

Operating Instructions

Full Height Swing Door **MPG-162 / MPG-172**



Translation of the original operating instructions

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Contents

1	General	7
1.1	Information regarding the operating instructions	7
1.2	Pictogram explanation	8
1.3	Limitation of liability.....	9
1.4	Copyright protection.....	9
1.5	Scope of delivery	10
1.6	Warranty	10
1.7	Disclaimer	10
1.8	Customer service.....	11
1.9	EC Declaration of Conformity	11
1.10	Environmental protection	11
2	Safety	12
2.1	Intended use	12
2.2	Changes and modifications	12
2.3	Operating personnel	13
2.3.1	Requirements	13
2.4	Personal protective equipment	14
2.5	Occupational safety and special dangers.....	14
2.5.1	Danger pictograms on the swing door MPG-162 / MPG-172.....	14
2.5.2	Hazard notes and occupational safety	15
3	Technical data	18
3.1	Electrical connection.....	18
3.2	Operating conditions.....	18
3.3	Weight.....	18
3.4	Performance data	18
4	Design and function of the MPG-162 / MPG-172	19
4.1	Design MPG-162	19
4.2	Design of the MPG-172	20
4.3	Function	21
5	Assembly and installation	22
5.1	Safety.....	22
5.2	Requirements for assembly	24
5.3	Foundation and empty conduits.....	24
5.3.1	Foundation plan.....	25
5.3.2	Base frame for MPG-162 with turnstile MPT	27
5.3.3	Foundation plan for the MPG-172	28

Contents

5.4	Mounting the swing door MPG-162	29
5.4.1	Mounting the swing door on the foundation	30
5.4.2	Mounting the support beam.....	31
5.4.3	Removing the lock unit (optional)	32
5.4.4	Dismount locking discs	33
5.4.5	Dismounting centering bolts	35
5.4.6	Mounting floor bearing and revolving wing to the drive flange	35
5.4.7	Mounting centering bolts, locking discs and lock unit.....	38
5.4.8	Fixing the revolving wing to the floor bearing.....	38
5.4.9	Setting the blocked position (home position)	39
5.4.10	Mounting rails with induction loops.....	40
6	Electrical connection	41
6.1	Safety	41
6.2	Supply voltage connection and customer's connections.....	42
6.2.1	Connecting the supply voltage	42
6.2.2	Inputs and outputs, customer's side	43
6.3	Connection diagram.....	44
6.4	Inputs X2	45
6.5	Relay outputs X1	46
7	Configuration of the pedestrian gate	47
7.1	Safety	47
7.2	Parameter settings	47
7.2.1	DIP switch block S1	48
7.2.2	DIP switch, block S2.....	49
8	Start-up and operation.....	50
8.1	Safety	50
8.2	Start-up	51
8.2.1	Switching on and off the pedestrian gate	51
9	Maintenance.....	52
9.1	Safety	52
9.2	Cleaning	53
9.3	Maintenance schedule	54
10	Troubleshooting	55
10.1	Malfunction – Logic controller MBC-110.....	55
10.1.1	Display of the error codes at the MBC-110 .	56
10.1.2	Display of the software version of the MBC-110.....	56

Contents

10.2	Fault codes on the MBC-110	57
10.2.1	Malfunction – Motor controller MMC-120	58
10.3	Downloading new software to logic controller MBC-110	60
11	Spare parts	61
12	Decommissioning, disassembly and disposal	62
13	EC Declaration of Conformity	63
14	Appendix	64
14.1	Electric circuit diagram	64
Index	65

1 General

1.1 Information regarding the operating instructions

These operating instructions provide important information on how to deal with the Magnetic full height swing doors MPG-162 and MPG-172. Pre-requisite for safe working is the observance of all specified safety notes and instructions.

In addition, the local accident prevention regulations valid at the pedestrian gate'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 in direct proximity of the pedestrian gate, well accessible to the personnel at all times.

When passing the pedestrian gate 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 prelude 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

	<p>NOTE!</p> <p><i>... highlights useful hints and recommendations as well as information for an efficient and trouble-free operation.</i></p>
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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 damages 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 MPG-162 comprises:

- Base for revolving wing, steel or stainless steel
- Revolving wing
- Support beam with drive unit, additional lock unit, MBC control unit, MMC control unit and hood
- Connection block
- Fastening kit (only within Europe)
- 2 Keys for service door

The scope of delivery MPG-172 comprises:

- Base for revolving wing, steel or stainless steel
- Revolving wing
- Support beam with drive unit, additional lock unit, MBC control unit, MMC control unit and hood
- Base, galvanized steel or stainless steel
- Fastening kit (only within Europe)
- 2 Keys for service door

Supplied documentation:

- Operating Instructions
- Electric circuit diagram

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

Our customer service can be contacted for any technical advice. Information about the responsible contact person can be retrieved by telephone, fax, E-mail or via the Internet at any time, refer to manufacturer's address on page 2.



NOTE!

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

1.9 EC Declaration of Conformity

For the "EC Declaration of conformity" (pursuant to Machinery Directive 2006/42/EC, Annex II) refer page 63.

1.10 Environmental protection

NOTICE



Danger for the environment by improper disposal of components or the pedestrian gate!

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

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

Safety



2 Safety

2.1 Intended use

The Magnetic pedestrian gates MPG are exclusively intended for managing the admission in to areas with restricted access.

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

The Magnetic universal controller MBC and MMC are exclusively intended for controlling the Magnetic pedestrian gate MPG.

 WARNING	
	<p>Non-intended use is dangerous!</p> <p>Any use of the pedestrian gates other than intended and/or in a different manner can cause hazardous situations.</p> <ul style="list-style-type: none"> – Only use the pedestrian gate and the controllers 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 Changes and modifications

Changes, modifications and re-builds of the pedestrian gate can cause unforeseen danger.

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

2.3 Operating personnel

2.3.1 Requirements

⚠ WARNING	
	<p>Risk of injury in case of inadequate qualification!</p> <p>Improper handling can lead to considerable physical injuries and property damage.</p> <ul style="list-style-type: none"> – Have any activities only carried out by the individuals designated for that purpose.

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**
is due to its technical training, knowledge and experience as well as due to its knowledge of the pertinent regulations able to carry out the work assigned to it and to independently recognise potential hazards.
- **Qualified electricians**
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 qualified electricians must fulfil the provisions of the accident prevention regulation BGV A3 (e.g. master electrician). 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, may not be assigned.

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

Safety

2.4 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 dress the necessary protective equipment such as work clothes, protective gloves, safety shoes and wear during work.

2.5 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.

2.5.1 Danger pictograms on the swing door MPG-162 / MPG-172

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


Electrical current

⚠ DANGER	
	<p>Mortal danger by electric voltage!</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 a qualified electrician.</p> <p>This pictogram is fixed on the following components:</p> <ul style="list-style-type: none">– Rear panel of the support beam with electrical components.


2.5.2 Hazard notes and occupational safety

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

Electric voltage


⚠ DANGER	
	<p>Mortal danger by electric voltage!</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"> – Switch off the supply voltage immediately in case of damage to the insulation and arrange repair. – Only qualified electricians may carry out work on the electrical system. – Always turn the supply voltage off and safeguard against unintentional restarting before maintenance, cleaning, and repair work. – Before starting work ensure that the electrical system is dead! – Never bypass or deactivate fuses. – When replacing fuses observe the correct amperage specification. – Keep moisture away from live parts, this can result in short-circuit.

Electrical voltage – missing safety installations


⚠ DANGER	
	<p>Mortal danger by electric voltage!</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"> – Residual current device (RCD) – Circuit-breaker – Lockable 2-pole main switch according to EN 60947-3.

Safety


Improper transport

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


Heavy weight

⚠ WARNING	
	<p>Risk of injury when lifting heavy objects alone!</p> <p>The weight of heavy objects can seriously injure a person!</p> <ul style="list-style-type: none"> – Lifting and carrying the swing door from the pallet should be done by a minimum of two people.


Inadmissible operation

⚠ WARNING	
	<p>Risk of injury at inadmissible operation!</p> <p>An inadmissible operation can cause death or severe injuries.</p> <ul style="list-style-type: none"> – Before operating the swing door check all electrical and mechanical functions.

Sharp edges and spiky corners

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

Signposting

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

Technical data**3 Technical data****3.1 Electrical connection**

Designation	Unit	Value	
		MPG-162	MPG-172
Supply voltage	[V AC / Hz]	230 / 50	230 / 50
Current consumption: Pedestrian gate closed	[A]	0.2	0.2
Current consumption: Pedestrian gate in motion	[A]	0.3	0.3
Starting current	[A]	1	1
Power consumption: Pedestrian gate closed without/with stop heating	[W]	25 / 30	25 / 30
Power consumption: Pedestrian gate in motion	[W]	50	50
Max. power consumption (if vandalised)	[W]	80	80
Duty cycle	[%]	100	100
Control voltage	[V DC]	42/30	42/30

Table 1: Electrical connection

3.2 Operating conditions

Designation	Unit	Value
		MPG-162 / MPG-172
Ambient temperature range	[°C]	-25 to +45
Protection class	–	IP 43, optional: IP 54

Table 2: Operating conditions

3.3 Weight

Designation	Unit	Value	
		MPG-162	MPG-172
Weight	[kg]	250	320

Table 3: Weight

3.4 Performance data

Designation	Unit	Value
		MPG-162 / MPG-172
Opening time/closing time	[s]	approx. 3.0

Table 4: Performance data

Design and function of the MPG-162 / MPG-172

4 Design and function of the MPG-162 / MPG-172

4.1 Design MPG-162

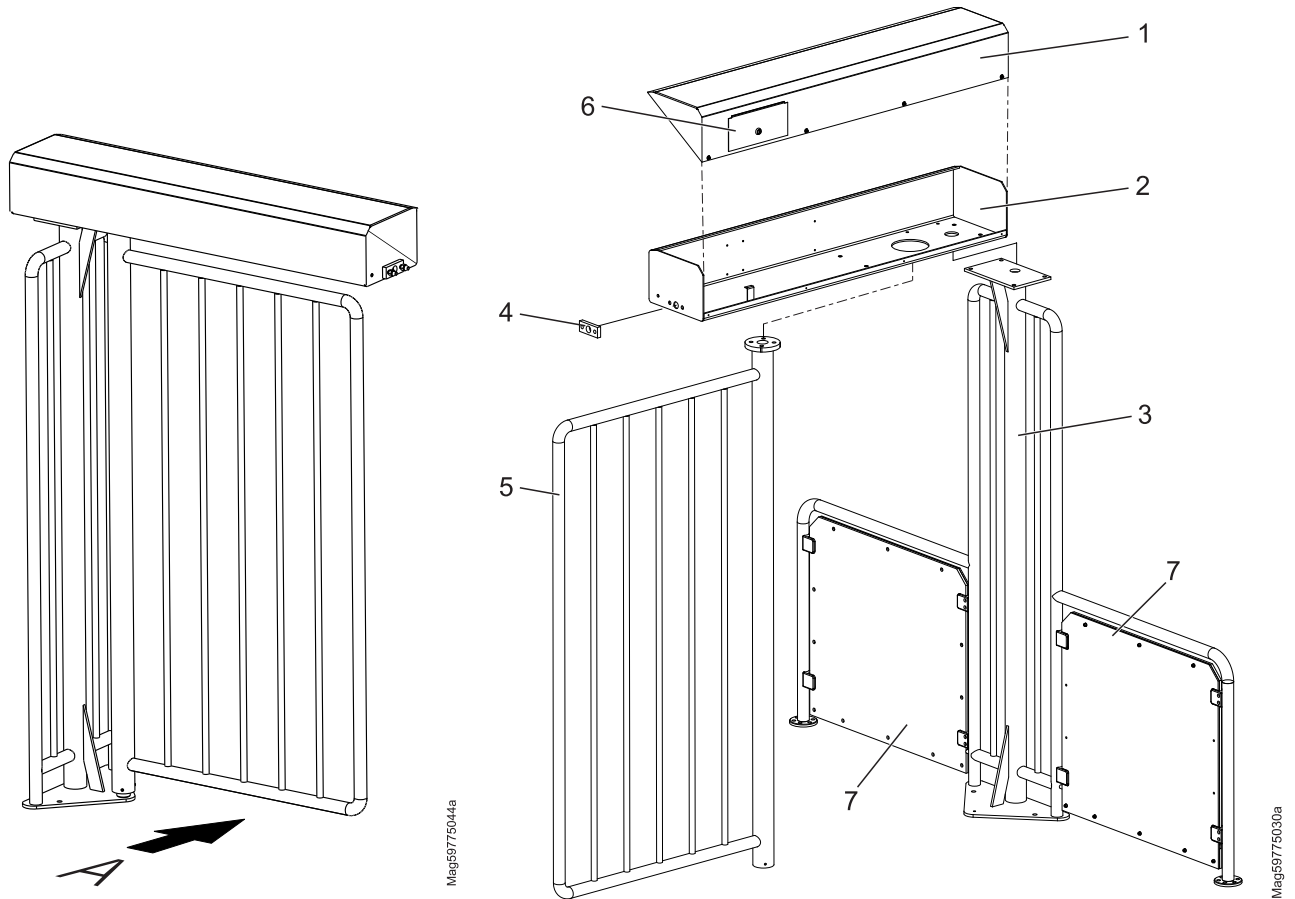


Fig. 1: Design of the MPG-162

- 1 Top cover
- 2 Support beam with drive unit
- 3 Base for revolving wing
- 4 Connection block
- 5 Revolving wing
- 6 Service door
- 7 Induction loop (optional)

A Entrance side

Design and function of the MPG-162 / MPG-172

4.2 Design of the MPG-172

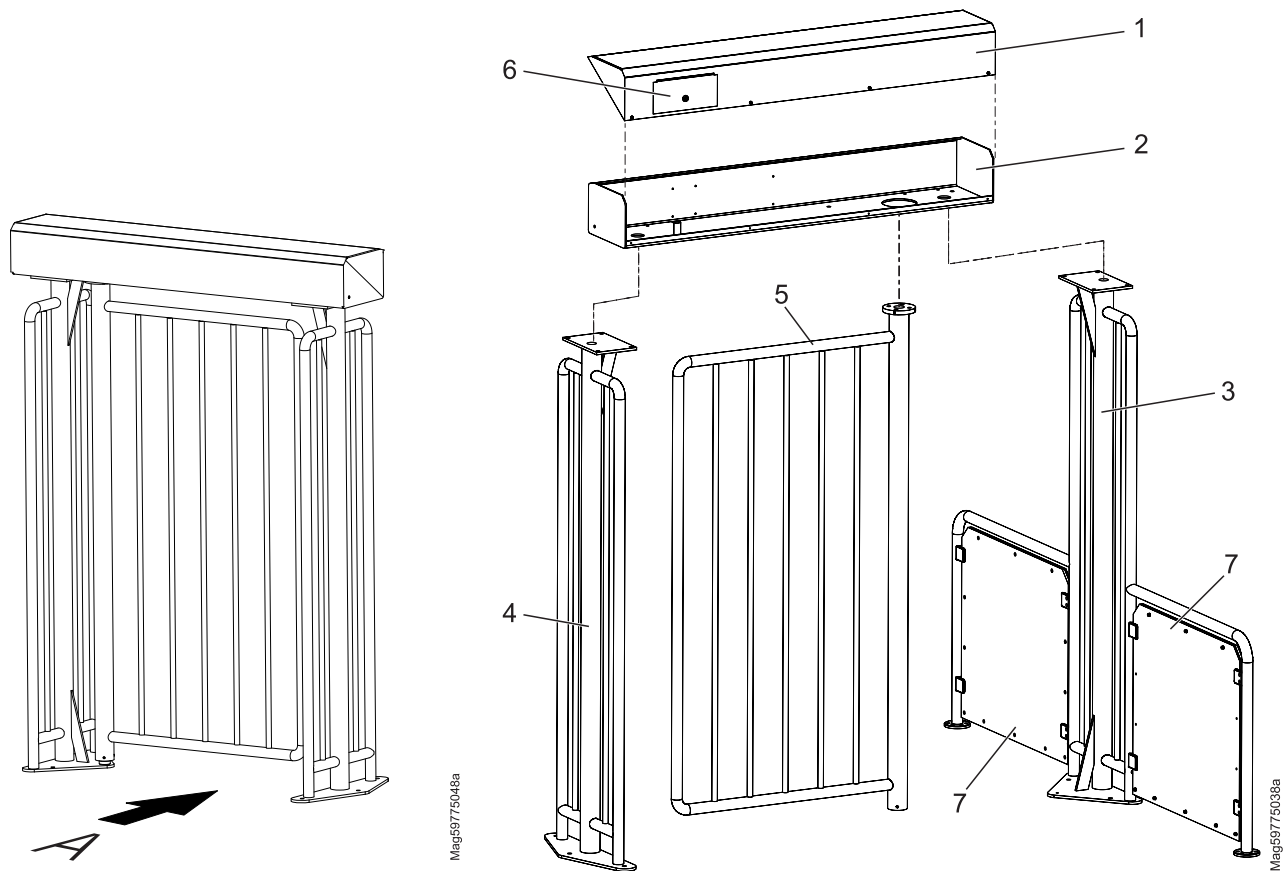


Fig. 2: Design of the MPG-172

- 1 Top cover
 - 2 Support beam with drive unit
 - 3 Base for revolving wing
 - 4 Base
 - 5 Revolving wing
 - 6 Service door
 - 7 Induction loop (optional)
- A Entrance side

Design and function of the MPG-162 / MPG-172

4.3 Function

The MPG swing door was developed for the segregation of cyclists, wheelchair users and similar user groups.

The swing door can in principle be operated in two directions. In the case of multi-lane installations with high pedestrian throughput, the entry and exit lines can also be configured for unidirectional operation.

In its normal state, the swing door is locked. The swing door opens only after authorization by an external command transmitter, e.g. card reader.

The drive technology employed in this product enables the swing door to be easily blocked in any position during operation.

No friction clutches or similar devices are used.

The motor and gearbox combination offers a very high closing force during normal operation. However, if extreme pressure is applied to the gate wing, it can be moved against the motor force. To meet stringent safety requirements and to protect the gearbox, a lock unit is highly recommended. This mechanically locks the gate wing in the CLOSED position.


There are two options – "rotate freely in case of power failure" or "lock in case of power failure".

Assembly and installation


5 Assembly and installation

5.1 Safety


General

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


Improper transport

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


Heavy weight

⚠ WARNING	
	<p>Risk of injury when lifting heavy objects alone!</p> <p>The weight of heavy objects can seriously injure a person!</p> <ul style="list-style-type: none"> – Lifting and carrying the swing door from the pallet should be done by a minimum of two people.

Assembly and installation**Insufficient fixing**

⚠ WARNING	
	<p>Risk of injury at insufficient fixing!</p> <p>Insufficient fixing at the swing door or any single component such as the revolving wing can seriously injure a person and cause severe crushing!</p> <ul style="list-style-type: none"> – Check the tie anchors fit tightly before starting the swing door. – Check the firm fixing of all screws according to maintenance schedule. – Only qualified and skilled personnel are allowed to assemble the swing door and the appropriate components.

Improper transport

NOTICE!	
	<p>The pedestrian gate can be damaged by improper transport!</p> <p>Substantial material damages can result from improper transport.</p> <ul style="list-style-type: none"> – Have all transport work performed by trained personnel. – When unloading the packages and during in-plant transportation always proceed with utmost care and caution. – Observe the symbols on the packaging. – Observe the swing door dimensions. – Loading, unloading as well as moving the pedestrian gate must take place with utmost 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.

Assembly and installation

5.2 Requirements for assembly

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

- Lay foundation.
- Install empty conduits.

5.3 Foundation and empty conduits



NOTE!

To guarantee trouble-free operation, separate empty conduits are to be installed for the data cables and power lines.

The functional safety of the pedestrian gate hinges on the accuracy of the foundation.

Foundation

The foundation must satisfy the following requirements:

- adequate load-bearing capacity
- slip-proof surface
- horizontal and even, max. deviations 2 mm/m
- Adequate thickness of fastening material.

Empty conduits

The empty conduits must be positioned accurately to the drilling plan.



NOTE!

Leave empty conduits 50 mm above the foundation.

Allow all power cables and data cables to protrude at least 5 m from the empty conduits.

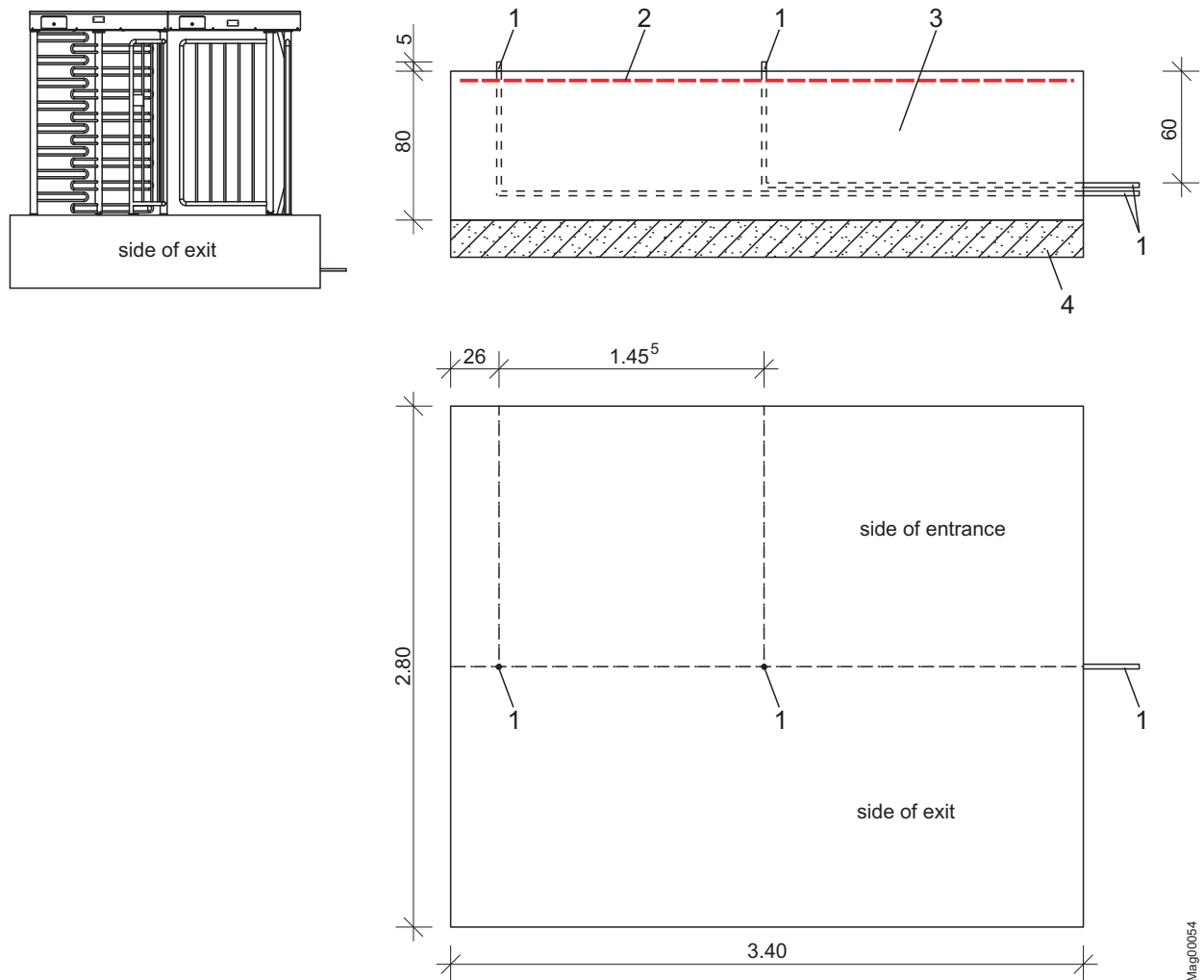
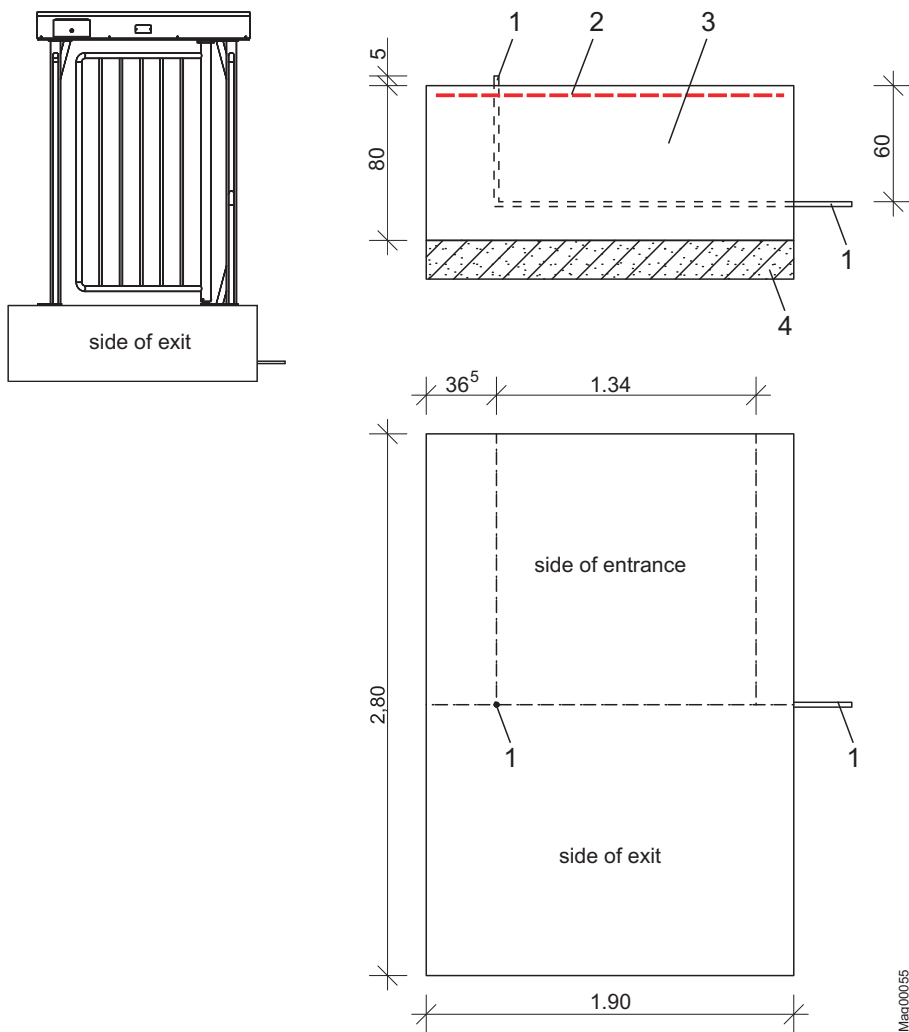
Assembly and installation**5.3.1 Foundation plan**

Fig. 3: Foundation plan for MPG-162 with turnstile MPT

- 1 Empty conduit 25 mm
- 2 Reinforcement: 1 mat, type QA in the top position
- 3 Concrete foundation from PZ 250
- 4 Gravel, drain layer

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Assembly and installation



Mag00055

Fig. 4: Foundation plan for the MPG-172

- 1 Empty conduit 25 mm
- 2 Reinforcement: 1 mat, type QA in the top position
- 3 Concrete foundation from PZ 250
- 4 Gravel, drain layer

5.3.2 Base frame for MPG-162 with turnstile MPT

A base frame must be used to facilitate assembly on stone pavements or similar surfaces.

An even concrete surface is required to correctly assemble the base frame.

In its standard design, the base frame is 150 mm high. This means that the foundation must be at least 150 mm lower than the finished floor to be laid later.

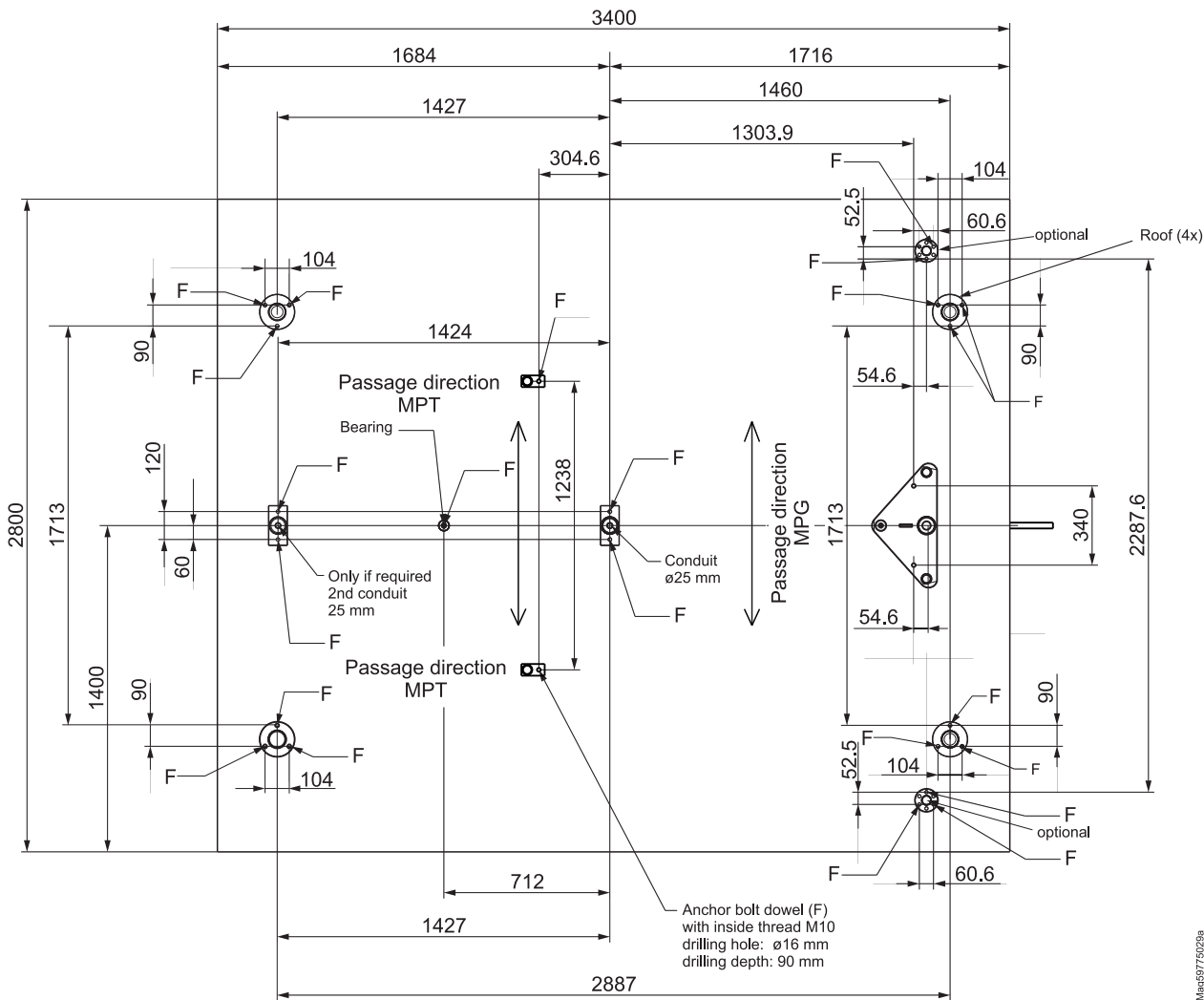


Fig. 5: Base frame for MPG-162 with turnstile MPT

The illustration shows the various mounting points for the MPG-162 with turnstile MPT.

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Assembly and installation

5.3.3 Foundation plan for the MPG-172

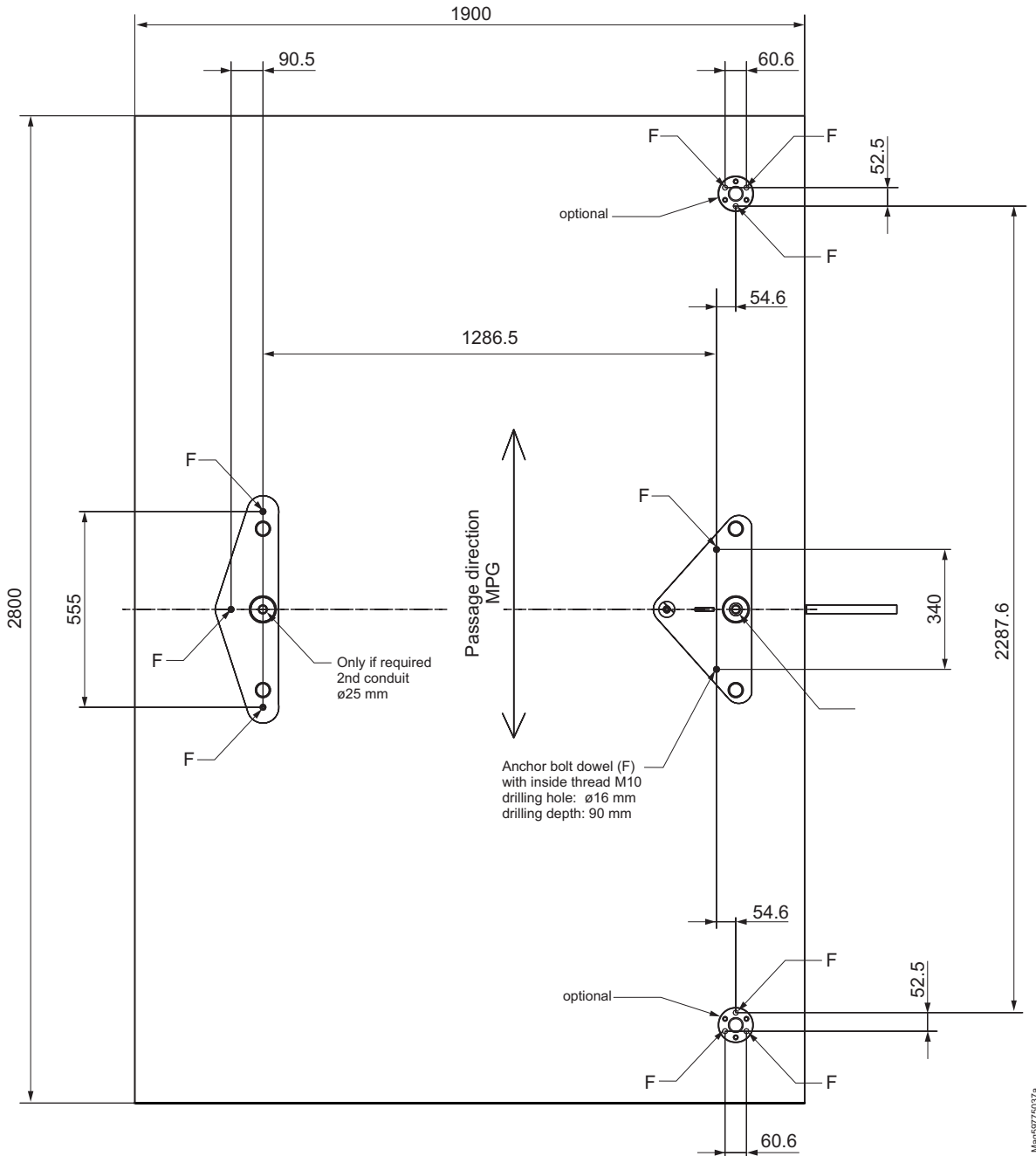


Fig. 6: Foundation plan for the MPG-172

The illustration shows the various mounting points for the MPG-172 with mounting flanges for the induction loops (optional).

5.4 Mounting the swing door MPG-162

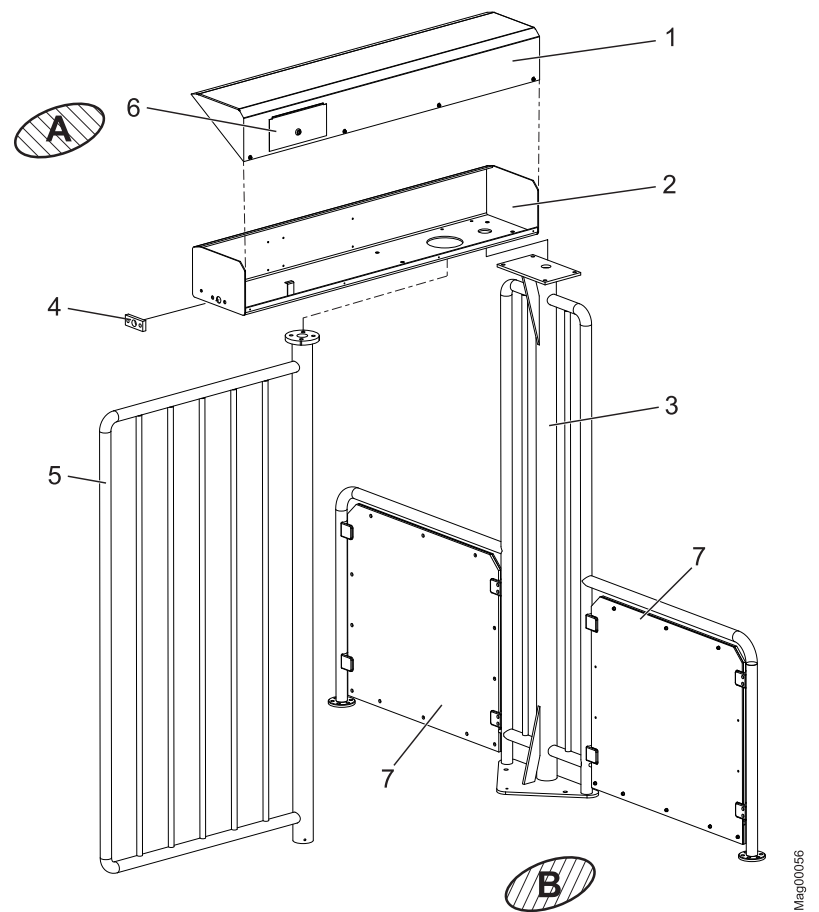


Fig. 7: Mounting the swing door MPG-162

- 1 Top cover
- 2 Support beam with drive unit
- 3 Base for revolving wing
- 4 Connection block
- 5 Revolving wing
- 6 Service door
- 7 Induction loop (optional)

- A Unprotected area
- B Protected area

Assembly and installation



NOTE!

Before mounting the swing door, decide on which side the bar is to be fitted.

Foundation and empty conduits must be tested prior to commencing assembly.

It is important that the service doors are always located in the so-called safe zone, i.e. inside the area to be blocked off.

5.4.1 Mounting the swing door on the foundation



NOTE!

The foundation must have hardened off.

Foundation and empty conduits must be tested prior to commencing assembly.

The swing door is fastened with 6 tie anchors on the foundation. The fastening material is supplied as standard.

1. Make the bore holes as per the drilling plan (see page 27, Fig. 5). Use the steel plate drilling jig supplied.
2. Carefully remove any sand and swarf from the bore holes and their immediate vicinity.
3. Set the dowels supplied as shown on the enclosed description and allow hardening.

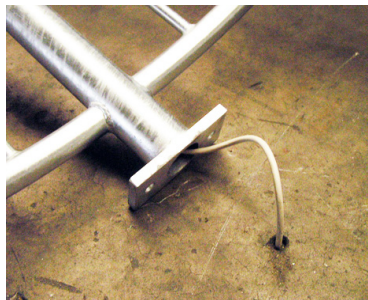


Fig. 8: Power and control cables

4. Pull the power cable and any control cables completely through the base to which the revolving wing is to be fastened (Fig. 7, Pos. 3).
5. Grease the supplied M 10 screws.
6. Mount the base for the revolving wing (Pos. 3) and fasten using the M 10 screws.
 - Do not allow the screws to come into contact with dust, sand or similar substances.
 - Do not tighten the screws completely.

5.4.2 Mounting the support beam

1. Open the top cover of the support beam.
The cover is secured with 4 hexagon socket screws.



Fig. 9: Open the top cover

2. Loosen the screws using a size 4 hexagon wrench
3. Pull hood forwards.
4. Mount the support beam (Fig. 7, Pos. 2) onto the base for the revolving wing (Pos. 3) using a hoist.

**WARNING!****Risk of injury from a falling support beam!**

5. Immediately secure the support beam using the 4 M 12 x 35 countersunk screws supplied and tighten.

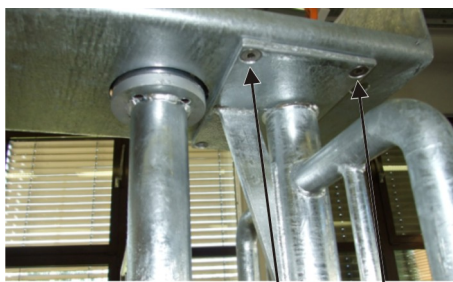


Fig. 10: Mounting the support beam

6. Insert the connector (Fig. 7, Pos. 4) and bolt to the side element (e.g. building wall or turnstile MPT).

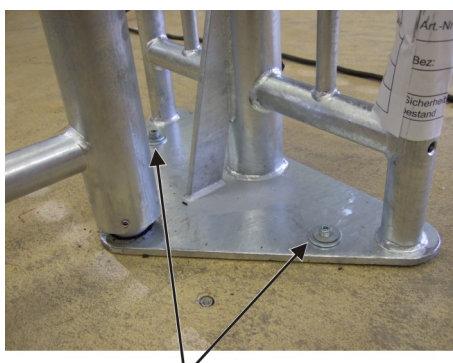


Fig. 11: Tightening the fastening screws

7. Tighten the fastening screws on the foundation using a size 17 wrench.

Assembly and installation

5.4.3 Removing the lock unit (optional)



NOTE!

The drive unit has various loosely fastened elements for transportation purposes.

The swing door has to be partially removed before it can be mounted.

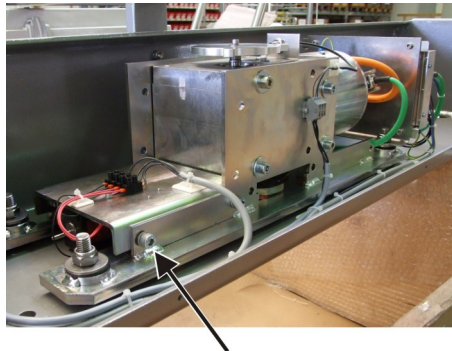


Fig. 12: Loosen hexagon socket screws on top housing with drive unit

1. Loosen the 4 hexagon socket screws on the lock unit.

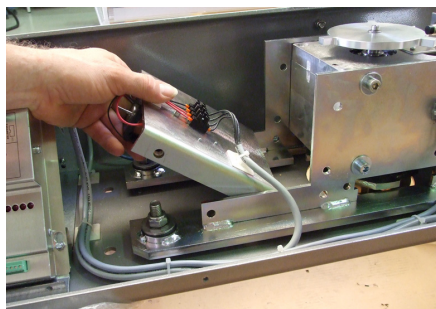


Fig. 13: Remove the lock unit

2. Remove the lock unit.

5.4.4 Dismount locking discs**NOTE!**

Complete the following steps, always turning the drive flange in a clockwise direction (viewed from below).

**NOTE!**

The drive unit has various loosely fastened elements for transportation purposes.

The swing door has to be partially removed before it can be mounted.

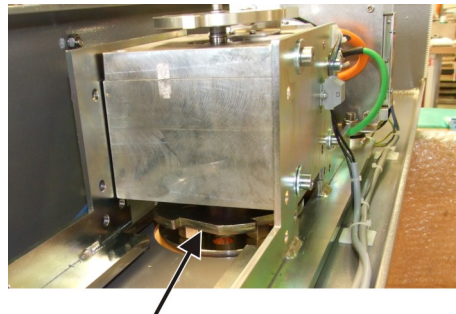


Fig. 14: Locking discs



Fig. 15: Turn the screw on the drive shaft

1. Turn the screw on the drive shaft using a size 6 hex wrench until the first fixing screw (Fig. 16) becomes visible.

Assembly and installation

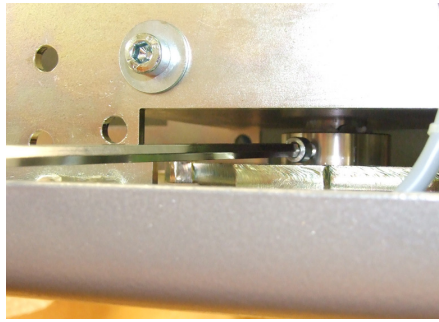


Fig. 16: Remove the fixing screw

2. Remove the 1st fixing screw.
3. Turn the drive flange for 180°.
4. Remove the 2nd fixing screw.

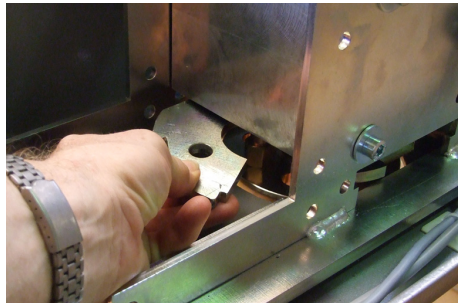


Fig. 17: Left locking disc

Note! The illustration of the locking plates does not correspond to the original.

5. Remove the left locking disc. Put the locking discs to one side as they are removed, making sure that are replaced to the same position. Affix markings.
6. Turn the drive flange.

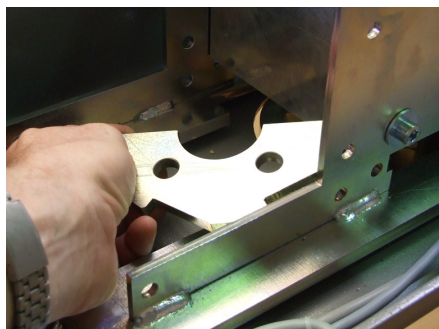


Fig. 18: Removing the right locking disc.

7. Remove the right locking disc. Put the locking discs to one side as they are removed, making sure that are replaced to the same position. Affix markings.

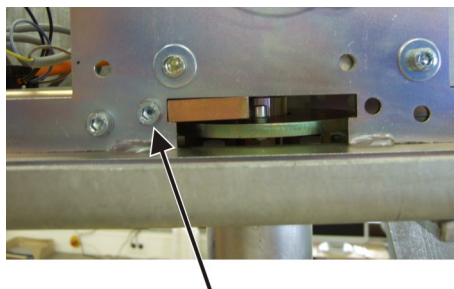


Fig. 19: Loosening the stops

8. Remove the two stops (see Fig. and the rear of the motor) by loosening the screws.

5.4.5 Dismounting centering bolts

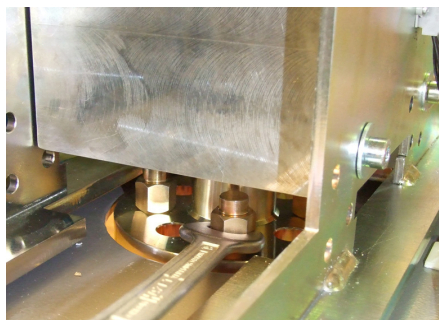


Fig. 20: Centering bolts

1. Dismount the 4 centering bolts.
2. Turn the flange so that the two bore holes for the fastening screws on the center column can be accessed from the side.

5.4.6 Mounting floor bearing and revolving wing to the drive flange

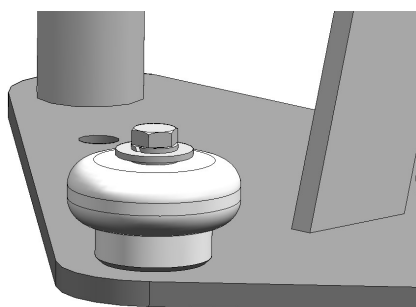


Fig. 21: Floor bearing (synthetic bearing)

1. Mount the floor bearing to the base plate.
(bushing D19/12,5x42mm, screw M10x55 DIN931, spring washer DIN 128 A12 and disc D30/12,5x2,5mm)

Assembly and installation

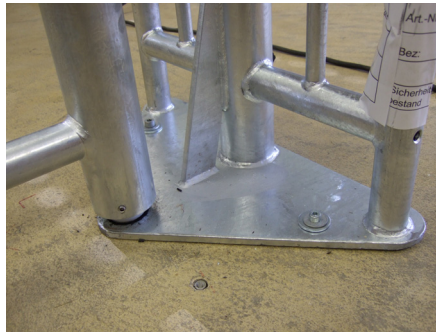


Fig. 22: Attaching the revolving wing

2. Attach revolving wing to the floor bearing.

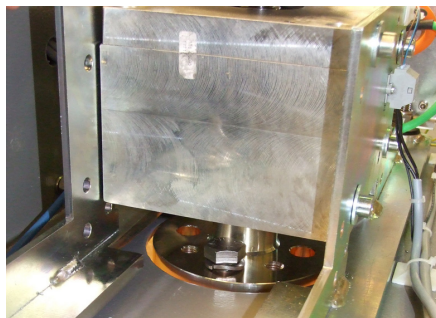
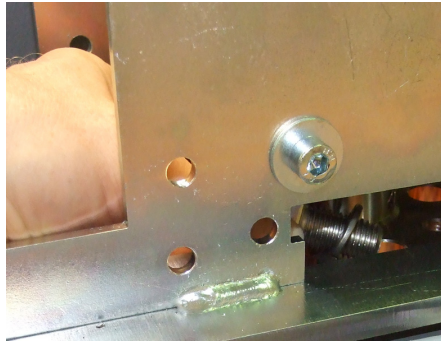


Fig. 23: Mounting revolving wing to the drive flange

3. Fasten the revolving wing using the 4 M 16 screws supplied from the top to the drive flange.

Assembly and installation



- Screw in the fastening screw with spring washer for the revolving wing as shown.



- Tighten fastening screw firmly.
4. Turn the revolving wing, insert the rest of the fastening screws and tighten.

Assembly and installation

5.4.7 Mounting centering bolts, locking discs and lock unit

Mount the centering bolts, the lock plates and lock unit (optional) in the reverse order to dismounting. See page 32 etc., section 0, 0 and 5.4.5.

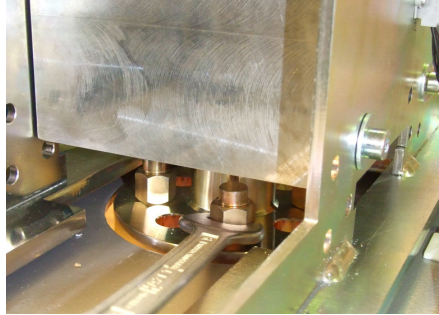


Fig. 24: Mounting the lock

1. Mount the 4 centering bolts.
2. Mount the left and right locking disc.
The groove must be facing the swing door!
3. Mount the 2 fixing screws.
4. Mount the two stops.
5. Mount the lock unit (optional).

5.4.8 Fixing the revolving wing to the floor bearing



Fig. 25: Fixing the revolving wing to the floor bearing

1. Fix the revolving wings to the floor bearing using 3 headless screws.
2. Tighten all 3 headless screws so that the center column can be moved easily in both rotating directions.
3. Secure headless screws using Loctite 241 or similar.

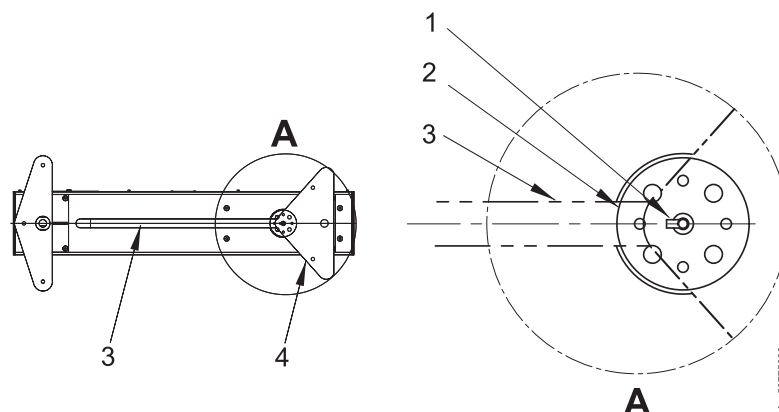
5.4.9 Setting the blocked position (home position)

Fig. 26: Setting the swing door to "blocked" position

- 1 Groove in the drive flange: During assembly, pay attention to the position of the groove in the drive flange!
- 2 Drive flange
- 3 Revolving wing
- 4 Revolving wing base

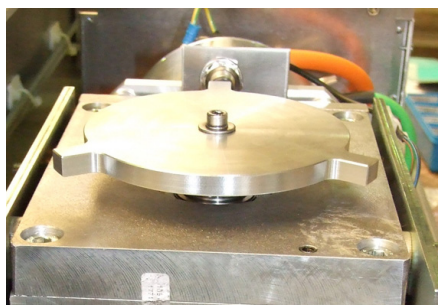
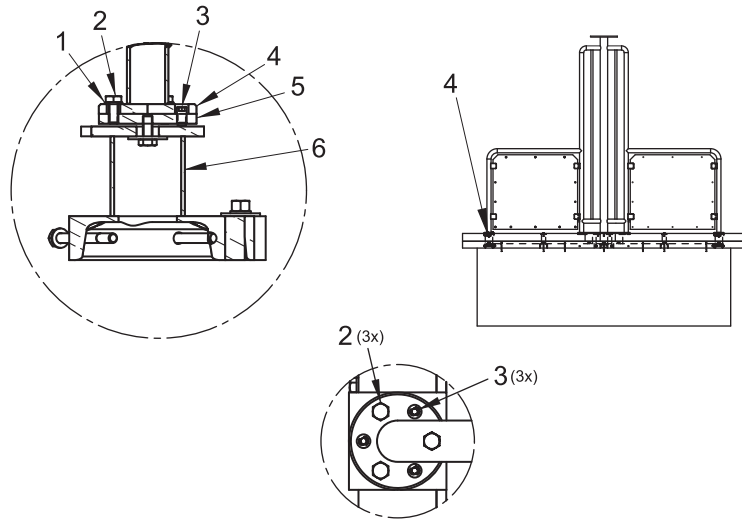


Fig. 27: Cam plate with limit switch

1. Set the revolving wing to the "blocked" position (see Fig. 26).
2. Check whether the cam plate is exactly in front of the limit switch.
If it is clearly offset, the revolving wing must be adjusted as follows.
3. Loosen the hexagon socket screw on the cam plate using a size 4 wrench.
4. Turn the cam plate so that it is exactly in front of the limit switch.
5. Retighten the hexagon socket screw.

Assembly and installation

5.4.10 Mounting rails with induction loops



Mag5975034b

Fig. 28: Rails with induction loops

- 1 Spring washer
- 2 Screw
- 3 Threaded pin
- 4 Railing base
- 5 Leveling flange
- 6 Frame for induction loop holder


The leveling flange is pre-fitted in the factory.

1. Check that the distance between the leveling flange and the frame for the induction loop holder is 2 to 3 mm.
2. Screw the rail to the leveling flange using the three fastening screws.
3. Insert three threaded pins and screw all threaded pins down at the same time. This is important as otherwise the leveling flange can sit askew to the frame for the induction loop holder.
4. Check the screws are tight.


6 Electrical connection

6.1 Safety

General


⚠ WARNING	
	<p>Danger by inappropriate installation! Inappropriate installation can causes serious injuries or death.</p> <ul style="list-style-type: none"> – Only qualified personnel, authorised by the operator and instructed appropriately, may carry out installation tasks. – Pay attention to tidiness and cleanness at the assembly site! Loosely stacked or discarded components and tools are accident sources. – Install all fastening elements correctly.

Electric voltage

⚠ DANGER	
	<p>Mortal danger by electric voltage! Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none"> – Switch off the supply voltage immediately in case of damage to the insulation and arrange repair. – Only qualified electricians may carry out work on the electrical system. – Always turn the supply voltage off and safeguard against unintentional restarting before maintenance, cleaning, and repair work. – Before starting work ensure that the electrical system is dead! – Never bypass or deactivate fuses. – When replacing fuses observe the correct amperage specification. – Keep moisture away from live parts, this can result in short-circuit.

Electrical connection

Electrical voltage –
missing safety installations

⚠ DANGER	
	<p>Mortal danger by electric voltage!</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">– Residual current device (RCD)– Circuit-breaker– Lockable 2-pole main switch according to EN 60947-3.

6.2 Supply voltage connection and customer's connections

6.2.1 Connecting the supply voltage

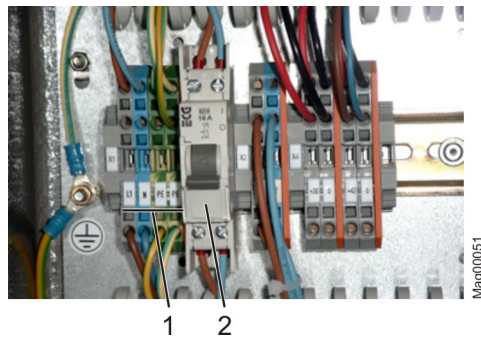


Fig. 29 Power connection

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

Connect the power cable only to the correct terminals L, N, PE (1).

The 2-pin main switch (2) isolates the entire unit.

Connection values: 230 V/50 Hz

Pre- fuse: Max. 16 A

Electrical connection**6.2.2 Inputs and outputs, customer's side**

The following connections are available for control and feedback by the customer:

- 6 digital inputs for controlling the pedestrian gate
- Red LEDs indicate the switching state of the inputs
- 6 relay outputs for information feedback
- Green LEDs indicate the switching state of the outputs

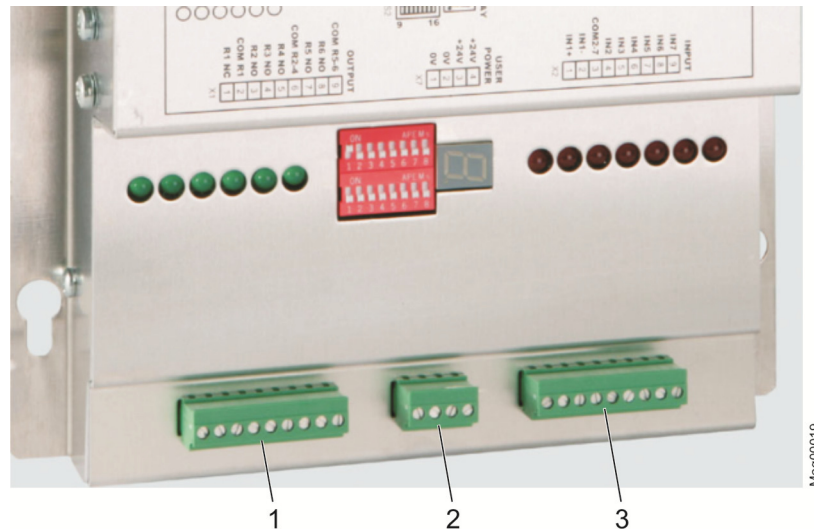


Fig. 30: Customer connections to MBC-110

- 1 Connection relay outputs, plug X1
- 2 24 V DC output, max. 300 mA, plug X7
- 3 Connection digital inputs, plug X2

Electrical connection

6.3 Connection diagram

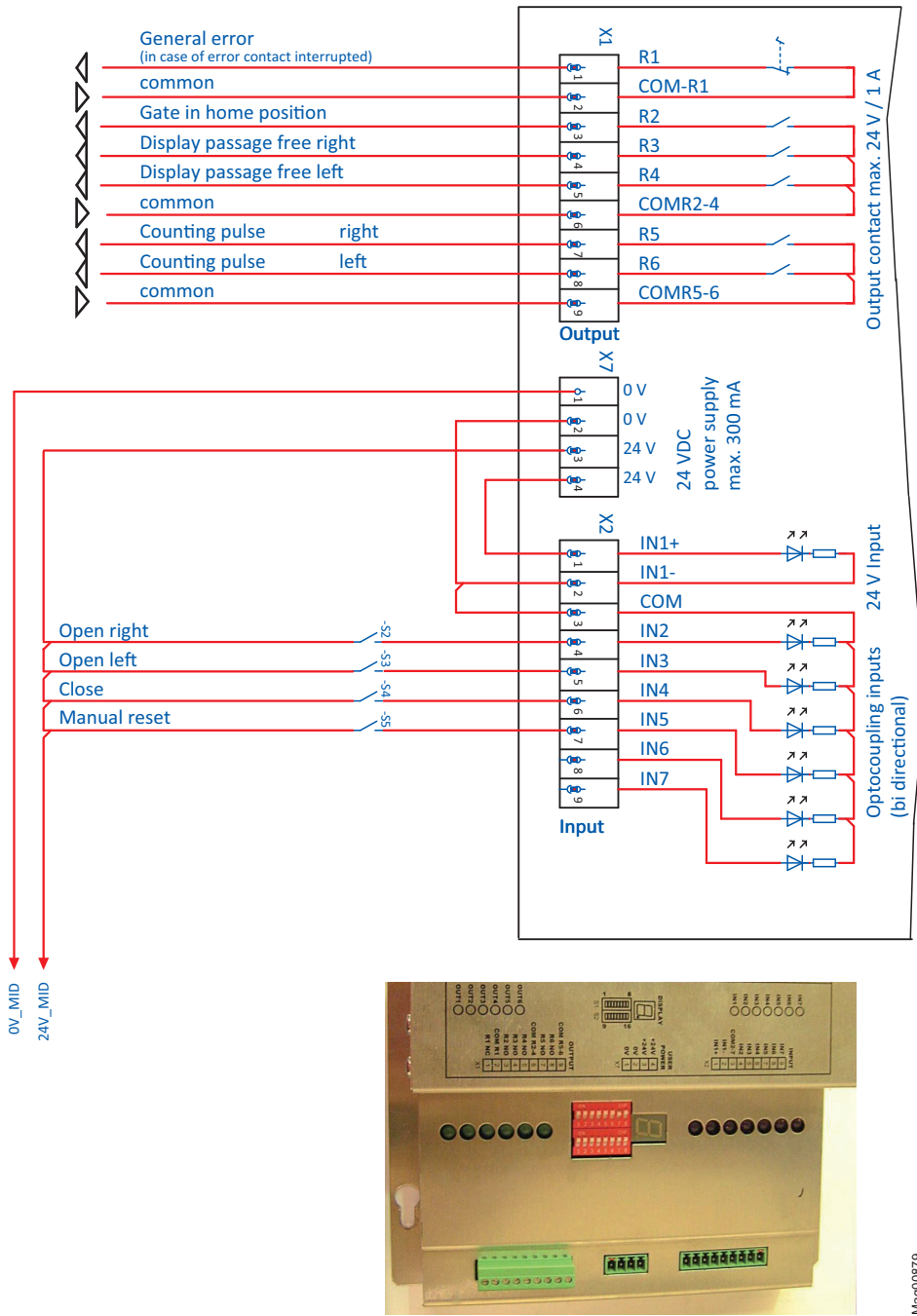


Fig. 31: MBC-110, customer's connection

6.4 Inputs X2

Input	Function	Description
IN1+ IN1-	Emergency (ASB signal for servo-controller) Emergency switch (broken wires)	The function of input 1 cannot be changed, as the input hardware is connected to the ASB input of the motor output stage. The servo-controller can be enabled via this input. The logic is inverted (broken wire detection), i.e. the controller is powered only if a permanent signal is present. When the signal disappears, the motor dies immediately.
IN2	Open right (clockwise)	Opening pulse for passage to the right. Revolving wing then turns in a clockwise direction (viewed from above)
IN3	Open left (counterclockwise)	Opening pulse for passage to the left. Revolving wing then turns in an anticlockwise direction (viewed from above)
IN4	Close	Revolving wing returns to the CLOSED position.
IN5	Manual reset	Input for manually resetting the controller. Required only if the "manual reset" or "security level" high function has been set.
IN6	Reserve	–
IN7	Reserve	–

Table 5: Inputs

Electrical connection

6.5 Relay outputs X1

- Isolated relay contacts, wired in groups
- Switched voltage 5 – 24V
- Switched current 10 mA – 1 A


Relay output	Function	Description
R1	General error/ power failure	<p>When certain faults occurs, a permanent signal is delivered via this output for as long as the fault is present (contact is interrupted as long as the fault is present).</p> <p>Potential fault/alarm states are:</p> <ol style="list-style-type: none"> 1 Lock runtime too long = obstacle detected 2 CAN communication without output stage disrupted 3 Output stage hardware fault 4 Output stage software fault 5 Homing function running 6 Emergency entrance is activated (inverted > signal no longer present) 7 Power failure 8 Manual reset expected (only if fitted)
R2	Gate in home position	A permanent signal is delivered via this output for as long as the swing door is in the closed position.
R3	Passage display right	A permanent signal is delivered via this output for as long as the passage to the right is clear.
R4	Passage display left	A permanent signal is delivered via this output for as long as the passage to the left is clear.
R5	Counting pulse right	A count pulse lasting 500 ms is delivered via this output at the start of the passage.
R6	Counting pulse left	A count pulse lasting 500 ms is delivered via this output at the start of the passage.

Table 6: Relay outputs

7 Configuration of the pedestrian gate

7.1 Safety

General

⚠ WARNING	
	<p>Risk of injury due to inappropriate configuration!</p> <p>Inappropriate configuration can cause severe injuries or to death.</p> <ul style="list-style-type: none"> – Only sufficiently qualified personnel authorized and instructed by the user are allowed for the configuration of the pedestrian gate. – Execute all operating steps according to the instructions in this operating instruction manual.

7.2 Parameter settings

Some functions and parameters of the pedestrian gate can be adjusted via two blocks each equipped with 8 DIP switches. For a detailed description see page 48, section 7.2.1 and page 49, section 7.2.2.



NOTE!

Changes to DIP switch settings only become effective after the power supply to the pedestrian gate has been switched off and then on again.

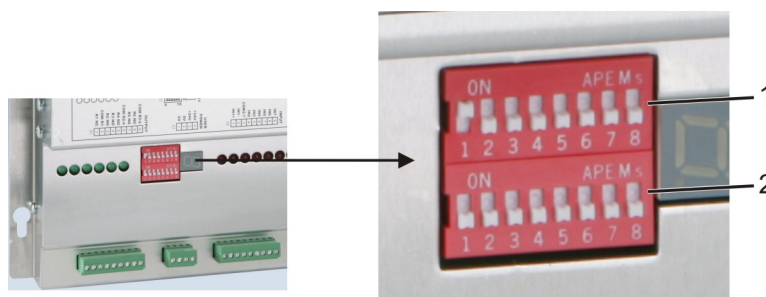


Fig. 32: DIP switch block S1 and S2

- 1 DIP switch block S1
- 2 DIP switch block S2

Mag00046

Configuration of the pedestrian gate

7.2.1 DIP switch block S1

DIP S1.x	Function	Description															
1	Reserve	This DIP switch is intended for future upgrades.															
2	Buzzer function	The buzzer emits permanent warning tones during homing. Options <ul style="list-style-type: none"> ■ OFF: Buzzer switched off ■ ON: Summer switched on 															
3	Response after power is restored	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.															
		<table border="1"> <thead> <tr> <th>DIP S1.3</th> <th>Response after power is restored</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>Automatic reset</td> </tr> <tr> <td>ON</td> <td>Manual reset</td> </tr> </tbody> </table>	DIP S1.3	Response after power is restored	OFF	Automatic reset	ON	Manual reset									
		DIP S1.3	Response after power is restored														
		OFF	Automatic reset														
ON	Manual reset																
OFF	Automatic reset																
ON	Manual reset																
4	Reserve	This DIP switch is intended for future upgrades.															
5 and 6	Hold-open time	The hold-open time is the maximum time for which the passage remains clear after a release signal if nobody starts to pass through. After the hold-open time has expired, the passage is blocked again if nobody passes through. There are four settings for the hold-open time:															
		<table border="1"> <thead> <tr> <th>DIP S1.5</th> <th>DIP S1.6</th> <th>Hold-open time</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Off</td> <td>10 s</td> </tr> <tr> <td>Off</td> <td>On</td> <td>20 s</td> </tr> <tr> <td>On</td> <td>Off</td> <td>30 s</td> </tr> <tr> <td>On</td> <td>On</td> <td>40 s</td> </tr> </tbody> </table>	DIP S1.5	DIP S1.6	Hold-open time	Off	Off	10 s	Off	On	20 s	On	Off	30 s	On	On	40 s
		DIP S1.5	DIP S1.6	Hold-open time													
		Off	Off	10 s													
		Off	On	20 s													
On	Off	30 s															
On	On	40 s															
Off	Off	10 s															
Off	On	20 s															
On	Off	30 s															
On	On	40 s															
7	Version status of the software	If this function is activated during operation, the software version is shown on the 7 segment display in cycles. Options <ul style="list-style-type: none"> ■ OFF: Normal operating display ■ ON: Version is displayed 															
8	Factory setting	This DIP switch can be used to restore the factory settings for all parameters. This requires the controller to be switched off. DIP switch 8 is then set to ON and the controller is reactivated. If the controller notices that the DIP switch is set to ON at activation, all parameters will be reset to the value at delivery. If the 7-segment display shows the normal operating state, the DIP switch can be set back to OFF. Options <ul style="list-style-type: none"> ■ OFF: Normal operation ■ ON: Reset the parameters (possible only after the controller has been switched off) 															

Table 7: DIP switch, block S1

Configuration of the pedestrian gate

7.2.2 DIP switch, block S2

DIP S2.x	Function	Description
1	Heating active	This DIP switch is used to specify whether or not the auxiliary heating should be activated. Options <ul style="list-style-type: none"> ■ OFF: Auxiliary heating inactive ■ ON: Auxiliary heating active
2, 3,4,5	Reserve	This DIP switch is intended for future upgrades.
6	Rotational direction for homing (viewed from above)	This DIP switch specifies the rotational direction of the revolving wing during homing. This means that even during homing, no unauthorized person can pass the swing door. Options <ul style="list-style-type: none"> ■ OFF: Counter clockwise ■ ON: Clockwise
7	Select the lock unit	Function selection depending on the additional lock fitted. Options <ul style="list-style-type: none"> ■ OFF: dead, free ■ ON: dead, locked
8	Software reset	If the DIP-switch is in the position ON, the control automatically performs a reset approx. 10 seconds after the occurrence of a non-resettable error (errors from E20 onwards). If there are no further faults pending, homing is performed after the voltage returns and the pedestrian gate returns to operation. Options <ul style="list-style-type: none"> ■ ON: Software reset after a non-resettable error ■ OFF: No software reset is performed.


Table 8: DIP switch, block S2

Start-up and operation



8 Start-up and operation

8.1 Safety

General

 WARNING	
	<p>Danger by inappropriate start-up and operation! Inappropriate start-up and operation can cause serious injuries or death.</p> <ul style="list-style-type: none">– Prior to work ensure that all covers are correctly mounted.

Electric voltage

 DANGER	
	<p>Mortal danger by electric voltage! Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none">– Switch off the supply voltage immediately in case of damage to the insulation and arrange repair.– Only qualified electricians may carry out work on the electrical system.– Always turn the supply voltage off and safeguard against unintentional restarting before maintenance, cleaning, and repair work.– Before starting work ensure that the electrical system is dead!– Never bypass or deactivate fuses.– When replacing fuses observe the correct amperage specification.– Keep moisture away from live parts, this can result in short-circuit.

8.2 Start-up

Inspections prior to initial start-up

The following inspections must be performed prior to initial start-up:

- Check supply voltage.
- Check wiring at emergency entrance IN1.
See page 44, Fig. 31.
- Check connection of digital inputs IN2 and IN3.
See page 44, Fig. 31.
- Check connection of relay outputs 1 to 6.
See page 44, Fig. 31.
- Check all screwed connections.
- Check pedestrian gate for ease of movement.



NOTE!

Ensure that the pedestrian gate can start to operate unhindered once the power is switched on. The passage must be clear.

8.2.1 Switching on and off the pedestrian gate

Switching on

Switch on main switch on the rear panel of the support beam.
See also page 42, Fig. 29

Switching off

Switch off main switch on the rear panel of the support beam.
See also page 42, Fig. 29.



NOTE!


Wait at least 10 seconds between switching off and restoring the supply voltage.

Maintenance


9 Maintenance

9.1 Safety


General

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

Electric voltage

⚠ DANGER	
	<p>Mortal danger by electric voltage! Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <ul style="list-style-type: none">– Switch off the supply voltage immediately in case of damage to the insulation and arrange repair.– Only qualified electricians may carry out work on the electrical system.– Always turn the supply voltage off and safeguard against unintentional restarting before maintenance, cleaning, and repair work.– Before starting work ensure that the electrical system is dead!– Never bypass or deactivate fuses.– When replacing fuses observe the correct amperage specification.– Keep moisture away from live parts, this can result in short-circuit.

Risk of being crushed


⚠ CAUTION	
	<p>Risk of being crushed!</p> <p>A moving drive unit can cause crushing injuries.</p> <ul style="list-style-type: none"> – Lock the drive unit during maintenance work.

Personal protective equipment

The following must be worn during maintenance work:

- Work clothes
- Protective gloves
- Safety shoes.

9.2 Cleaning**Aggressive cleaning aids and substances**

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

Carrying out cleaning work:

1. Disconnect the supply voltage and secure against restarting.
2. Remove dirt as required.
 - 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 the stainless steel polish from 3M. Apply a thin even layer of stainless steel detergent and rub dry using a clean and dry disposable cloth.
 - Never use a wet cloth.
 - Wash off zinc surfaces using water and a soft cloth. Remove stubborn marks as soon as possible using a standard commercial detergent for zinc (e.g. ROTOL New Formula A2).
3. Remove oil deposits using an absorbent material.
4. Vacuum away dust from inside the support beam.
5. After cleaning, check that all previously opened covers have been properly closed and that the functions of any safety equipment fitted have been restored.

Maintenance

9.3 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 questions on maintenance work and intervals, contact your dealer. Spare parts are available from your dealer. The address can be found on your delivery receipt, invoice or the rear of these instructions.

Interval	Maintenance work	To be carried out by
Every 6 months	Check the swing door and side components for damage.	Expert
	Visual inspection of the support beam, inside and out, for damage. Clean the housing and repair paint damage as necessary.	Expert
	Check the lock unit	Expert
	Check play on the floor bearing and ease of movement	Expert
	Check screwed connections on the drive flange	Expert
	Check function of the external ground fault circuit interrupter.	Qualified electrician
Every 12 months	Check electrical cables for damage.	Qualified electrician
	Check electrical cables for firm fit.	Qualified electrician
	Check signs and labels for legibility.	Expert
	Check foundation attachment.	Expert
The electrical tests are to be performed in accordance with the regulations applicable at the installation site.		

Table 9: Maintenance plan

10 Troubleshooting



NOTE!

Additionally, dispose of the diagnostic program *MBC Diag* for further diagnostics. Use this program to read-out each error status from the *MBC-110* and the associated *MMC-120*. For further information contact your authorised dealer or Magnetic directly.

10.1 Malfunction – Logic controller *MBC-110*

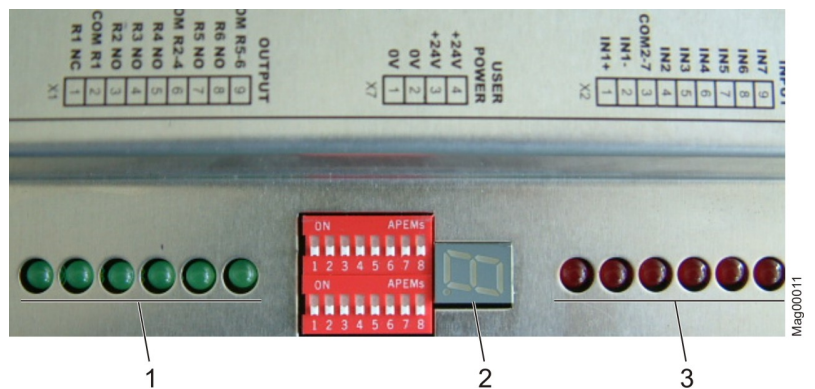


Fig. 33: LEDs on the logic controller *MBC-110*

- 1 Green LEDs indicate the switching status of the customer interface outputs
- 2 One-digit display
- 3 Red LEDs indicate the switching status of the customer interface inputs

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

- Red LED is switched on: Input is activated.
- Red LED is switched off: Input is not activated.

Troubleshooting

10.1.1 Display of the error codes at the MBC-110

If the DIP switch S1.7 is OFF (factory setting), the display shows an error code in case of an error. See also page 48, Table 7.

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

Error codes are shown in the one-digit display of the MBC-110. The numerals and letters in the fault code are displayed successively for 2 seconds at a time.

Example

The error code E05 is displayed as follows:

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

10.1.2 Display of the software version of the MBC-110

If the DIP switch S1.7 is ON the display shows the current software. See also page 48, Table 7.

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

Example

The software version 1.4 is displayed as follows:

1. u
2. 1. (first character with point)
3. 4 (second character)
4. Pause
5. Step 1 to 4 is repeated.

10.2 Fault codes on the MBC-110

Fault code	Fault description	Automatic reset
01	Strike detection with runtime monitoring	Yes
02	Emergency entrance is activated	Yes
03	Reserve	
04	Reserve	
05	Wrong way	Yes
06	Reserve	
07	Vandalism detection	Yes
08	Reserve	
09 – 0F	Reserve	
11 – 1F	Reserve	
20	Fault occurred on servo	No
21	Servo's output stage cannot be activated	No
22	Node guarding fault, servo	No
23 – 3F	Reserve	
40	Homing fault	No
41	Wrong program mode	No
42	Reserve	
43-49	Reserve	
50-57	Software fault	No
59-5C	Reserve	
5D	CRC fault, EEPROM	No
5E	CRC fault, flash	No
5F	Watchdog fault	No
60	CAN Bus fault: Fault when initializing CAN protocol stack	No
61	CAN Bus fault: Bus OFF	
62	CAN Bus fault: Fault when initializing CAN Bus	No
63	CAN Bus fault: CAN servo address fault	No
64	Reserve	
65	I2C Bus fault	No
66	CAN Bus fault: Fault in CANopen stack	No
67 – 6F	Reserve	
70	Servo with wrong Firmware detected → download required	No
72	Servo with wrong application detected → download required	No
74	Servo with wrong application version detected → download required	No
76	Servo with wrong hardware detected	No
78	Servo software cannot be cleared	No
7A	No communication with servo bootloader	No
7C	Fault when downloading firmware to the servo	No
7E	Fault when activating firmware on the servo	No
71, 73, 75, 77, 79, 7B, 7D, 7F	Reserve	
80 – 99	Reserve	

Troubleshooting

10.2.1 Malfunction – Motor controller MMC-120

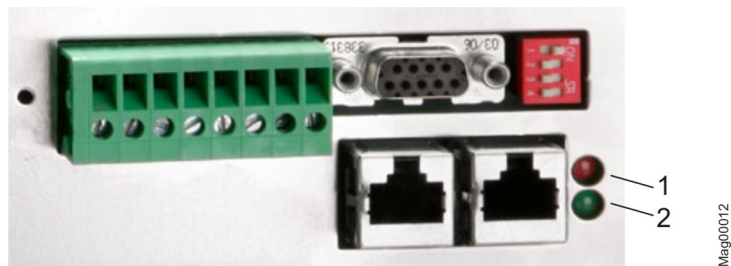


Fig. 34: LEDs on MMC-120

- 1 Green LED for indication of the power supply state and the safety input state
- 2 Red LED for error diagnosis

LED	Description	Possible cause / Troubleshooting	To be carried out by
Green LED is OFF.	No power supply	Check power supply.	Qualified electrician
Green LED is flashing	Power supply is present. Safety input signal is missing.	Missing signal at emergency input IN1 of the MBC-110. CAN connection between MBC-110 and MMC-120 defective.	Qualified electrician
Green LED is ON.	Normal operation	–	–
Red LED is OFF	No error code	–	–
Red LED is ON.	External error with emergency stop	Check for error in MBC-110 or other MMC-120.	Qualified electrician
Red LED is flashing	Error Number of blink impulses indicates the error code.	See Table 11.	Qualified electrician
Red and green LED are ON	Application program has been erased. Boot loader is waiting for downloading the application program.	Download has been interrupted. Refer to the following Section "Downloading application program".	Qualified electrician

Table 10: Description of the LEDs on the MMC-120

Troubleshooting

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

Table 11: Error codes of the MMC-120

10.3 Downloading new software to logic controller MBC-110



NOTE!

Before a download, the position of the DIP switch on the MBC-110 must be noted so that the unit can be restored to its previous operating state following the download.


1. Note switch position of the 16 DIP switch on the MBC-110.
2. Isolate the supply voltage to the pedestrian gate. Wait a few seconds until the capacitors in the power pack have discharged.
3. Set all 16 DIP switches on the MBC-110 to the ON position.
4. Restore the supply voltage to the pedestrian gate.
5. The MBC-110 detects from the position of the DIP switch that a download is to be executed.
6. The MBC-110 is initializing. The display first shows "P" and then "G".
7. The MBC-110 assumes the waiting state. The display shows "L" and a flashing stop. At this point in time, the download can be cancelled by switching off the supply voltage.
8. Set all 16 DIP switches to the OFF position.
9. The download is executing:
 - The program memory of the logic controller is cleared. The display on the MBC-110 shows "c" (clear) and a flashing stop.
 - The new software is being downloaded. The display shows "d" (download) and a flashing stop.
 - The new software is activated by booting the logic controller. A rotating bar appears in the display.
10. Isolate the supply voltage again.
11. Reset the DIP switches on the MBC-110 to the old position you noted down earlier.
12. Restore the supply voltage. The unit starts to operate.



NOTE!

If the download failed, run another download. Contact Magnetic if necessary.

11 Spare parts

⚠ WARNING	
	<p>Risk of injury by incorrect spare parts!</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">– Only use original spare parts or spare parts approved of by Magnetic.

Procure spare parts via your dealer. The address can be found on your delivery receipt, invoice or the rear of these instructions.

Spare part lists can be obtained on request.

Decommissioning, disassembly and disposal

12 Decommissioning, disassembly and disposal

A pedestrian gate 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.

Prior to decommissioning and disposal of the pedestrian gate, it must be completely separated from the surrounding units.

- Decommissioning, disassembly and disposal of the pedestrian gate may only be carried out by specialised staff.
- Disassemble the pedestrian gate in reverse order from assembly.
- The pedestrian gate 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.

EC-Declaration of Conformity



The manufacturer MAGNETIC AUTOCONTROL GmbH hereby declares for the product supplied by him:

Designation	Full height swing door
Type	MPG-162* / MPG 172*
From serial number	10276527

The conformity according to:

Directive 2006/42/EC (Machine directive) amended by **2009/127/EC**

Directive 2014/30/EU (EMC directive)

Applied harmonised standards (or parts hereof):

EN ISO 12100:2010

Safety of machinery – General principles for design – Risk assessment and risk reduction

EN 60204-1:2006/AC:2010

Safety of machinery – Electrical equipment of machines – Part 1: Specifications for general requirements

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

Electromagnetic compatibility (EMC) – Part 6-2: Generic standard – Immunity for industrial environments

EN 61000-6-3:2007/A1:2011/AC:2012

Electromagnetic compatibility (EMC) – Part 6-3: Generic standard – Emission standard for residential, commercial and light-industrial environments

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.

MAGNETIC AUTOCONTROL GmbH
Grienmatt 20-28
79650 Schopfheim

Documentation Engineer
Mr. Stefan Wellinger

Schopfheim, 12/12/2018
Place and date

Signature

Appendix

14 Appendix

14.1 Electric circuit diagram

The electric circuit diagram is supplied as a separate document.

Index

A	
Assembly	
Centering bolt.....	38
Dismount locking discs	33
Dismounting centering bolts	35
Fixing the revolving wing to the floor bearing	38
Floor bearing	35
Lock unit (optional).....	38
Locking discs	38
Mounting the support beam	31
Mounting the swing door on the foundation....	30
MPG-162.....	29
Rails with induction loop	40
Remove lock unit (optional)	32
Requirements.....	24
Revolving wing to the drive flange	35
Setting the blocked position	39
B	
Base frame	
MPG-162 with turnstile MPT	27
C	
Cleaning.....	53
Configuration	
Pedestrian gate.....	47
Connection diagram, MBC-110	44
Copyright protection	9
Customer service.....	11
D	
Design	
MPG-162.....	19
MPG-172.....	20
DIP switch block S1	48
DIP switch, block S2	49
Disclaimer	10
Downloading MBC-110 software	60
E	
EC Declaration of Conformity	11, 63
Electric circuit diagram	64
Electrical connection	
Technical data.....	18
Empty conduit plan	25, 26
Empty conduits	24
Environmental protection.....	11
F	
Foundation.....	24
Foundation plan	25, 28
MPG-172	28
Function	21
G	
General	7
H	
Hazard notes	15
Home position	39
I	
Inputs	45
Installation	
Requirements.....	24
Instructed people	13
Intended use	12
L	
Limitation of liability.....	9
M	
Maintenance	52
Maintenance schedule.....	54
Malfunction	
Logic controller MBC-110.....	55
Malfunction – Motor controller MMC-120	58
MBC-110	
Display error codes	56
Display software version	56
Fault code table.....	57
Malfunction	55
MMC-120	
Malfunction	58
O	
Occupational safety	14, 15
Operating conditions	18
Operating instructions	7
Operating personnel	
Requirements.....	13
P	
Performance data	18
Personal protective equipment	14
Pictogram explanation	8
Q	
Qualified electricians.....	13
R	
Relay outputs X1	46

Index

S			
Safety	12		
Assembly	22		
Configuration	47		
Electrical connection	41		
Installation	22		
Maintenance	52		
Start-up and operation	50		
Scope of delivery	10		
Spare parts	61		
Specialised staff	13		
Start-up	51		
		Supply voltage connection terminals	42
		Switching off	51
		Switching on	51
		T	
		Technical data	18
		Troubleshooting	55
		W	
		Warning notes	8
		Warranty	10
		Weight	18

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