Switch off power supply and secure against re-activation before performing any work. Test for absence of voltage!</li> <li>– Never bypass or deactivate fuses.</li> <li>– When replacing fuses observe the correct amperage specification.</li> <li>– Keep moisture and dust away from live parts. Moisture or dust may cause a short circuit.</li> </ul>

#### Inappropriate cleaning and maintenance

<b>⚠ WARNING</b>	
	<p><b>Inappropriate cleaning and maintenance!</b></p> <p>Inappropriate cleaning and maintenance can cause severe or lethal injuries.</p> <ul style="list-style-type: none"> <li>– Only qualified personnel, authorised by the operator and instructed appropriately, may carry out maintenance tasks.</li> <li>– Prior to work, ensure that there is sufficient assembly space.</li> <li>– Pay attention to tidiness and cleanness at the assembly site! Loosely stacked or lying around components and tools are accident sources.</li> <li>– If components have been replaced: Pay attention to correct installation of the spare parts. Reinstall all fastening elements correctly.</li> <li>– Before restarting, ensure that all doors locked properly.</li> </ul>

**Danger of crushing**

<b>⚠ CAUTION</b>	
	<p><b>Danger of crushing!</b></p> <p>While the swing door is supplied with voltage, control commands can move the locking element. If these movements are made unexpectedly, they may cause crushing.</p> <ul style="list-style-type: none"><li>– If possible, disconnect the swing door from the voltage.</li><li>– Consider possible movements of the locking element for all work.</li></ul>

**Personal protective equipment**


The following must be worn during maintenance work:

- Work clothes
- Protective gloves
- Safety shoes.

## Cleaning and maintenance

### 11.2 Cleaning

#### Aggressive cleaning aids and substances

<b>NOTICE</b>	
	<p><b>Unit damage possible!</b></p> <p>Aggressive cleaning agents and substances can damage or destroy electrical cables and components.</p> <ul style="list-style-type: none"> <li>– Do not use cleaning agents with aggressive ingredients.</li> </ul>

Carrying out cleaning work:

1. Switch off power supply and secure against restarting.
2. Remove soiling appropriately.
  - Clean stainless steel surfaces and power-coated parts regularly with a damp cloth and then dry off carefully.
  - Clean stainless steel surfaces with an appropriate detergent. We recommend 3M stainless steel polish. Apply a thin and even layer of stainless steel detergent and rub dry using a clean and dry disposable cloth.
  - Never use wet cloth.
3. After cleaning, check that all previously opened covers have been properly closed and that the functions of any safety equipment fitted have been restored.

### 11.3 Maintenance schedule

The following describes the maintenance work that is necessary for optimal, trouble-free operation. Maintenance intervals must be observed.

If increased wear of individual components or functional groups is revealed during regular inspections, the operator must reduce the required maintenance intervals on the basis of the actual signs of wear.

In case of queries regarding the maintenance work and intervals: contact the authorised dealer or manufacturer (service address à page 2).

Interval	Maintenance work	To be carried out by
Every 6 months	Visual inspection of the outer swing door for damage. Clean the housing and repair paint damage as necessary.	Specialist
	Check the function of the locking element.	Specialist
	Check the attachment of the locking element.	Specialist
	For swing door in the wing version: Check the wings for damage	Specialist
	Check function of the residual current operated device	Qualified electrician
Every 12 months	Check electrical cables for damage.	Qualified electrician
	Check all electrical connections for tight fit.	Qualified electrician
	Check signs and labels for legibility.	Specialist
	Check foundation attachment.	Specialist
The electrical tests are to be performed in accordance with the regulations applicable at the installation site.		

Table 7: Maintenance schedule


## 12 Malfunctions

### 12.1 Safety


This chapter describes possible causes of malfunctions and trouble shooting tasks.

Contact the manufacturer in case of malfunctions that cannot be repaired by means of the following information. (For service address, refer to page 2)

#### Electric voltage

<b>⚠ DANGER</b>	
	<p><b>Mortal danger by electric voltage!</b></p> <p>Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none"> <li>– Switch off the power supply immediately in case of damage to the insulation and arrange repair.</li> <li>– Only qualified electricians may carry out work on the electrical system.</li> <li>– Switch off power supply and secure against re-activation before performing any work. Test for absence of voltage!</li> <li>– Never bypass or deactivate fuses.</li> <li>– When replacing fuses observe the correct amperage specification.</li> <li>– Keep moisture and dust away from live parts. Moisture or dust may cause a short circuit.</li> </ul>

**Inappropriate troubleshooting!**

<b>⚠ WARNING</b>	
	<p><b>Inappropriate troubleshooting!</b></p> <p>Inappropriate troubleshooting can cause severe or lethal injuries.</p> <ul style="list-style-type: none"><li>– All troubleshooting work must be performed by specialists or electronics specialists.</li><li>– Prior to work, ensure that there is sufficient assembly space.</li><li>– Pay attention to tidiness and cleanness at the assembly site! Loosely stacked or lying around components and tools are accident sources.</li><li>– Only use original spare parts or spare parts approved of by MAGNETIC. Procure spare parts from authorised dealers or directly from the manufacturer. Refer to page 2 for address.</li><li>– If components have been replaced: Pay attention to correct installation of the spare parts. Reinstall all fastening elements correctly.</li><li>– Before restarting, ensure that all doors locked properly.</li></ul>

**Personal protective equipment**

The following must be worn during troubleshooting work:

- Work clothes
- Protective gloves
- Safety shoes.

## Malfuncions

### 12.2 Error codes on the logic controller MBC-111



#### NOTE!

Additionally, dispose of the programme "MPS Diag" for further diagnostics. Here you can read out the errors via the serial interface. → See page 72, chapter 10.7

#### Display error codes

The MBC-111 has an LED display for diagnosis purposes. To read the LED display, you have to remove the outer tube with the locking element.

An error code is shown as follows:

- Tens: Flashes slowly
- Ones: Flashes quickly

#### Examples

The error code "62" is displayed as follows:

- Six slow flashes.
- Two quick flashes.
- After a short break, the error code is repeated.

The error code "02" is displayed as follows:

- Two quick flashes.
- After a short break, the error code is repeated.

There will not be any slow flashing for the tens.

Error code	Fault description	Automatic reset
01	Obstacle detection with runtime monitoring	Yes
02	Emergency entrance is activated	Yes
05	Locking element was pushed into the wrong direction.	Yes
07	Vandalism detection	Yes
12	Voltage supply for external devices at the outputs.	Yes
20	Error MMC control unit	No
21	The MMC control unit's output stage cannot be activated	No
22	Lifeguarding error MMC	No
40	Error during homing	No
41	Programme code not present	No
50-57	Software fault	No
5C	Temperature too high	Yes
5D	Checksum error EEPROM	No
5E	Checksum error flash	No
5F	Watchdog error	No



<b>Error code</b>	<b>Fault description</b>	<b>Automatic reset</b>
60	Error when initialising CAN protocol stack	No
61	Error when initialising CAN bus	No
62	CAN servo address fault	No
63	Error download of controller parameters for the MMC-120	No
64	Reserved	No
65	Error I <sup>2</sup> C-EEPROM	No
66	Software fault	No
70 to 7F	Error when downloading the MMC-120 firmware	No

Table 8: Error code

Self-resetting errors are displayed for no more than 20 seconds if the error is no longer pending. The error code is shown, however, as long as the error is pending.

The swing door is taken out of operation in case of errors that are not self-resetting. The error code is displayed continually until the control is taken into operation again after removal of the error.

## Malfuncions

### 12.3 CAN bus addressing and termination

The MBC-111 logic controller and the MMC-120 motor controller exchange data via a CAN bus line. The MMC-120 controllers must have a fixed CAN address assigned to it. Additionally, a termination resistor must be activated at both ends of the bus to prevent interference.

Setting the CAN address and termination is performed by DIP switches for both control devices.

The following DIP switch settings are correct:

Function	DIP switch	MBC-111	MMC-120
Termination	1	ON	ON
CAN address	2	OFF	OFF
	3	OFF	OFF
	4	OFF	OFF

Table 9: Setting of the DIP switches

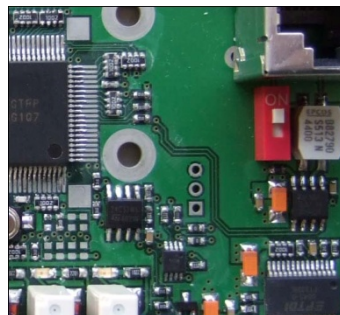


Fig. 58: DIP switch  
CAN MBC-111

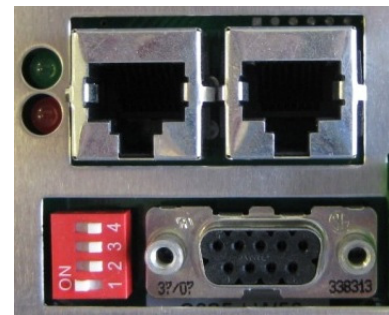


Fig. 59: DIP switch  
CAN MMC-120




#### NOTE!

Wrong settings for the DIP switch can lead to the swing doors not going into operation or to malfunctions during operation.

## 13 Spare parts

### Incorrect or defective spare parts

<b>⚠ WARNING</b>	
	<p><b>Incorrect or defective spare parts!</b></p> <p>Incorrect or defective spare parts can result in damage, malfunctions or total failure and also impair safety.</p> <ul style="list-style-type: none"><li>– Use only the manufacturer's original spare parts.</li></ul>

Procure spare parts from your dealer or directly from the manufacturer. For the address, see invoice, delivery note or the reverse of these instructions.

Spare part lists can be obtained on request.

## 14 Decommissioning, disassembly and disposal

A pedestrian barrier that is no longer usable should not be recycled as a complete unit, but disassembled into individual components and recycled according to material types. Non-recyclable materials have to be disposed of in an environmental-friendly manner.

- Decommissioning, disassembly and disposal of the pedestrian barrier may only be carried out by specialised staff.
- Disassemble the pedestrian barrier in reverse order from assembly.
- The pedestrian barrier has to be disposed of in accordance with the respective country-specific regulations.



**NOTE!**

*For expert information regarding disposal of electric equipment contact MAGNETIC or competent electricians.*

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# Konformitätserklärung

Declaration of Conformity



Der Hersteller / manufacturer

## MAGNETIC Autocontrol GmbH

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Herr Stefan Wellinger

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erklärt hiermit für das von ihm gelieferte Produkt / *this is to certify that the delivered product*

Bezeichnung / *designation* Schwenktüre / *Swing door*

Typ / *type* MPS-122\*

Ab Serien-Nr. / *from serial no* 10219985

die Konformität nach / *corresponds to the conformity of*

**Richtlinie / directive 2006/42/EG** (Maschinen-Richtlinie / *machine directive*)  
geändert durch / *amended by* **2009/127/EG**

**Richtlinie / directive 2014/35/EU** (Niederspannungs-Richtlinie / *low voltage directive*)

**Richtlinie / directive 2014/30/EU** (EMV-Richtlinie / *EMC directive*)

Angewandte harmonisierte Normen (oder Teile daraus) / *Realized harmonized norms (or parts of them):*

### EN ISO 12100:2010

Sicherheit von Maschinen – Grundbegriffe, allgemeine Gestaltungsleitsätze – Teil 2: Technische Leitsätze / *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles*

### EN 60204-1:2006/AC:2010

Sicherheit von Maschinen – Elektrische Ausrüstung von Maschinen – Teil 1: Allgemeine Anforderungen / *Safety of machinery – Electrical equipment of machines – Part 1: Specifications for general requirements*

### EN 61000-6-2:2005/AC:2005

Elektromagnetische Verträglichkeit (EMV) – Teil 6-2: Fachgrundnormen – Störfestigkeit für Industriebereiche / *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments*

### EN 61000-6-4:2007/A1:2011

Elektromagnetische Verträglichkeit (EMV) – Teil 6-4: Fachgrundnormen – Störaussendung für Industriebereiche / *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*

Diese Erklärung ist keine Zusicherung von Eigenschaften im Sinne des Produkthaftungsgesetzes. Die Sicherheitshinweise der Betriebsanleitung sind zu beachten. / *This declaration is not a guarantee of characteristics in the sense of product liability law. The safety regulations of the operating instructions have to be observed.*

Schopfheim, den 20.04.2016

Ort und Datum / *place and date*

  
Unterschrift / *signature*

## Appendix

# 16 Appendix

## 16.1 Electric circuit diagram

The electric circuit diagram is supplied as a separate document.

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