

# Operation and Installation Instruction Retractable Flap Barrier Model MPP 112



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## 1. Delivery

### 1.1 Scope of delivery

- 1 x Retractable barrier (quantity and models depend on lane layout)
- 4 x Mounting hardware
- 2 x Keys
- 1 x Documentation

### 1.2 Technical data

TECHNICAL DATA	Dimens. unit	MODEL		
		MPR-112A/B-A2X0	MPR-112A/B-A3X1	MPR-112A/B-A2X2
Voltage	VAC	115-240	115-240	115-240
Frequency	Hz	50-60	50-60	50-60
Gate open capacity / current	W / A	40 / 0,3	35 / 0,3	80 / 0,47
Gate closed capacity / current	W / A	45 / 0,3	35 / 0,3	117 / 0,7
Max. peak in operation (30 ms)	W / A	140 / 0,85	140 / 0,85	654 / 3,4
Duty Cycle	%	100	100	100
Protection class	IP	32	32	32
Opening time	ms	400	300 <sup>3</sup>	600
Closing time	ms	400	300 <sup>4</sup>	600
Length	mm	1300	1300	1300
Width	mm	200	250	280
Hight	mm	1035	1035	1035
<sup>3</sup> Acrylic-flap	ms	-	350	-
<sup>4</sup> Acrylic-flap	ms	-	350	-

The data given in the table can deviate due to technical changes! All current values refer to a mains voltage of 240 V.

1.3 Code table

M P R - 1 1 2 A - A 1 0 0 - XXXXX

Options

Customer or project code

Housing

- 0 = Narrow (200mm) passage 520 / 50mm gap
- 1 = Middle (250mm) passage 520 / 50mm gap
- 2 = Wide (280mm) passage 960 / 50mm gap
- 3 = Narrow (200mm) passage 550 / 50mm gap
- 4 = Narrow (200mm) passage 600 / 50mm gap
- 5 = Wide (280mm) passage 900 / 50mm gap

Material

- 0 = powder coated
- 1 = s/s 304 polish no 4
- 2 = s/s 316 L polish no 4
- 3 = s/s 430 polish no 4

Flap

- 1 = Soft-Flap single (only housing width 250mm)
- 2 = Soft-Flap telescopic
- 3 = Acrylic -flap single (only housing width 250mm)
- 4 = Soft-flap single to soft-flap telescopic
- 5 = Acrylic-flap single to soft-flap telescopic
- 6 = Telescopic to Telescopic

Voltage

- A = 230V 50Hz
- C = 115V 60Hz

Module

- A = End module left
- B = End module right
- C = Center module right
- D = Center module left
- E = Change over module right pass. 520/960mm
- F = Change over module left pass. 520/960mm
- G = Change over module right pass. 520/900mm
- H = Change over module left pass. 520/900mm
- I = Change over module right pass. 550/960mm
- K = Change over module left pass. 550/960mm
- L = Change over module right pass. 550/900mm
- M = Change over module left pass. 550/900mm
- N = Change over module right pass. 600/960mm
- O = Change over module left pass. 600/960mm
- P = Change over module right pass. 600/900mm
- Q = Change over module left pass. 600/900mm

Type

- 2 = Standard motor
- 4 = different drive system

Size

- 1 = Short barrier
- 2 = Long barrier

Generation

Product type

R = Retractable barrier

Product group

P = Pedestrian

Product classification

M = Magnetic product

1.4 Lane configuration

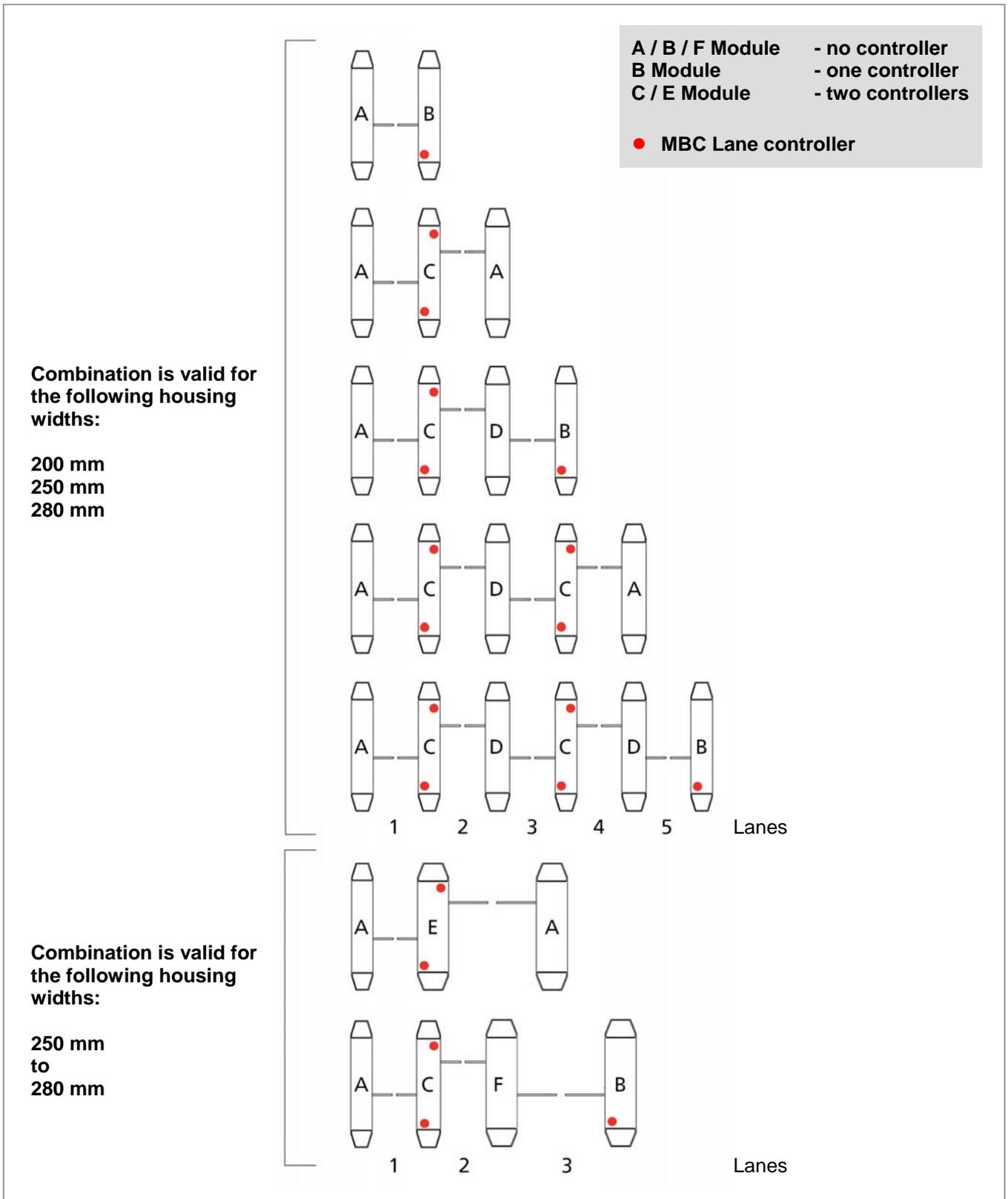


Fig. 1-1 Lane configuration

## 2. Safety

### 2.1 General safety notes

The MPR (**M**agnetic **P**edestrian **R**etractable Barrier) has been designed, built, and tested according to the latest available technology. The product has left the factory in a fully operational and safe condition. However, it is imperative that the installation is carried out in accordance to this operating manual. Therefore, it is vital to read this operating manual in full before starting the installation and that all the safety notes and remarks are being observed.

Any liability and warranty is declined by the manufacturer in the case of incorrect use and use for purposes other than intended by the design.

### 2.2 Intended use

The TURNSTILE pedestrian retractable MPR shall only be used to control pedestrians entering or exiting restricted areas.

The TURNSTILE Universal Controller MBC and MMC shall only be used for controlling the Magnetic pedestrian retractable MPR. Any other use is not permitted.

Conversions and modifications to the retractable or to the control modules are not permitted.

Only original spare parts and accessories from Magnetic shall be used.



**NOTE!** [www.TURNSTILES.us](http://www.TURNSTILES.us)

is not responsible for any kind of damages, injuries and other faults resulting from non-observance of the intended use described in this chapter!

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## 2.3 Warnings and symbols used in this manual

The following symbols and references are used in this manual to give instructions and warnings (cautions) of particular importance. These must always be strictly observed!

Purchased components may have additional specific warnings that also need to be strictly observed.



### WARNING!

This Symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

The description of the situation is followed by measures of avoidance.

Please read and observe the given instructions very carefully.

---



### CAUTION!

This Symbol indicates a potentially hazardous situation which, if not avoided, could result in property damages and material destruction.

The description of the situation is followed by measures of avoidance.

Please read and observe the given instructions very carefully.

---



### NOTE!

The symbol "note" is used in case of an operating procedure or condition which is essential and, therefore, noted to gain special attention.

In addition the symbol indicates a potentially situation which, if not avoided, may result in an undesirable result or state.

---



**RECYCLING!**

When disposing of the unit at the end of utilisation ensure those noxious and dangerous residues are disposed of in accordance with the regulations. Based on the different material, disposal must occur in a separate manner.

The used lubrication and auxiliary material such as oils and fats will be disposed of in accordance with the statutory provisions.

---

**2.4 Safety notes**

- Disconnect all external opening or closing devices (remote control, control desk, etc.) during maintenance work.
- Do not operate the equipment without effective anchoring to the foundation.
- A main supply power circuit breaker must be installed.
- This operating manual and any other additional information must be kept in a, for all authorized person, accessible location.
- Before commissioning make sure all electrical and functional features are tested.
- The electrical wiring must comply with these instructions.
- Only certified and trained electrical technicians shall perform any electrical work.
- Before any maintenance or troubleshooting work the main power supply must be disconnected.
- Electrical voltage components like transformers, solenoids, resistors, and stator housings of motors, lamps etc. may be hot during and after operation. Do not touch such components; it can cause skin burns.

### **3. Product Description**

#### **3.1 Features**

##### **3.1.1 The Drive Unit**

The MAGNETIC KPR (Kit Set Pedestrian Retractable) is designed for integrating the kit set into a standard or customer specific housings.

Part of the KPR is the MBC controller which comes with multifunctional software designed to meet most of the current industry requirements.

In addition to the MBC controller the kit set includes our patented MHTM™ direct drive (MHTM=Magnetic High Torque Motor) which has been designed to provide high reliability and maintenance free operation. The patented MHTM™ drive technology in combination with a unique Sinusoidal lever system provides a high duty cycle.

Common applications are for example AFC (Automatic Fare Collection), immigrations systems or access control applications.

##### **3.1.2 KPR main features**

The MHTM™ direct drive system does not require any gears or clutches. Therefore the motor is not subject to wear and tear and does not require any greasing or oiling. The MHTM™ motor is maintenance free.

The drive system does not have any backlash. The motor has an extremely low mass resulting in low impact forces even with the fastest opening and closing times. The low noise level amounts approximately 40 dB.

The motor sensor controls each movement precisely allowing an exact positioning of the flaps and optimum acceleration and deceleration phases.

##### **3.1.3 The Motor controllers**

The kit set is entirely controlled by two Magnetic controllers MMC and one MBC. The MMC motor controller is responsible for an optimum movement of the wings. In order to achieve the optimum movement between opening/closing time and impact force (in dynamic force), each wing type (soft, acrylic or telescopic wings) has its own control parameter.

The MBC logic controller contains the interface between central management stations and or access control equipment as well as necessary input and output.

## Product Description

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### 3.1.4 Gate wings

Four different wing types are available in standard configuration. Any other aisle is available on demand. The drive lever arm and the software must be then customized.

Kit set	Fitting Wing Type	Lane Width
200 mm	Telescopic Soft Wing	520 / 550 mm
250 mm	Acrylic Wing	520 mm
250 mm	Soft Wing	520 mm
280 mm	Telescopic Soft Wing	900 / 960 mm

### 3.2 Static stability test

To show the stability of the wing into the mounted housing, Magnetic made a few different tests, to demonstrate and determine the stability of the wing.

- Static test
- Impact Pendulum test
- Dynamic front Impact test

#### 3.2.1 Static test

The simulation shows the stability of the wing for static acting forces, as shown into the pictures below. The Linear Actuator increased the force until the wing has been irreversibly deformed.

## Product Description

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*Fig. 3-1 Static test, figure shows a deformation of 27 mm at static force of 500 N*



### **NOTE!**

After withdrawing the static force the wing returned back into its original position! Above 500 N force irreversible deformations can occur!

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### **3.2.2 Impact pendulum test**

With the Pendulum test we simulate a dynamic side impact. This can occur in case of vandalism. ( kick against the wing )

For testing, the pendulum was loaded with different weights at its end. Further the pendulum was positioned in exact horizontal position (90°) and has been dropped down. So the bar falls down by its self-weight and hits the wing on a defined point. Afterwards the same test has been made from the other side with exact the same conditions (weight, length of bar etc.)

Product Description

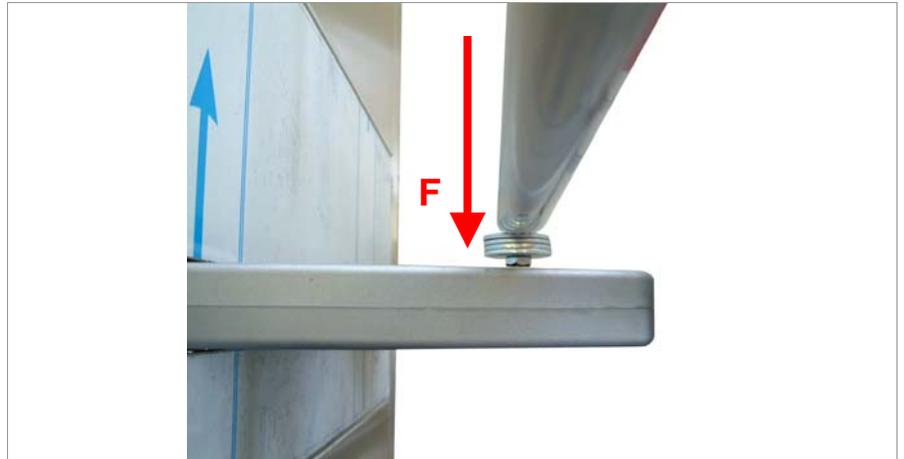
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*Fig. 3-2 Pendulum impact test; experimental setup with pendulum and weights*

## Product Description

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*Fig. 3-3 Detail pendulum impact test; figure shows a deformation of 0.5 mm at an impact force of 1000 N*

### **3.2.3 Dynamic front impact test**

This test demonstrates the dynamic impact force of the wing during operation (closing).

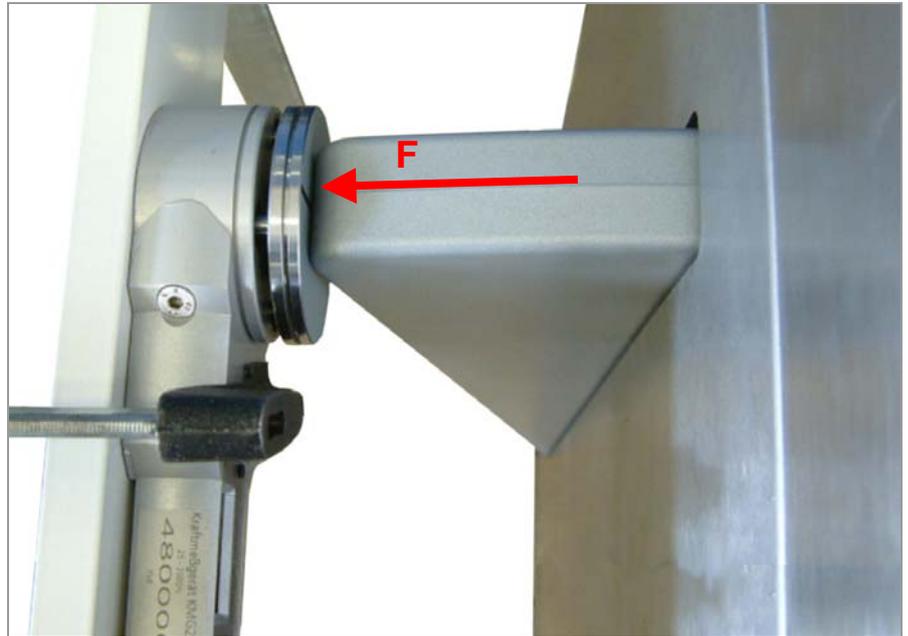
The tests are determined according to the gate standard DIN EN 12453 with the prescribed measuring instrument .

The test was made in three different positions (nearly completely driven out, approx. half driven out and little driven out). The automatic reversing mechanism has been activated during the tests

The closing times of the individual wing types (PUR, Acrylic, Telescopic 280 mm and telescopic 200 mm) have been adapted in such a way, that the collision force amounts to a max. value of 400 N

## Product Description

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*Fig. 3-4 Dynamic test; impact force of wing at status 1/2 extended on the load cell (soft flap shown)*

### 3.2.4 Overview closing times

Housing type	Wing material	Speed
250	Acrylic-wing	approx. 350 ms
250	PUR- wing	approx. 300 ms
280	Telescopic	approx. 600 ms
200	Telescopic	approx. 400 ms

## 4. Product description

### 4.1 General

The MPR retractable barrier is a user friendly access control barrier designed for rapid pedestrian entrance and exits to and from train stations, corporate receptions, airport terminals, immigration facilities, sports stadiums, etc.

The modular design allows a multitude of different lane and design configurations. The drive unit consists of our patented MHTM™ Direct Drive (MHTM=Magnetic High Torque Motor) which has been designed to provide high reliability and maintenance free operation. The patented MHTM™ Direct Drive technology in combination with a unique Sinusoidal lever system provides a high duty cycle.

The patented MHTM™ Direct Drive technology does not require gears or clutches of any kind resulting into a maintenance free operation.

In the event of a power failure, the flaps can close automatically by spring tension.

The barrier can be operated in Bi- Directional mode.

### 4.2 Housings and lane widths

The MPR is offered in three different housings and lane widths with different types of flaps and flap materials. The available housing widths are 200 mm, 250 mm and 280 mm. The standard lane widths are 520 mm or 960 respectively 990 mm (depending on the distance between the flaps 50 or 80 mm).

We also offer custom lane and housing widths. Please contact [www.TURNSTILES.us](http://www.TURNSTILES.us) if you require custom measurements.

For housings and lane widths refer to Fig. 4-1.

900 mm  
for us also

## Product description

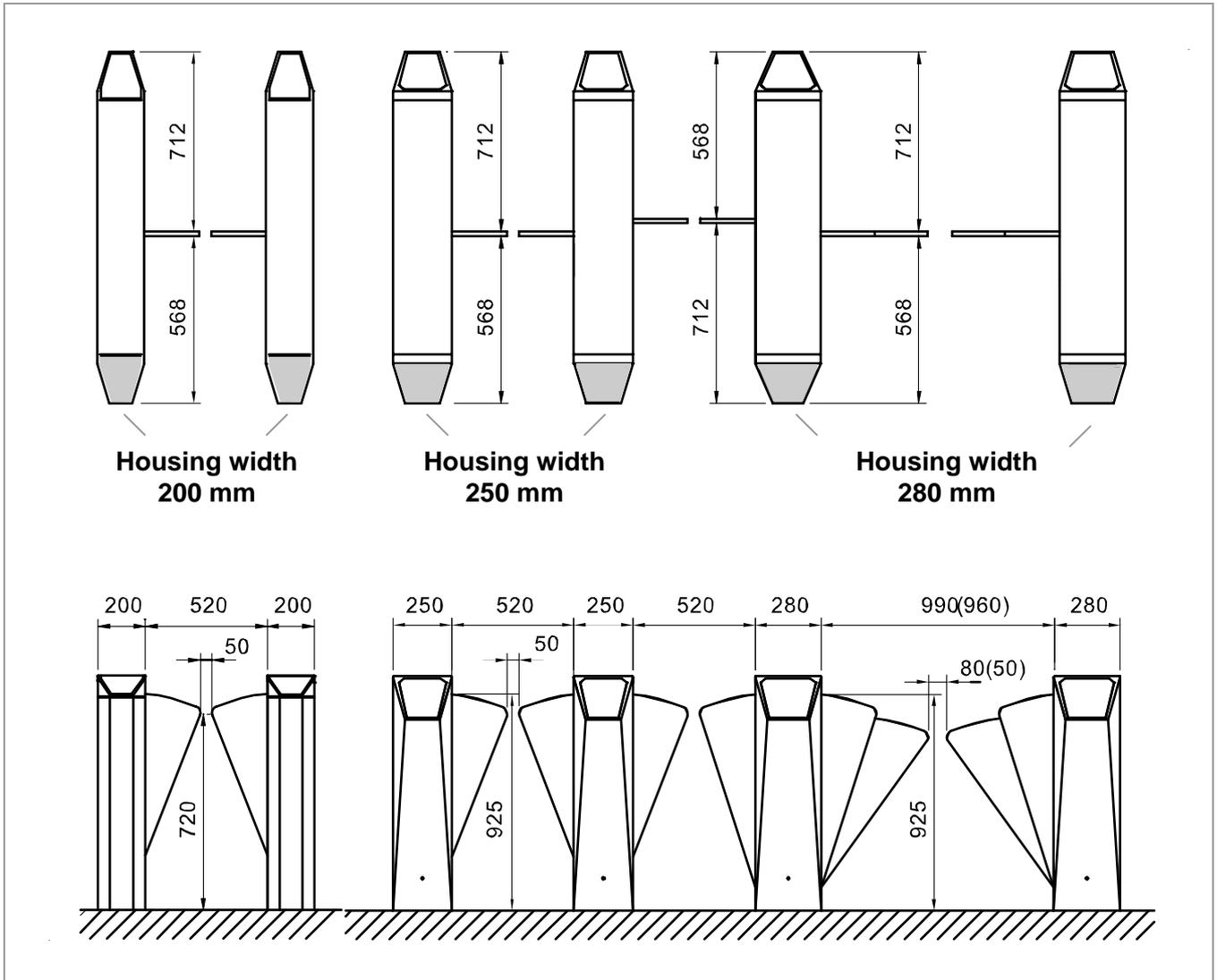


Fig. 4-1 Example installation, available standard housing widths

### Definition of passage (DG):



#### Note!

The passage width (DG) is calculated as follows:

$$DG = (2 \times \text{extended flap width}) + (50 \text{ mm flap gap})$$

## Product description

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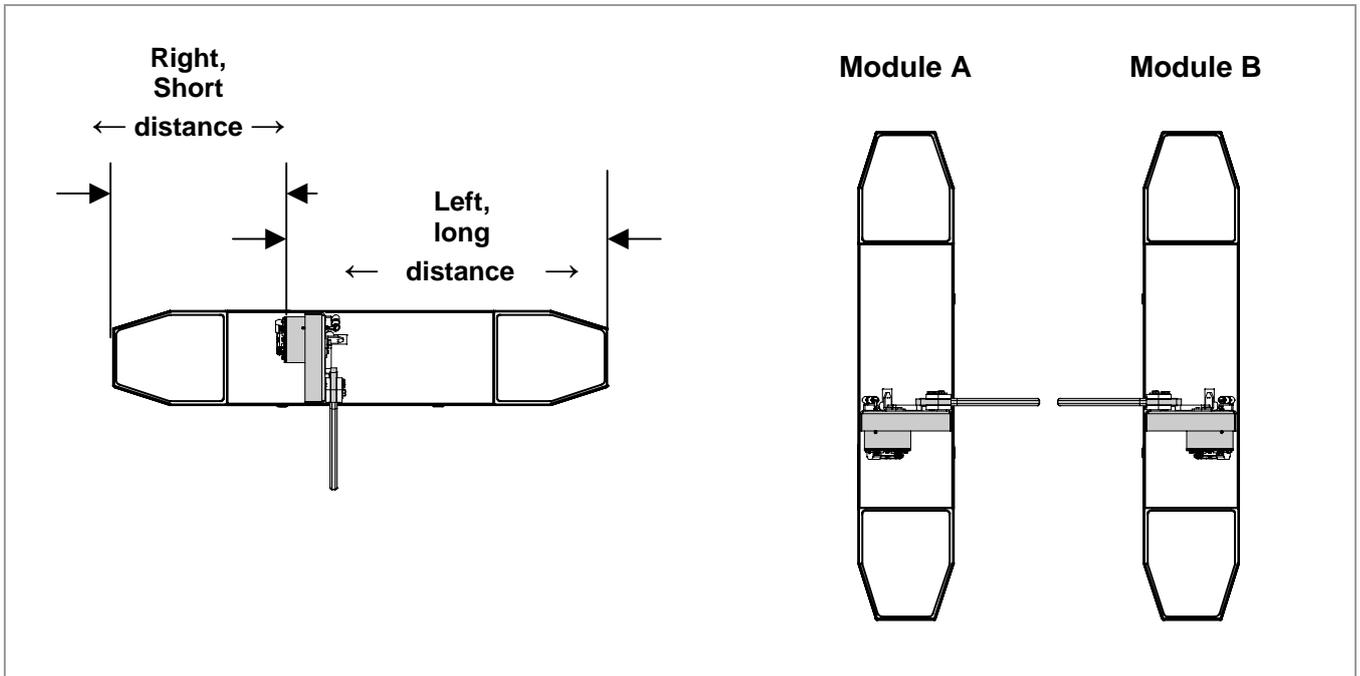


Fig. 4-2 Definition of direction right/left



### NOTE!

“**Right**” and “**Left**” are defined by the positioning of the Motor to the shorter housing side.

According to the position of the Motor to the flap the designation of the passage “entrance right” or “entrance left” results.

---

### 5. Mounting and installation

#### 5.1 Foundation

The mounting surface of the concrete-foundation must be level to insure a solid base for the MPR. Once the concrete has set to an adequate hardness, the holes for the anchor bolts can be drilled using the dimensions shown in Fig. 5-1.

For installation of the conduit pipes refer to the piping plan and electric schematic. Additional cabling for access control and or other peripheral equipment is the installer's responsibility. Conduit pipes (with different diameters for low and high voltage cables as per Electrical code) must be installed to run the main power supply cable and the control cables. Please make sure that the cabling is long enough to reach the connection points.

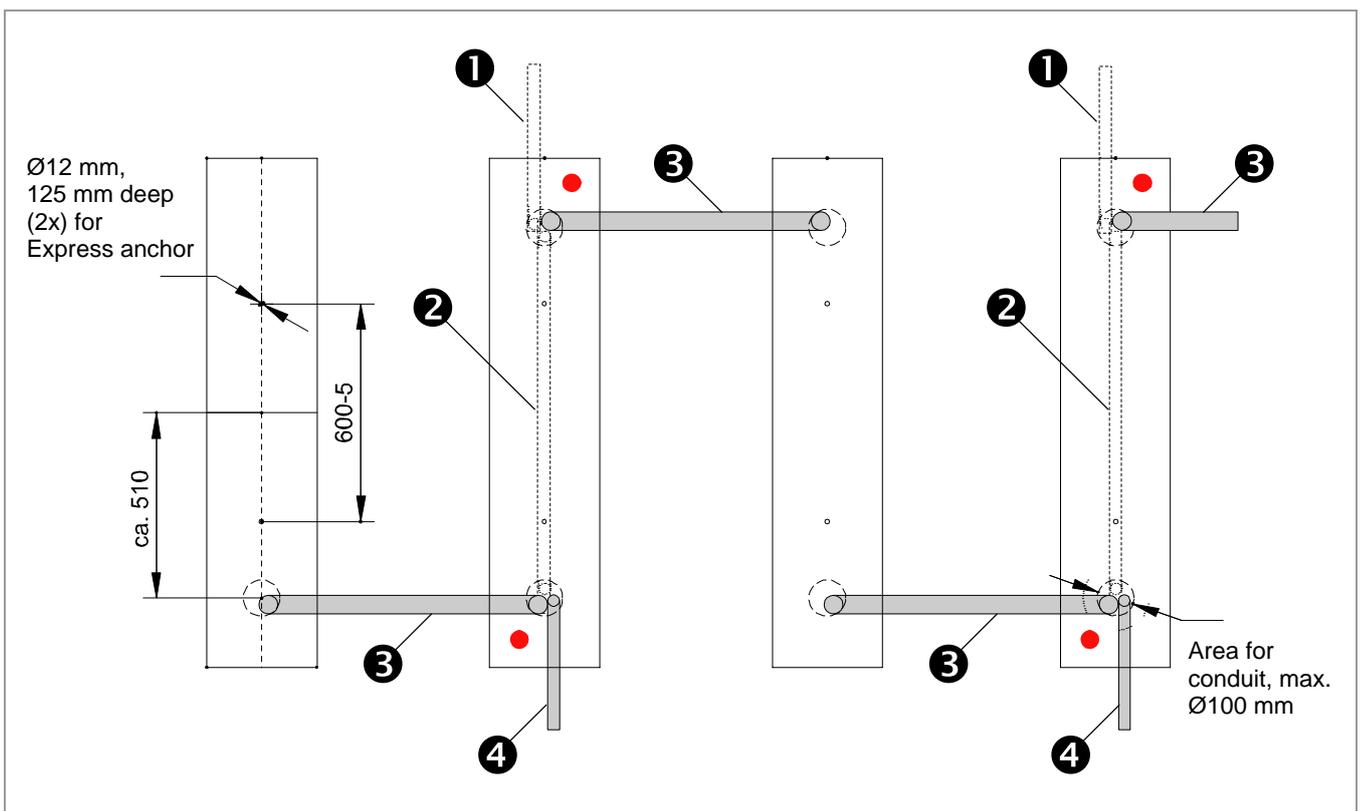


Fig. 5-1 Foundation and conduit plan

- 1 – Alternative external electric supply, PG21 (28 mm)
- 2 – Conduit for alternative electric supply, internal electric supply, PG21 (28 mm)
- 3 – Ductwork control line, PG36 (42 mm)
- 4 – Conduit electric supply external, PG21 (28 mm)

## Mounting and installation

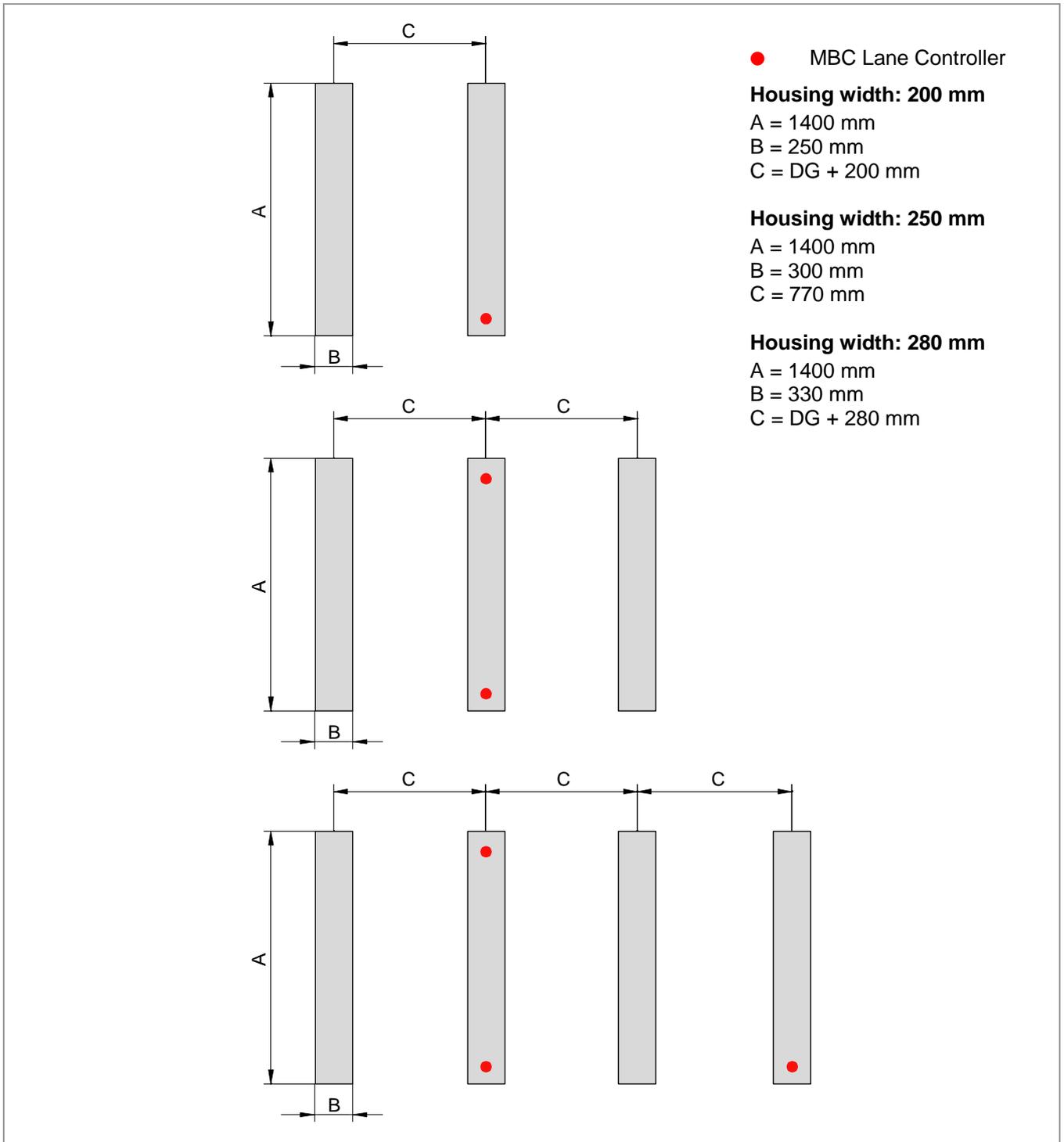


Fig. 5-2 Foundation plan, housing arrangement with MBC Controllers

For the definition of „Passage“ (DG), refer to description on page 17.

## Mounting and installation

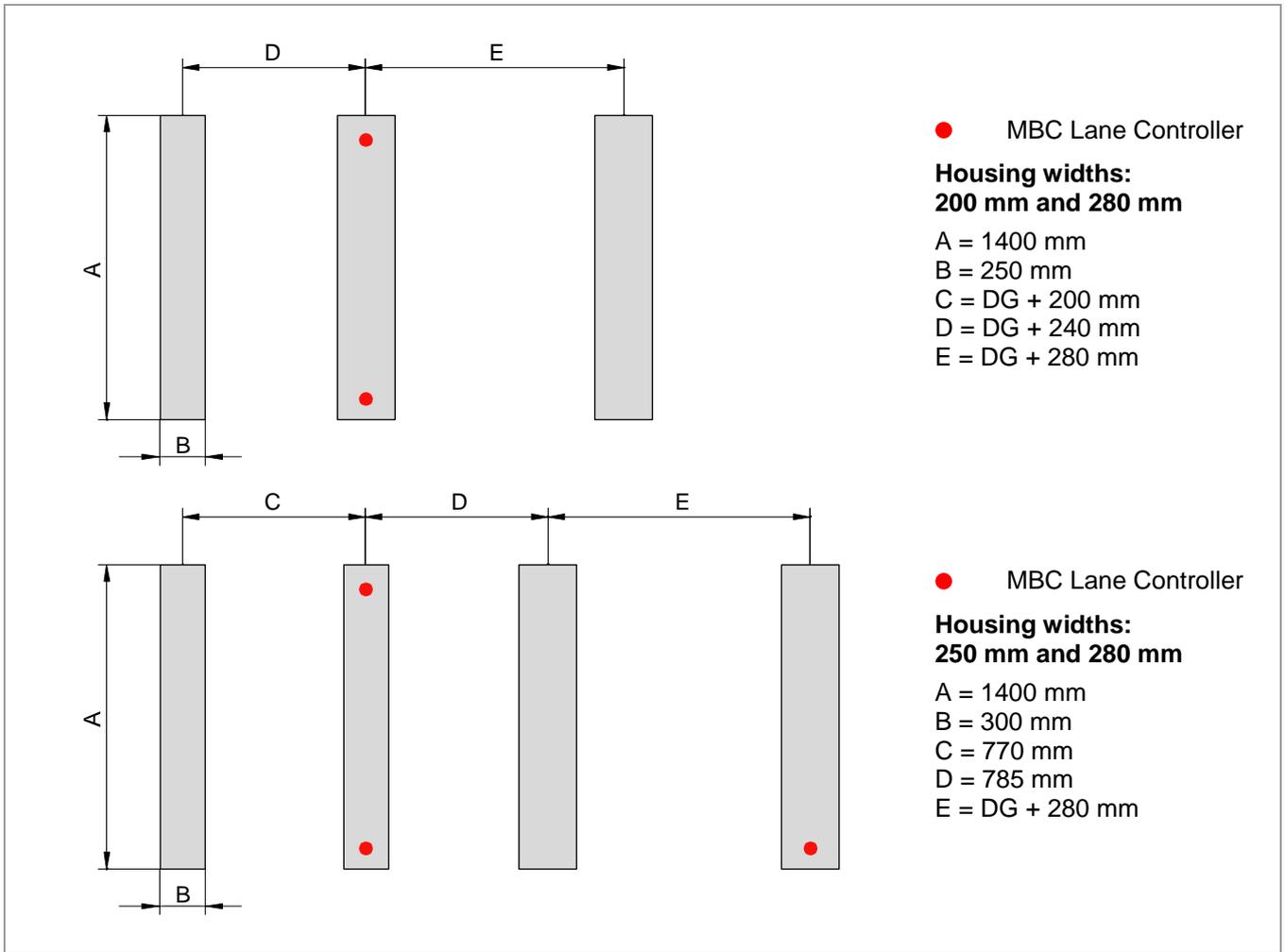


Fig. 5-3 Foundation plan, arrangement with different housing and passage widths

For the definition of „Passage“ (DG), refer to description on page 17.



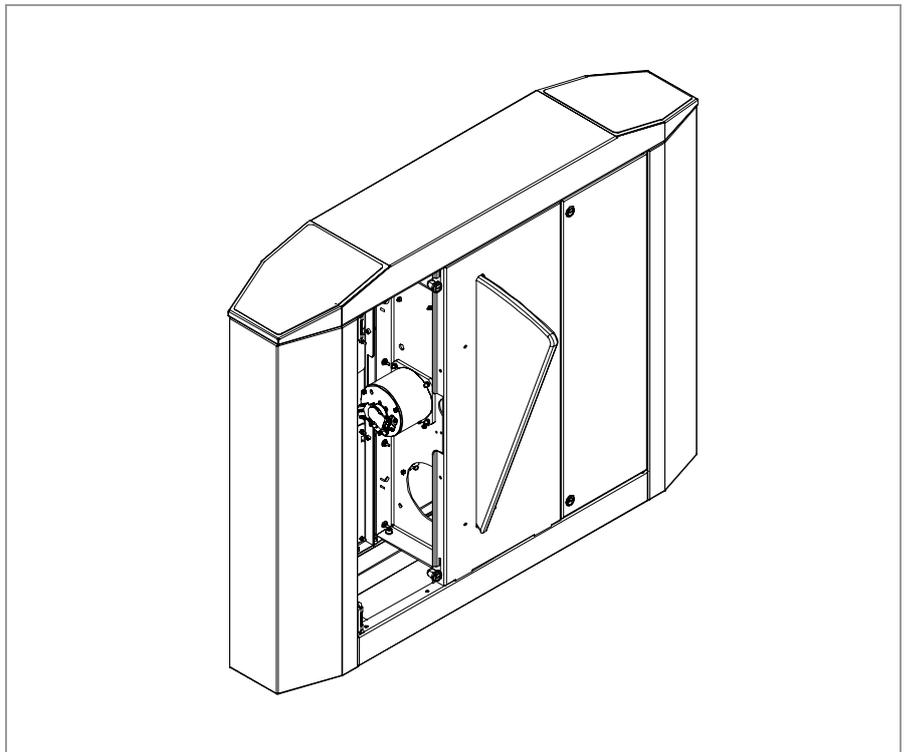
**NOTE!**

When arranging further MPR units the same systematic applies as described in Fig. 5-1 to Fig. 5-3.

### 5.2 Access Doors

The motor as well as the drive- and control units are located behind the hinged housing doors.

Access is granted to authorized people by using the key supplied with the retractable barrier.



*Fig. 5-4 Access to drive unit and controller*

Mounting and installation

5.3 Mounting

Please follow the schematic Fig. 5-5 for proper installation. Please make use of the mounting hardware included in the delivery.

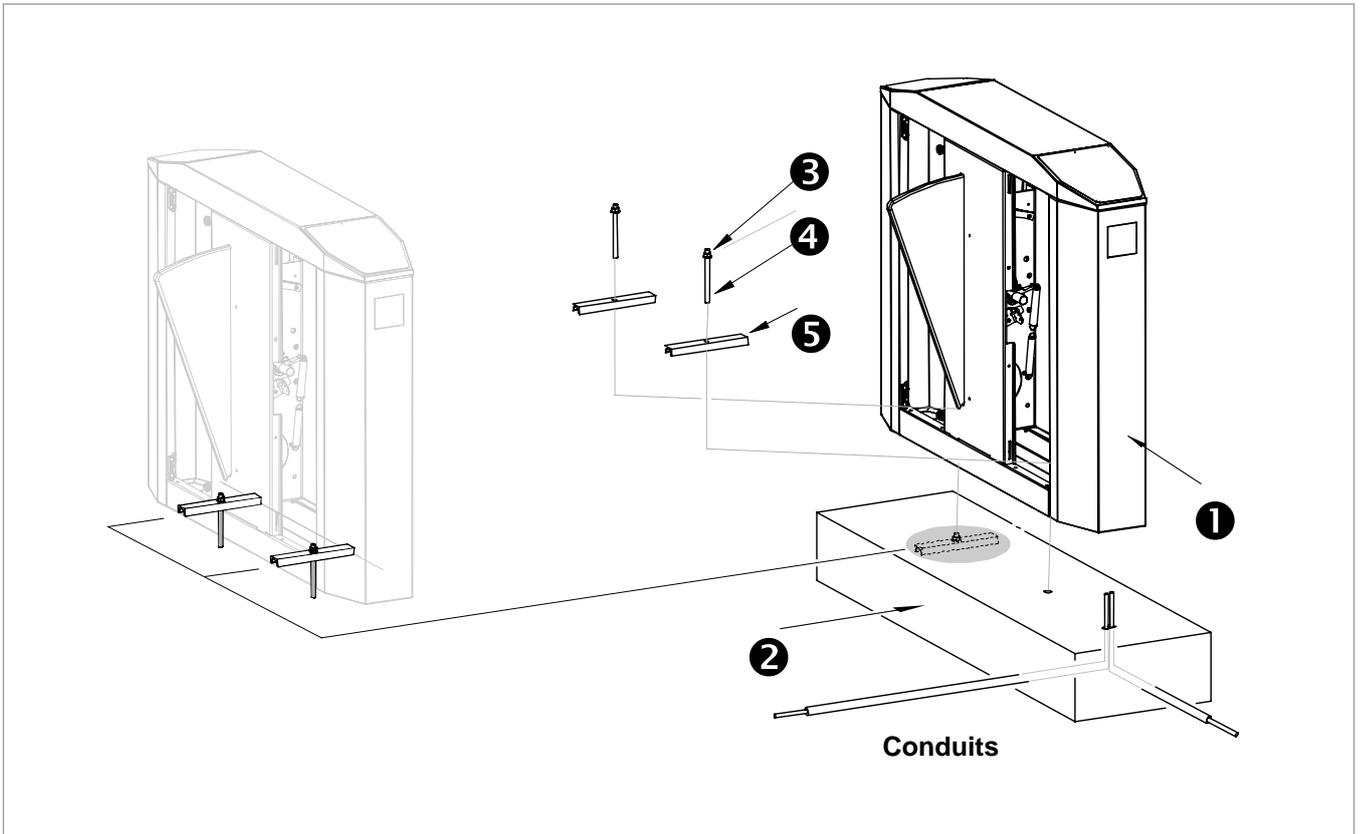


Fig. 5-5 MPR mounting with U-profile

- 1 – MPR housing
- 2 – concrete fundament
- 3 – nut, split washer, plain washer
- 4 – masonry anchor
- 5 – U-profile

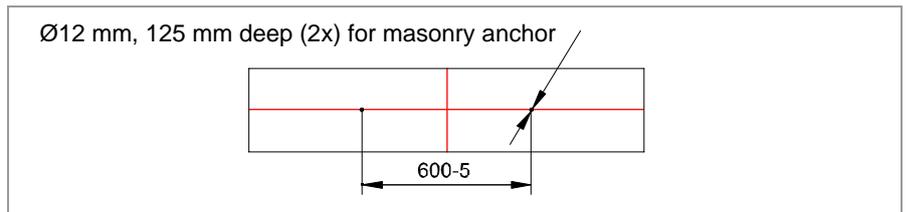


Fig. 5-6 Holes for masonry anchor (vertical and horizontal in middle)

## 6. Electrical Connection

### 6.1 Overview



#### CAUTION!

The connection of the electrical mains may be accomplished only by an electrical specialist!

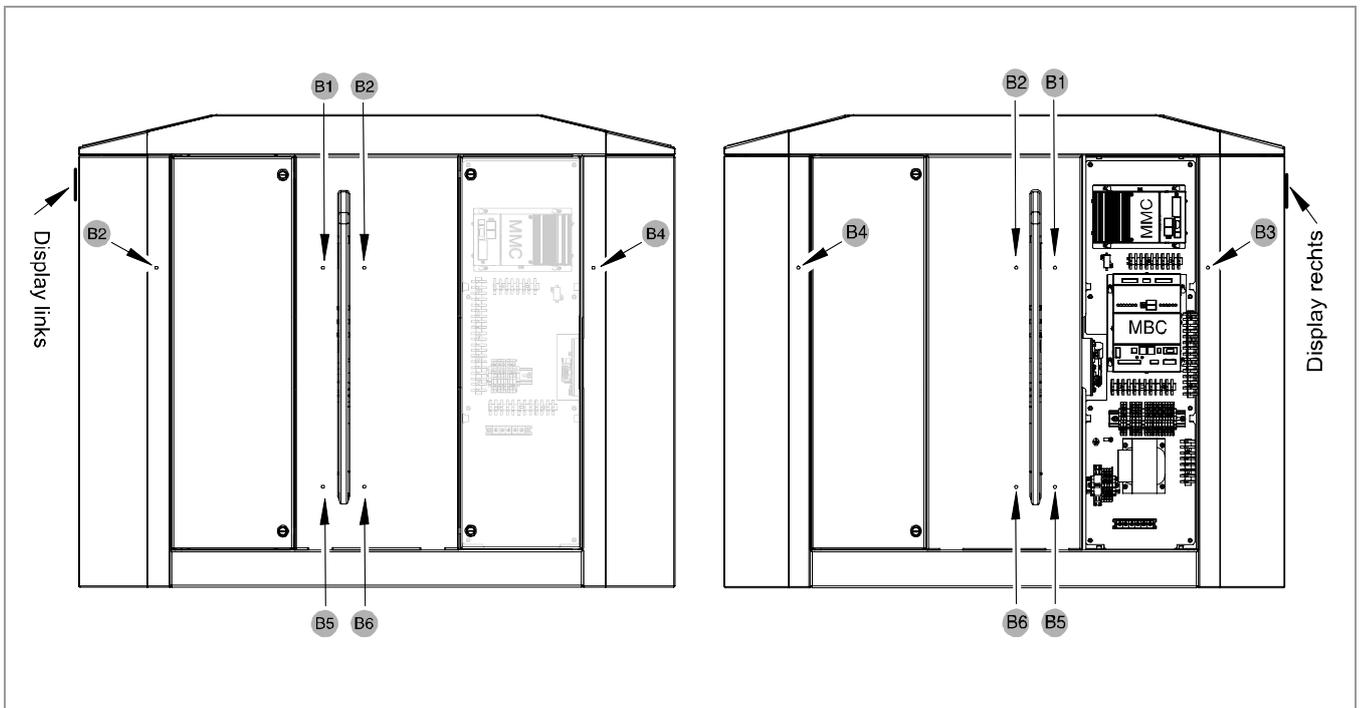


Fig. 6-1 Electrical Connection

- B1** = safety PE-beam right
- B2** = safety PE-beam left
- B3** = outside right (only mode 2)
- B4** = outside left (only mode 2)
- B5** = additional safety right
- B6** = additional safety left

Electrical Connection

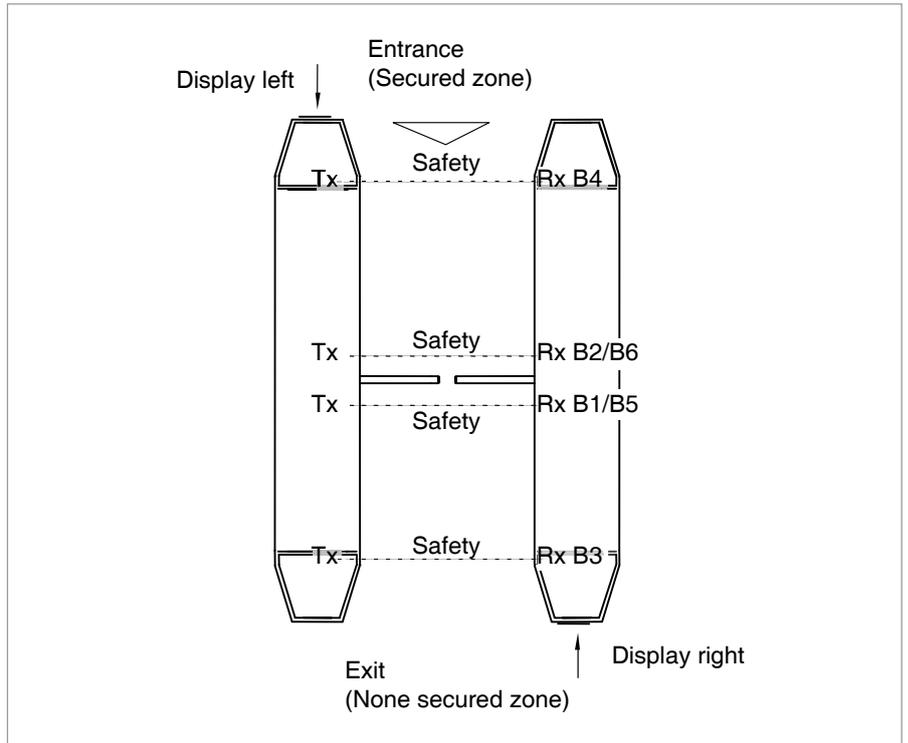


Fig. 6-2 Electrical Connection, top view

## Electrical Connection

### 6.2 Wiring diagrams

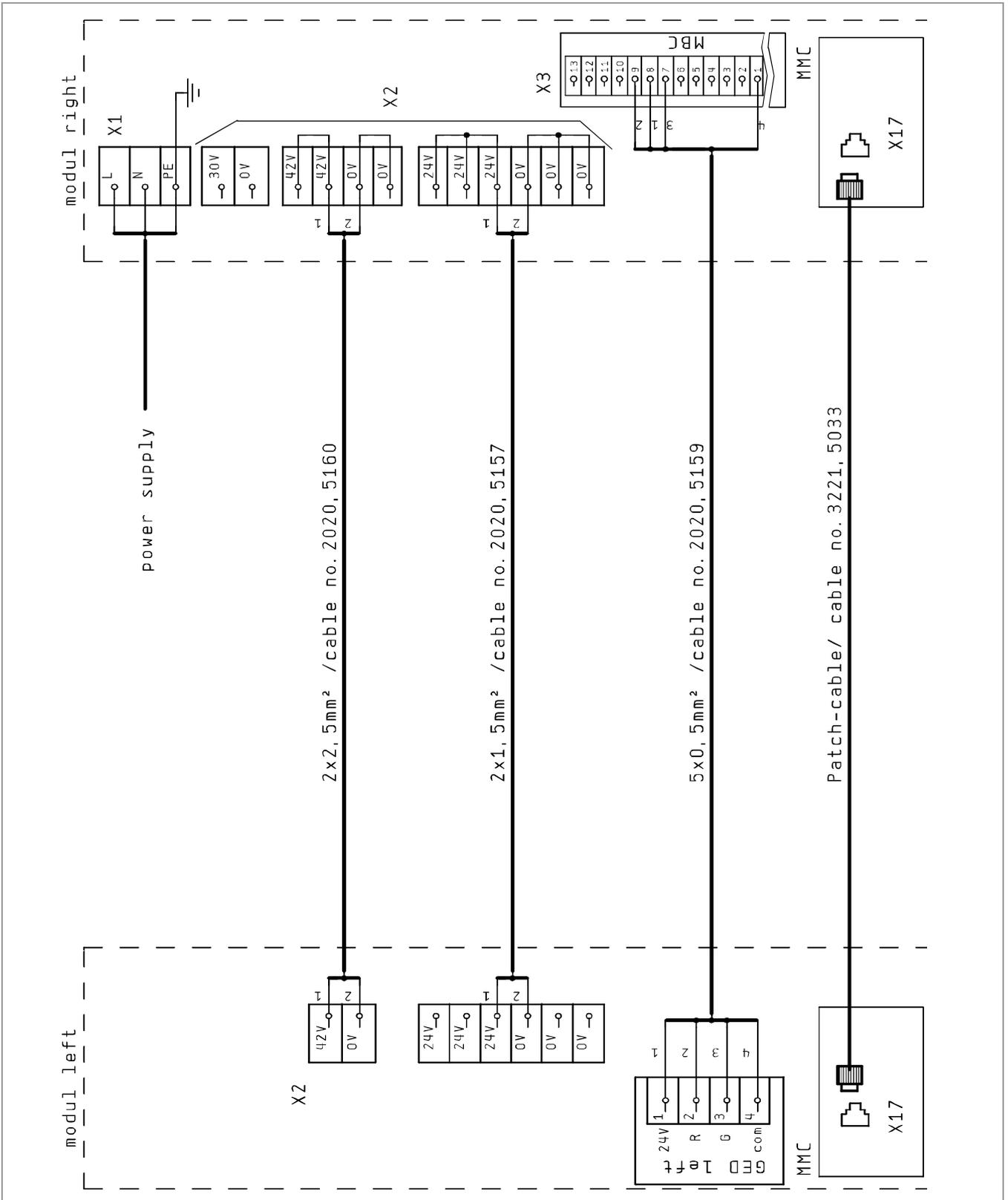


Fig. 6-3 Wiring diagram 1

## Electrical Connection

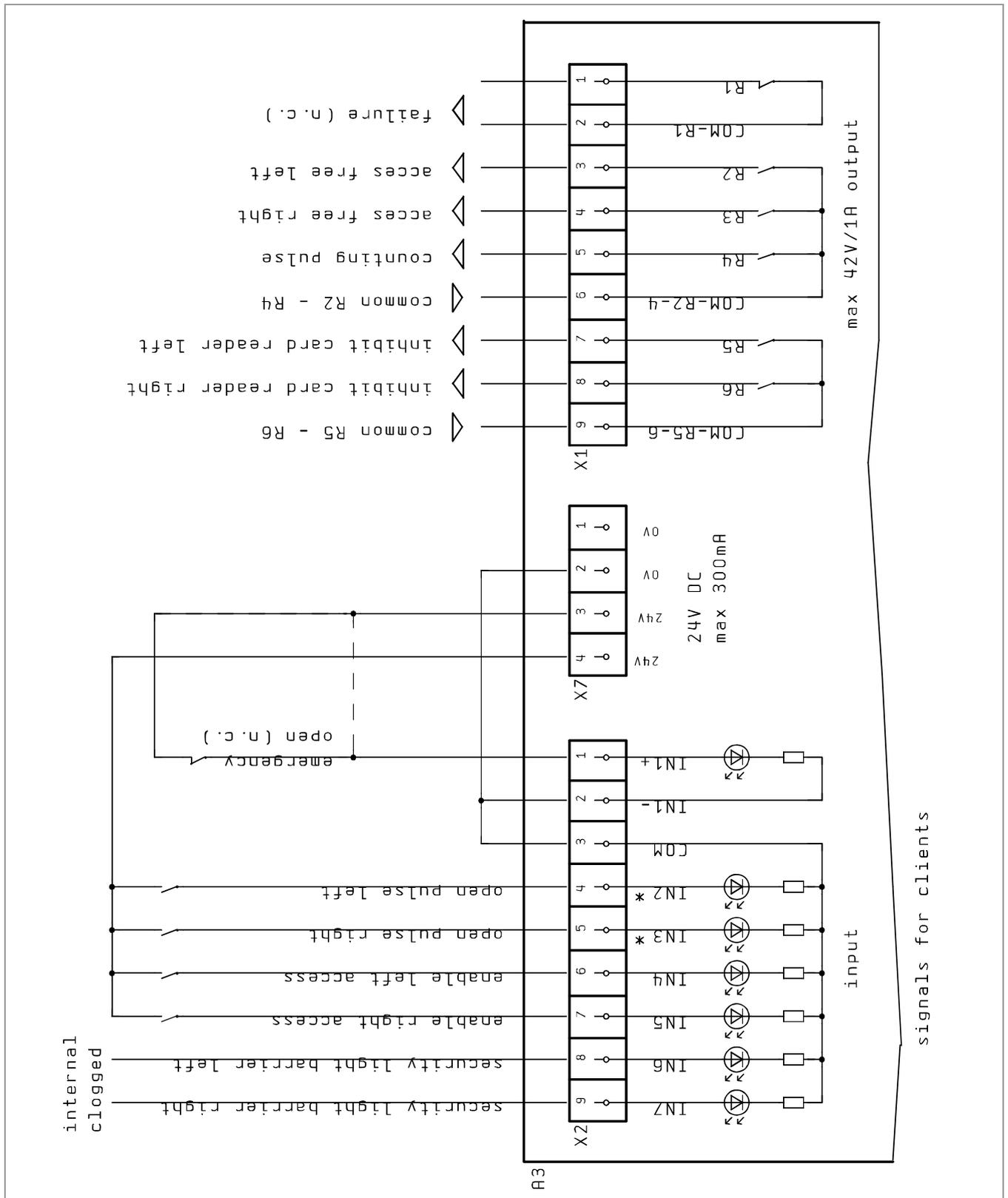


Fig. 6-4 Wiring diagram 2

## 7. Access Control Devices

When installing access control devices the following measures for mounting has to be considered.

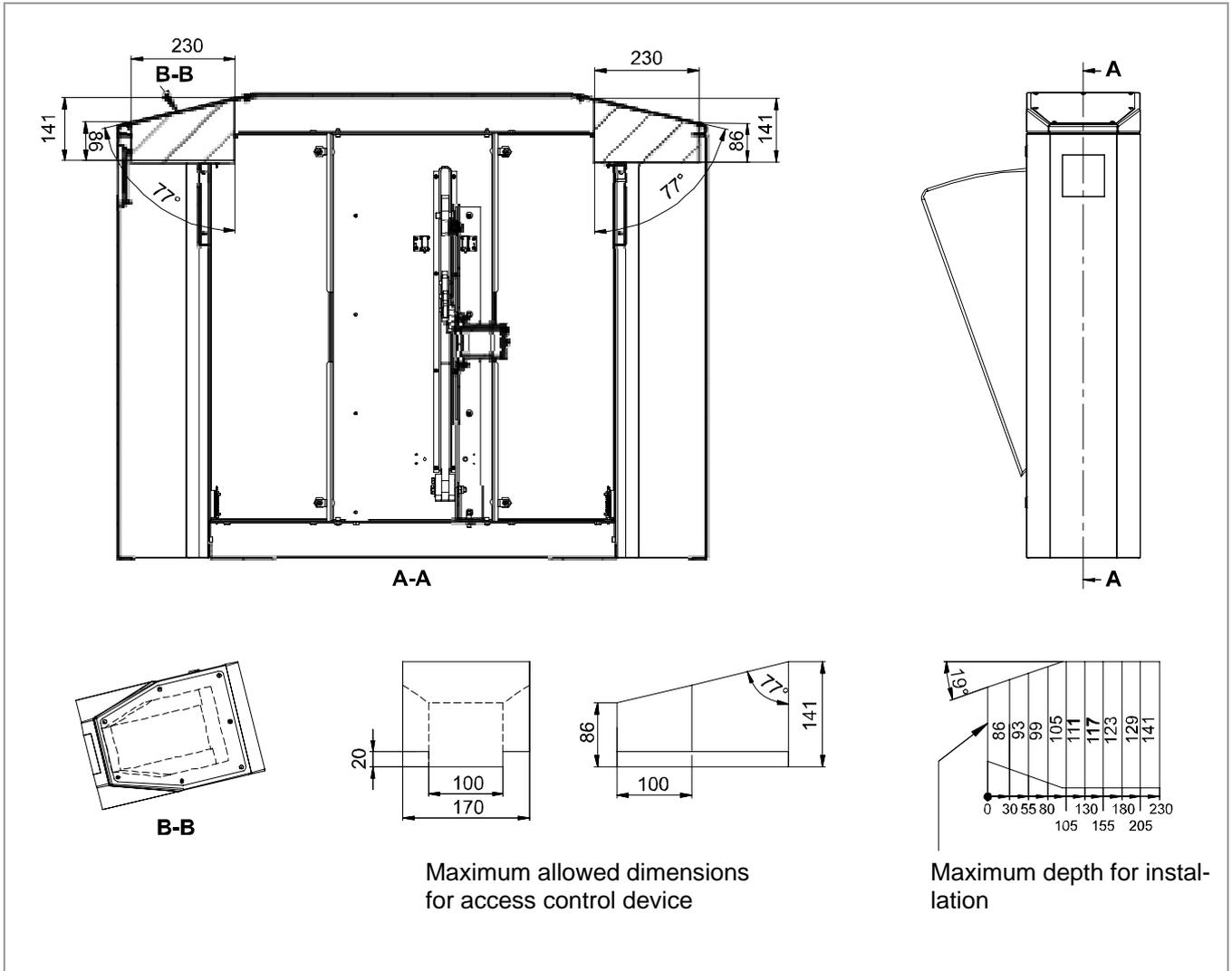


Fig. 7-1 Mounting instructions for access control device

## 8. Commissioning

### 8.1 General

After the mechanical and electrical installation of the gate it can be set in operation. Before starting the system it has to be checked that all mechanical work as well as electrical installation has to be carried through correctly.

To avoid the risk of injury and damage arising from any unintentional barrier movements during initial operations all persons and objects should be kept clear of the barrier zone.



#### **WARNING!**

Before the initial operation it has to be ensured that all mechanical work and electrical installation has to be carried through correctly.

In case of non-observance there is a risk of injury and damage by malfunctions.

All mounting and installation instructions of this manual have to be adhered strictly.

---

- After every power return (main switch ON) the wings move first into closed position (Reference drive, with reduced speed).
- There are two possible exceptions:
  - o There is an active opening impulse.
  - o The emergency input or the enable input is not energized at the MBC controller.



#### **NOTE!**

Take into consideration that the safety PE-beams are in active status during the start procedure!

---

### 8.2 Start- Up instructions

With the help of the steps specified in the brief instruction a fast start-up of the unit can take place.

The points for wiring described below have to be accomplished with the first installation before the start-up of the MPR.

Find the details to the appropriate points indicated in the cross references.

#### Point 1

It has to be checked, if the inputs IN1+ and IN1- are wired. If not, it has to be installed. The inputs IN1+ and IN1- must be connected to plus respectively minus. This is done by a bridge of 0 and 24 V or by an external switch.

For details refer to schematic Fig. 9-5, page 59.

#### Point 2

Determination of potential at COM (terminal3). This is done by a bridge of 0 or 24 V. Standard for COM is -0 V bridging. That means all inputs have to be plus switched. It can also be executed in opposite.

#### Point 3

Determination of out-of-Service mode by bridging of IN4 and IN5, standard switching +24 V.

For details refer to chapter 9.4, table IN 4 and IN5 on page 45.

#### Point 4

Wiring of several inputs, e.g card reader.

For details refer to chapter 9.4 „Description Mode 2“, table IN2 and IN3 on page 45.

#### Point 5

Please check DIP 11 setting ( see page 41 point. 9.3.8)

## 9. Functional description of MBC110

### 9.1 Inputs and Outputs

The program is applied to controllers of the series MBC-110A-Fxxx. The hardware components described below are available.

#### 9.1.1 Hardware of Inputs

The inputs 1 to 7 are optical isolated by opt-couplers. They are connected to one plug-in connector.

The inputs 2 to 7 have one common connection which can be linked alternatively by GND or +24 V. Thus it is possible to switch the inputs active "high" or "low".

The input 1 is double-pole which means independent from the other inputs. Another external potential can be applied. The input is connected with the ASB input of the servo-controller. Thus a number of servo-controllers can be enabled via a combined connection.

Furthermore it is possible by parallel connection of the inputs 1 to enable several gates by an external signal respectively to switch them powerless.

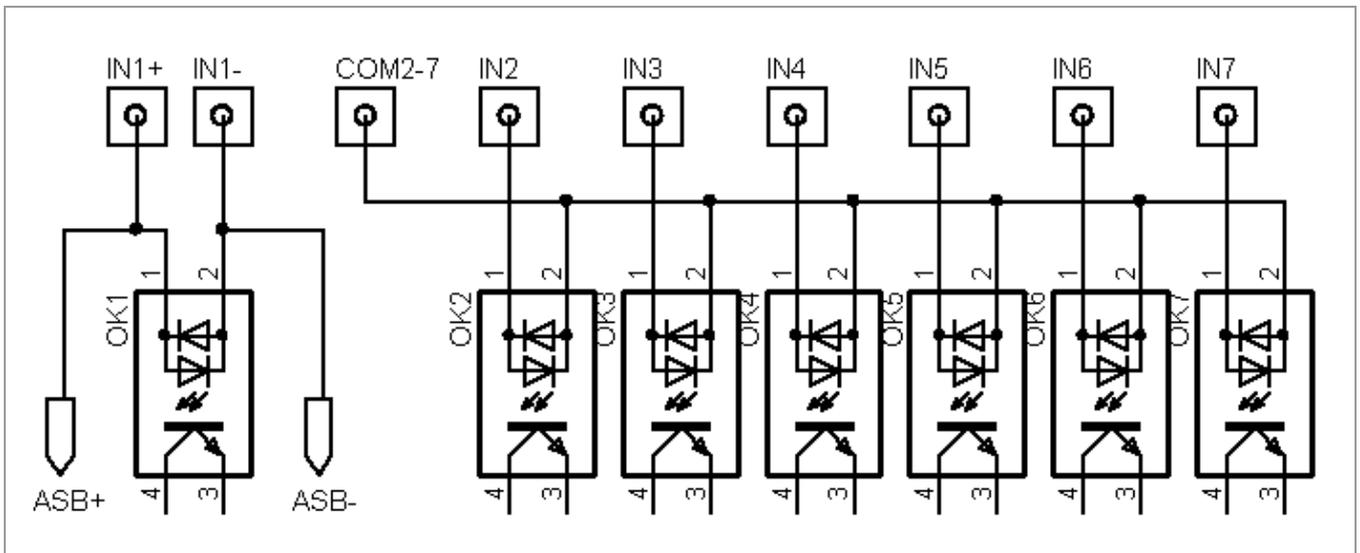


Fig. 9-1 Input connections, simplified diagram

## Functional description of MBC110

### 9.1.2 Hardware relay outputs

The relay outputs 1 to 6 are led on a common connection plug board.

Several groups are summarized in order to economize connecting terminals.

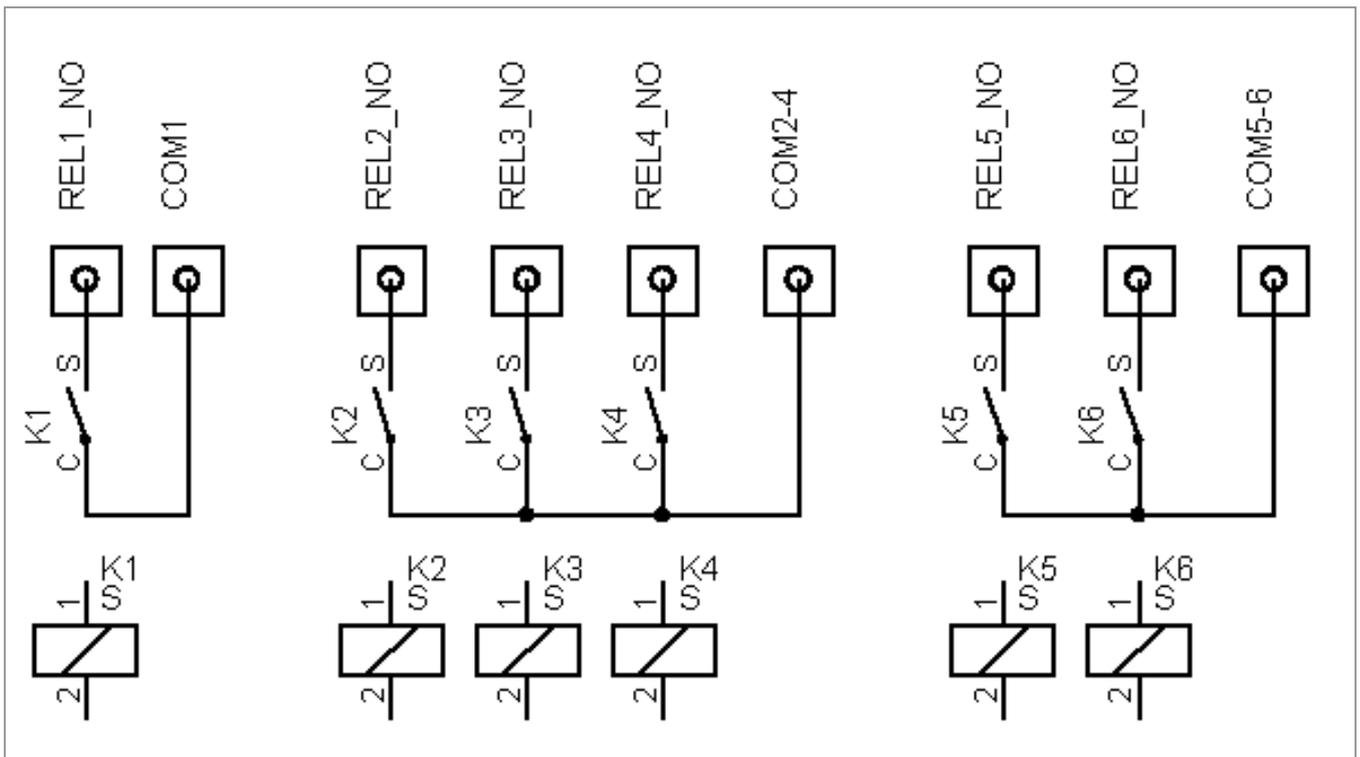


Fig. 9-2 Connection of relay outputs, simplified diagram

## Functional description of MBC110

### 9.2 Additional internal inputs and outputs

#### 9.2.1 Hardware of the internal inputs and outputs

The additional inputs and outputs are not needed in each mode of operation. They can be used also for special functions.

The outputs concern MOSFET drivers, the inputs are opto on. The in-puts are on one side on the internal GND potential and thus may not be led out from the housing of the barrier; this applies likewise to the exits.

For each of the 4 exits a separate voltage regulator is present. Maximum Output current is limited on 500mA / 120V (AC  $\approx$ ) per output.

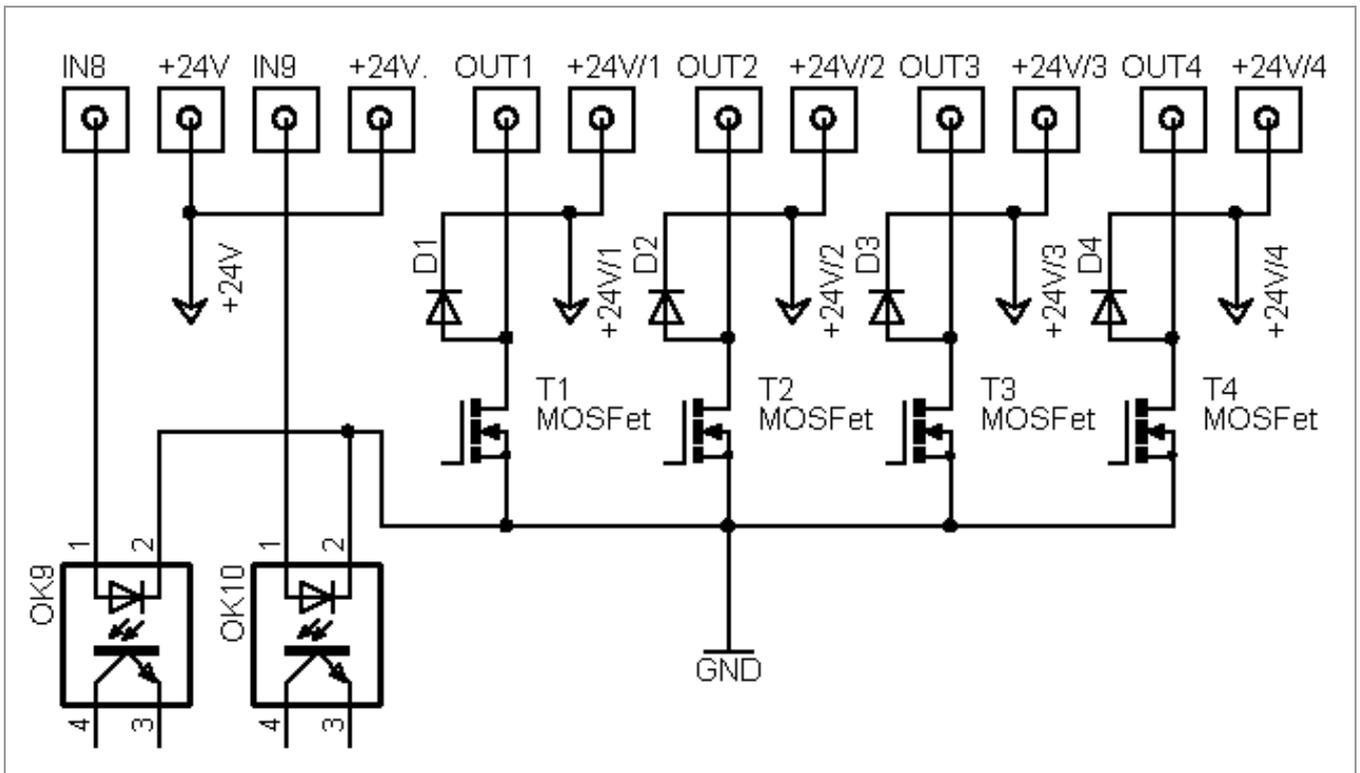


Fig. 9-3 Connection of additional inputs and outputs, simplified diagram

## Functional description of MBC110

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### 9.2.2 Default input functions

Input 1 is not alterable because the input on the hardware side is connected with the ASB input of the servo output stages

Inputs 2 and 9 are alterable with other functions by parameters.

Input	Default / Factory settings
Input 1	Emergency
Input 2	Open left, e.g. card reader
Input 3	Open right, e.g. card reader
Input 4	Clearance gate left
Input 5	Clearance gate right
Input 6	Safety PE left 1
Input 7	Safety PE right 1
Input 8	Logic. PE left
Input 9	Logic PE right

#### Input 1 = Entrance Emergency

Input 1 is not alterable.

In case of emergency both directions are permanently open. The drive is current supplied only with request of a continuous signal. When the signal dies out the passage is free in both directions. This input is superior to all other inputs.

#### Input 2 = Open left

Input impulse for passage left (entry)

#### Input 3 = Open right

Input impulse for passage right (exit)

## Functional description of MBC110

---

### Input 4 = Clearance Mode

Determine the use direction of the gate.

IN 4	IN 5	Clearance Mode
0	0	Out of service = wings closed
1	0	Entry Mode = passage only from entry / left
0	1	Exit Mode = passage only from exit/ right
1	1	Bi-directional Mode = passage from both direction

1 = active; 0 = not active

### Input 6 = Safety PE left

Controlling of the safety area as personal security. Logic inversed; means signal as long as the beam is free; Fail-safe active.

### Input 7 = Safety PE right

Controlling of the safety area as personal security. Logic inversed; means signal as long as the beam is free; Fail-safe active.

### Input 8 = second PE left

Controlling of the safety area as personal security. Logic inversed; means signal as long as the beam is free; Fail-safe active.

- Mode 2: PE beam before card reader left

### Input 9 = second PE right

Controlling of the safety area as personal security. Logic inversed; means signal as long as the beam is free; Fail-safe active.

- Mode 2: PE beam before card reader right

## Functional description of MBC110

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### 9.2.3 Default function of outputs

The function of relay 1 is not alterable because this output is also used as feedback for power supply loss.

Output	Default function
Relay 1	Collected Alarm message / Voltage failure
Relay 2	Ready for passage left
Relay 3	Ready for passage right
Relay 4	Count output
Relay 5	Inhibit card reader left
Relay 6	Inhibit card reader right
MOSFet-output 1	GED left red
MOSFet- output 2	GED left green
MOSFet- output 3	GED right red
MOSFet- output 4	GED right green

#### Relay 1 = Collected Alarm message / alarm output

Collected alarm messages, alarm permanent as long as the failure appears.

Failure description:

- Impact detection
- Emergency input activated
- CAN communication with output stage disturbed
- Hardware failure output stage
- Software failure output stage
- Voltage drop



### **NOTE!**

In that a wire break is to be indicated at the global alarm output, relay 1 is inverted operated. That means that the relay is energized as long as no error is present.

As soon as one of the described errors appears the relay will be switched off.

---

### **Relay 2 = Ready for passage left**

Gives a permanent signal as long as the gate is ready for the passage.

### **Relay 3 = Ready for passage right**

Gives a permanent signal as long as the gate is ready for the passage.

### **Relay 4 = Count impulse right or left**

After a walk through detection, the Relay 4 is activated for 300 ms in one individual direction; also valid for permanent passage. Determined by DIP switch 8.

### **Relay 5 = Inhibit card reader left (opposite locking)**

Gives an output to lock the card reader right, if the passage left is given free (by card reader left).

### **Relay 6 = Inhibit card reader right (opposite locking)**

Gives an output to lock the card reader left, if the passage right is given free (by card reader right).

## Functional description of MBC110

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### **Output 1 = Gate End Display left red**

This output controls the red cross at left GED.

### **Output 2 = Gate End Display left green**

This output controls the green arrow at left GED.

### **Output 3 = Gate End Display right red**

This output controls the red cross at right GED.

### **Output 4 = Gate End Display right green**

This output controls the green arrow at right GED.

## **9.2.4 Function of the diagnostic display**

The 7 segment display is designed for purpose of convenient diagnostics. It indicates various operating conditions and error messages..

### **Normal operating status**

Indication by a permanent blinking segment with 0.5 Hz.

### **Display of software version**

First the character "U" is displayed followed by the major releases (with dot), then the Minor release and at last an interval. After that the cycle starts again.

Each status is displayed for 2 seconds.

## Functional description of MBC110

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### Display of error codes

First the character "E" (error) is displayed followed by the first number of the error code, the second number of the error code (plus dot) and at least an interval. After that the cycle starts again.

Each status is displayed for 2 seconds.

Error code	Error description	Auto reset
01	Safety PE – beams covered before " INIT"	yes
02	Emergency input not energized	yes
03	PE – beams covered during " INIT"	yes
04	Vandalisms (forced)	yes
05	Impact identified	yes
06	Wrong direction (wrong-way)	yes
07	Watchdog Timer Reset	no
08	Enable input IN5 not energized	yes
09	Not used	
10 - 13	PE beams permanent covered	yes
20	CRC error Flash	no
21 - 39	Not used	
40	Error homing ( span )	no
41	Invalid program mode	no
42	Servo not ready	no
43	Servo Fail State	no
44 – 59	Not used	
60	Error of CAN – protocol stack initialising	no
61	Initialising CAN-Bus Error	no
62	Error CAN-Servo address	no
63	Download Error of the automatic controller parameters to the servo	no
64	Servo not found	no
65	Error I <sup>2</sup> C-EEPROM	no
60 – 79	Communication Error	no
80 – 99	Reserve	

Error codes with automatic reset function will displayed for further 10 seconds after the error is rectified. But as long as the error exists as long the error code is displayed.

All other errors will cause pedestrian barriers to be set out of operation. The error code will be displayed permanently until the new start of the controller after rectification of the fault.

### 9.3 Parameter settings

The following functions are settable via the DIP switches.

#### 9.3.1 DIP-switch 1: Pulse Storage

If the pulse storage is switched off, the MPR will be opened due to a pulse released at one of the both opening inputs. Any following pulses will be ignored as long the MPR remains still open.

If the pulse storage is activated, several opening pulses can be stored. The pedestrian pivot stays open, until all stored pulses are executed and the pulse store is cleared. Each passage will reduce the pulse by 1.

DIP 1	Pulse Storage
Off	No pulse stored
On	Up to 5 pulses can be stored

#### 9.3.2 DIP- switch 2: Buzzer

The buzzer is an acoustic alarm signal. A permanent alarm signal indicates a passage in wrong direction or error of the controller.

An additional sound can be switched on for confirmation of a valid request.

DIP 2	Buzzer
Off	Confirmation sound off
On	Confirmation sound on

## Functional description of MBC110

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### 9.3.3 DIP- switch 3 and 4: Safety delay time

It is the additional time after receiving the closed command. After the safety delay time the wings close.

The safety delay time is adjustable in 4 steps:

DIP 3	DIP 4	Safety delay time
Off	Off	0 s
On	Off	1 s
Off	On	2 s
On	On	3 s

### 9.3.4 DIP- switch 5 and 6: Hold open time

The hold-open time is a defined period during the MPR is ready for passage after receipt of an opening pulse and nobody enters for passage. After this period expire the MPR locks (if nobody walks through).

The hold-open time can be adjusted at 4 levels:

DIP 5	DIP 6	Hold open time
Off	Off	2 s
On	Off	4 s
Off	On	6 s
On	On	12 s

### 9.3.5 DIP- switch 7: Request of the Software Version

If this function is requested during operation mode, the update version is indicated in circular mode at the 7 segment display.

DIP 7	Update Version Software
Off	Operating mode display
On	Update Version displayed

## Functional description of MBC110

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### 9.3.6 DIP- switch 8: Set of the count impulse

Select if pulse needed counted after passage ( independent of the passage direction of the user)

DIP 8	direction
Off	Counts impulse after passage
On	Not used

### 9.3.7 DIP- switch 9 and 10: Program - Mode

By selecting the program mode it is determined which control program starts after power supply on and control reset.

DIP 9	DIP 10	Programme mode
Off	Off	Reserve
On	Off	MPR Mode 2
Off	On	Mode 3 (KPR Mode)
On	On	Reserve

### 9.3.8 DIP- switch 11: Determine entrance direction

The DIP switch 11 determines if the long side left is the entrance, or the short side right is the entrance.

For details refer to chapter 4.2 on page 16 and Fig. 1-1 on page 6.

DIP 11	Determination of Entrance side
Off	left – long side entrance
On	right – short side entrance

### 9.3.9 DIP- switch 12: Behaviour after impact detection

Determines the behaviour after an impact detection.

DIP 12	Behaviour after impact detection
Off	Wings are still try to close (no retract)
On	Wings open immediately and try to close with reduced speed

## Functional description of MBC110

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### 9.3.10 DIP- switch 13: Reverse during closing

After receiving the close signal the wings try to close. If the PE beams are covered before receiving the closed position, the wings can either retract or continue closing operation.

DIP 13	Retract
Off	Wings continue the closing procedure
On	Wings open and stays open until blocked PE beam

### 9.3.11 DIP- switch 14 - 15: Wing-Type

Determine the MPR wing type and aisle width

DIP 14	DIP 15	Housing width	Wing type / aisle width
Off	<i>On</i>	250	Acrylic
On	<i>On</i>	250	Soft
Off	Off	200 telescopic	Gate width 520
On	Off	200 telescopic	Gate width 550
Off	<i>On</i>	200 telescopic	Gate width 600
On	<i>On</i>	200 telescopic	Gate width 600
Off	X	280 telescopic	Gate width 960
On	X	280 telescopic	Gate width 900

## Functional description of MBC110

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### 9.3.12 DIP- switch 16: Reserve

For future applications.

DIP 16	Reserve
Off	free
On	free

### Hold-Open time

The hold-open time is displayed as countdown in 1 s steps. If the rest hold open time is above 9 s the display shows a special character or "F" (Free).

### Safety delay time

The Safety delay time is displayed as countdown in 1 s steps. The maximum time is normally 5 s.

## Functional description of MBC110

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### 9.4 Description Mode 2

Mode 2 allows free entry or exit in both directions. This requires the installation of two PE beams at the end of the barriers close to the card readers (standard).

The two light beams can have two functions. First it allows free entry or exit by opening the flaps when a person comes from the correct direction, and secondly it allows the controller to detect persons coming from an incorrect direction, hence the barrier remains closed.



#### Note!

The gate is always in status closed (except Emergency and fully free), if no opening pulses are interpreted (closed mode).

---

Mode 2 allows the following setup:

Emergency, Out-of-service, Entry, Exit, Bi-directional, Free Entry, Free Exit, Free Entry – Controlled Exit, Controlled Entry – Free Exit, Fully Free

The operation modes are controlled via the inputs IN1 to IN5..

IN1 Emergency	IN 2 Open left	IN3 Open right	IN4 Barrier locked left	IN5 Barrier locked right	Resulting Operation mode
0	x	x	x	x	Emergency
1	x	x	0	0	Out of Service
1	pulse	x	1	0	Entry
1	x	pulse	0	1	Exit
1	pulse	pulse	1	1	Bi-directional
1	1	x	1	0	Free Entry
1	x	1	0	1	Free Exit
1	1	pulse	1	1	Free Entry, controlled exit
1	pulse	1	1	1	Free Exit, controlled entry
1	1	1	1	1	Fully Free

0 = not active; 1 = active; x = non relevant

### 9.4.1 Mode 2: Emergency Mode

The emergency input IN1 supersedes any other input. The emergency input is NORMALLY CLOSED; if this signal is open, the barrier opens immediately overriding any other existing and ignoring following inputs.

The barrier remains open until the emergency signal is activated.

#### Direction left (entry):

- Barrier End Display left shows green arrow
- Opening input impulse left is ignored
- PE beam card reader left ignored
- Display exit open left turned on
- Output Access control Exit left Disabled is on

#### Direction right (exit):

- Barrier End Display right shows green arrow
- Opening input impulse right is ignored
- PE beam card reader right ignored
- Display exit open right turned on
- Output Access control Exit right Disabled is on

### 9.4.2 Mode 2: Out-of-service Mode

IN4 and IN5 lock the barrier in the corresponding direction (IN4 left and IN5 right). This means that if IN4 or IN5 is open the passage in the corresponding direction is locked and no opening signal is accepted.

#### Direction left (entry):

- Barrier End Display shows RED CROSS
- Opening input Left disabled
- Output Exit Open Left turned off
- Output Access control Entry Left Disabled is on

## Functional description of MBC110

---

### **Direction right (exit):**

- Barrier End Display shows RED CROSS
- Opening input Right disabled
- Output Exit Open Right turned off
- Output Access control Exit Right Disabled is on

While the Out-of-Service mode is activated the controller activates an alarm output every time a person walks into the light beams coming from the “out-of-service” direction.

### **9.4.3 Mode 2: Entry Mode**

If IN4 is activated (contact closed) and IN5 disabled (contact open) the barrier allows passage only from left to right (entry). Any opening inputs on IN4 are ignored.

### **Direction left (entry):**

- Barrier End Display shows GREEN ARROW
- Opening input Left is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Left turned on
- Output Access control Entry Left Disabled is off

### **Direction right (exit):**

- Barrier End Display shows RED CROSS
- Opening input Right disabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned off
- Output Access control Exit Right Disabled is on

In case a person is trying to walk through the barrier from an incorrect direction, the controller immediately activates an alarm output and the barrier remains closed. This alarm turns off after 2 s when the person backs out of the barrier.

If a person walks into the barrier from the controlled direction without presenting a valid identification within 5 seconds, the controller activates an alarm output as well. The alarm turns off after 2 s when the person backs up, or presents the valid identification to the card reader.

### 9.4.4 Mode 2: Exit Mode

If IN5 is activated (contact closed) and IN4 disabled (contact open) the barrier allows passage only from left to right (entry). Any opening inputs on IN 4 are ignored.

#### Direction left (entry):

- Barrier End Display shows GREEN ARROW
- Opening input Left is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Left turned off
- Output Access control Entry Left Disabled is on

#### Direction right (exit):

- Barrier End Display shows GREEN ARROW
- Opening input Right enabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

In case a person is trying to walk through the barrier from an incorrect direction, the controller immediately activates an alarm output and the barrier remains closed. This alarm turns off after 2 s when the person backs out of the barrier.

If a person walks into the barrier from the controlled direction without presenting a valid identification within 5 seconds, the controller activates an alarm output as well. The alarm turns off after 2 s when the person backs up, or presents the valid identification to the card reader.

## Functional description of MBC110

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### 9.4.5 Mode 2: Bidirectional Mode

If both, IN4 and IN5 is activated (contact closed) the barrier allows passage from both directions.

#### Direction left (entry):

- Barrier End Display shows GREEN ARROW
- Opening input Left is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Left turned on
- Output Access control Entry Left Disabled is off

#### Direction right (exit):

- Barrier End Display shows GREEN ARROW
- Opening input Right enabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

As soon one side receives, a valid opening pulse (access card reader, etc.) the end display on the opposite side will change to a RED CROSS and all opening inputs from the opposite side are disabled. Upon successful completion of a walkthrough, the end display changes to a GREEN ARROW and both sides accept opening commands again.

The exception of the above is when the option "Input Count" was selected. The Input Count feature stores opening pulses until the person passes through the unit. Every opening input on IN2 and IN3 increments the count and every walkthrough decrements the count by one. Therefore, if the Input Count feature is active in Bidirectional mode the access control device can be used simultaneously from both directions.

If a person walks into the barrier from the controlled direction without presenting a valid identification within 5 seconds, the controller activates an alarm output. The alarm turns off after 2 s when the person backs up, or presents the valid identification to the card reader.

### 9.4.6 Mode 2: Free Entry Mode

If IN4 is activated (contact closed) and IN5 disabled (contact open) the barrier allows passage only from left to right (entry). Any access control opening inputs on IN5 are ignored.

As soon a person walks into the directional beam set the barrier opens (granted that the person approached the barrier from the correct direction) and the open-hold-time is being activated. The opposite direction is disabled and an alarm is being activated when a person comes from the wrong direction.

If the passage is begun in the correct direction, so after releasing the high-speed closing and interrupting the light barrier before the card reader an OFF period of 2 s must be set. In this time no wrong way alarm must be occur. Becomes a Safety light barrier active during the closing time, the time is after-triggered. This can be necessary because of a rolling suit-case which is pulled afterwards.

#### **Direction left (entry):**

- Barrier End Display shows GREEN ARROW
- Opening input Left is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Left turned on
- Output Access control Entry Left Disabled is off

#### **Direction right (exit):**

- Barrier End Display shows RED CROSS
- Opening input Right disabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned off
- Output Access control Exit Right Disabled is on

In case a person is trying to walk through the barrier from an incorrect direction, the controller immediately activates an alarm output and the barrier remains closed. This alarm turns off after 2 s when the person backs out of the barrier.

### 9.4.7 Mode 2: Free Exit Mode

If IN5 is activated (contact closed) and IN4 disabled (contact open) the barrier allows passage only from right to left (exit). Any access control opening inputs on IN 4 are ignored.

As soon a person walks into the directional beam set the barrier opens (granted that the person approached the barrier from the correct direction) and the open-hold-time is being activated. The opposite direction is disabled and an alarm is being activated when a person comes from the wrong direction.

If the passage is begun in the correct direction, so after releasing the high-speed closing and interrupting the light barrier before the card reader an OFF period of 2 s must be set. In this time no wrong way alarm must be occur. Becomes a Safety light barrier active during the closing time, the time is after-triggered. This can be necessary because of a rolling suit-case which is pulled afterwards.

#### Direction left (entry):

- Barrier End Display shows GREEN ARROW
- Opening input Right is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

#### Direction right (exit):

- Barrier End Display shows RED CROSS
- Opening input Left disabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Left turned off
- Output Access control Entry Left Disabled is on

In case a person is trying to walk through the barrier from an incorrect direction, the controller immediately activates an alarm output and the barrier remains closed. This alarm turns off after 2 s when the person backs out of the barrier.

### 9.4.8 Mode 2: Free Entry, Controlled Exit Mode

If IN4 and IN5 are active and the opening signal at IN2 is maintained the barrier is set-up for free entry (right) and controlled exit (left) through an access control device.

The barrier is always closed and opens as soon as a person enters the lane from the "free direction" or makes use of a valid ID card (or other valid media) at the controlled exit.

If the passage is begun in the correct direction, so after releasing the high-speed closing and interrupting the light barrier before the card reader an OFF period of 2 s must be set. In this time no wrong way alarm must occur. Becomes a Safety light barrier active during the closing time, the time is after-triggered. This can be necessary because of a rolling suit-case which is pulled afterwards.

#### Direction left (entry):

- Barrier End Display shows GREEN ARROW
- Opening input Right is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

#### Direction right (exit):

- Barrier End Display shows GREEN ARROW
- Opening input Right enabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

As soon one side receives, a valid opening pulse (directional beams, access card reader, etc.) the end display on the opposite side will change to a RED CROSS and all opening inputs from the opposite side are disabled. Upon successful completion of a walk-through, the end display changes to a GREEN ARROW and both sides accept opening commands again.

If there is an opening impulse at the controlled side the gate opens when the PE beam is free at the empty side.

### 9.4.9 Mode 2: Controlled Entry, Free Exit Mode

If IN4 and IN5 are active and the opening signal at IN3 is maintained the barrier is setup for free exit (left) and controlled entry (right) through an access control device.

The barrier is always closed and opens as soon as a person enters the lane from the “free direction” or makes use of a valid ID card (or other valid media) at the controlled exit.

If the passage is begun in the correct direction, so after releasing the high-speed closing and interrupting the light barrier before the card reader an OFF period of 2 s must be set. In this time no wrong way alarm must be occur. Becomes a Safety light barrier active during the closing time, the time is after-triggered. This can be necessary because of a rolling suit-case which is pulled afterwards

#### Direction left (entry):

- Barrier End Display shows GREEN ARROW
- Opening input Right is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Entry Open Left turned on
- Output Access control Entry Left Disabled is off

#### Direction right (exit):

- Barrier End Display shows GREEN ARROW
- Opening input Right enabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

As soon one side receives, a valid opening pulse (directional beams, access card reader, etc.) the end display on the opposite side will change to a RED CROSS and all opening inputs from the opposite side are disabled. Upon successful completion of a walk-through, the end display changes to a GREEN ARROW and both sides accept opening commands again.

If there is an opening impulse at the controlled side the gate opens when the PE beam is free at the empty side

### 9.4.10 Mode 2: Fully Free Mode

To setup the barrier to “free mode” in both directions, the signal on IN2, IN3, IN4, and IN5 must be maintained.

The barrier remains open at all times. No directional logic is activated.

#### Direction left (entry):

- Barrier End Display shows GREEN ARROW
- Opening input Right is activated
- Directional beams are active and evaluated based on the walk-through direction
- Output Entry Open Left turned on
- Output Access control Entry Left Disabled is off

#### Direction right (exit):

- Barrier End Display shows GREEN ARROW
- Opening input Right enabled
- Directional beams are active and evaluated based on the walk-through direction
- Output Exit Open Right turned on
- Output Access control Exit Right Disabled is off

This mode is used for free passage in both directions.

### 9.4.11 Mode 2: Non voltage status

In the non voltage status the motors are not energized. The passage is free.

### 9.4.12 Mode 2: Starting system

Home position: There is no need for learning the Home position.

After switching on the supply voltage the wings drive first into the opened end position at the rubber stop. The resulting current rise signals to the control that the end position is reached. This is then used as point of reference for the “Home position”.

The barrier closes only if an instruction was recognized by the superior control system.

### 9.4.13 Mode 2: Normal Operation

#### Without Input Count

The barrier can be opened individually via the opening inputs IN2 (left) and IN3 (right) or directional beams (free entry or exit, or both). As soon the controller received an input on either of the opening inputs, the "hold open timer" is being activated. At the same time, the controller provides an output for a display or "red/green" signage indicating the patron that he or she is allowed to walk though or in the opposite direction that the lane is occupied.

If for any reason the patron does not walk though the lane before the „hold opening timer“ has elapsed the barrier will close and the opening input erases. In applications, using cons or tokens to allow entry or exit the token or coin is lost.

The barrier will close immediately after the patron passes through both, the top and the bottom, safety beams and the "hold open timer" is erased.

The controller provides a feature called "closing delay timer". If this feature is activated the barrier delays the closing of the flaps until this preset-able time has elapsed.

Note: The barrier closes only if all safety beams are clear, meaning that no person or object is activating the beams.

We do provide a feature that allows the operator to choose whether the barrier should continue to close if a safety beam is activated while the flaps are already in the closing process. This is an effective tool to prevent tailgating.

#### With Input Count

The Input Count Feature stores five (5) opening pulses until the person passes through the unit. Every opening input on IN2 and IN3 increments the count and every walkthrough decrements the count by one. Therefore, if the Input Count feature is active in Bidirectional mode the access control device can be used simultaneously from both directions. The barrier remains open until the stored count reaches zero again.

### **PE beams nearby both card readers**

Both PE beams near the card readers are urgently required in Mode 2. Without the PE beams Mode 2 cannot be run.

The PE beams have the following functions:

- If a person moves into a PE beam at the passage without opening pulse the card reader at the other side will be locked. No opening impulses are interpreted at this side. Further an alarm is activated when a person moves into the PE beam near the card reader without a valid request.
- In bi-directional mode the GED at the opposite side is switched red when at the request side an opening signal is detected. After passage or after the hold-open time without passage the GED is switched back to green (standard position).

### **Mode changing during operation**

If a mode is changed during operation (e.g. from entry to exit mode) no opening impulses process data must be lost.

The mode change is recorded but it is done not until the last opening impulse is processed.

After recording a mode change no new opening impulses are accepted. That means both opening entries must be ignored and both card readers must be locked.

### **9.5 Special cases within the operating procedure**

#### **9.5.1 Impact recognition**

Persons are protected in the safety area by the means of the PE-beams logic and no impact happens. It is possible that an object (e.g. a suitcase) is passing the safety area when closing the wings. Because of its form it cannot be recognized from the safety PE-beams. In this case an impact can hit the object.

Depending from position of DIP switch 12 the gate must react differently by recognizing an impact.

##### **DIP 12 = OFF:**

An identified hindrance is ignored. The barrier continues to close.

##### **DIP 12 = ON:**

The barrier opens immediately upon realizing an object and closes again with reduced speed to make sure the object does not get damaged (1 s delay time).

At the same time an alarm output is activated.

#### **9.5.2 Breakthrough attempts**

Depending on the adjusted force the wings are blocked in the final position (levers in neutral) or they can be pushed open by a certain force in opening direction.

#### **9.5.3 Emergency Situation**

If during operation the emergency input is being activated the barrier goes immediately into safe mode. Hence, the springs are pulling the flaps open allowing free lane passage in both directions.

Upon releasing of the emergency contact, the barrier goes back to normal operation.

Functional description of MBC110

9.6 MBC110 circuit diagrams

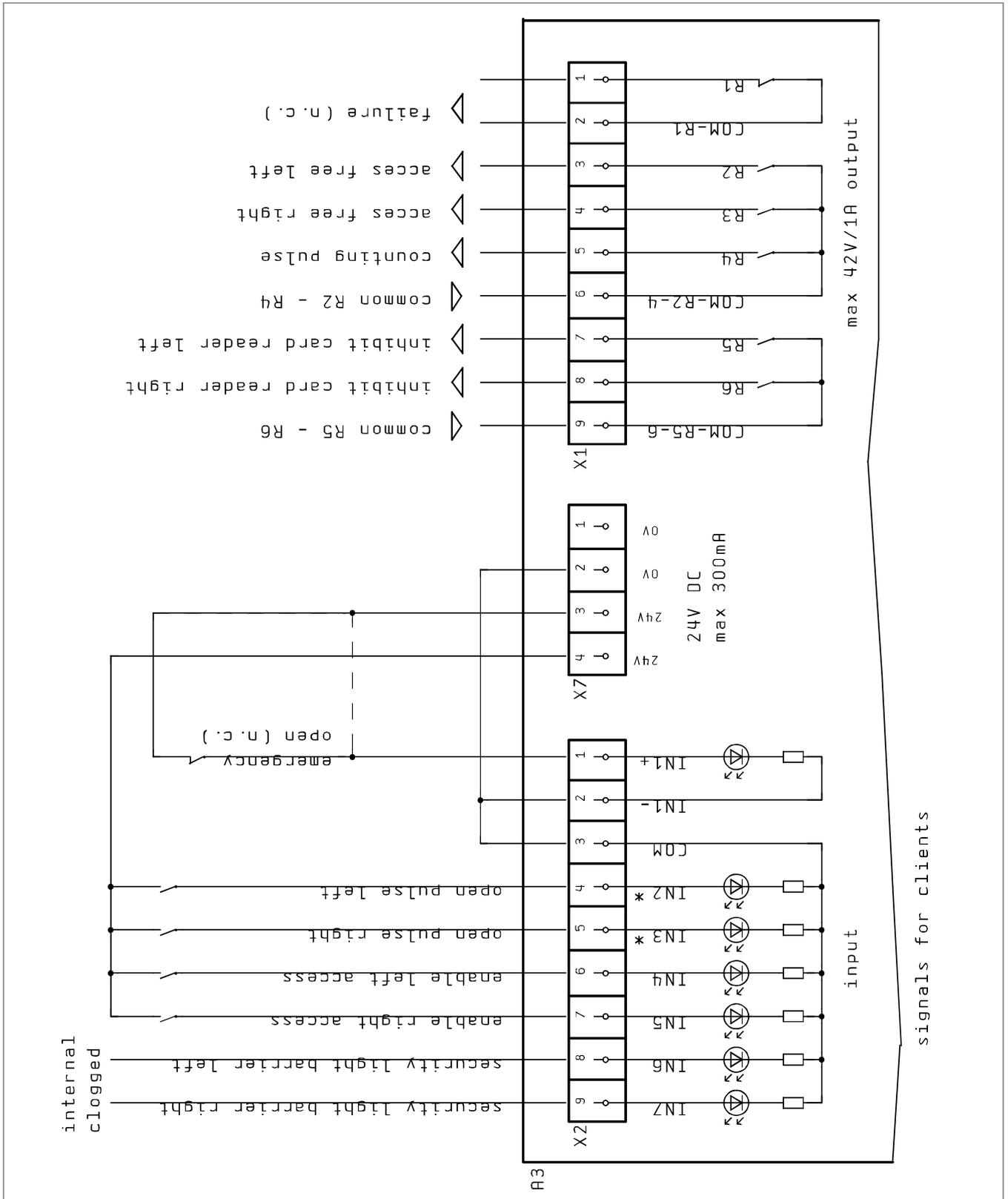


Fig. 9-4 MBC Connection diagram

Functional description of MBC110

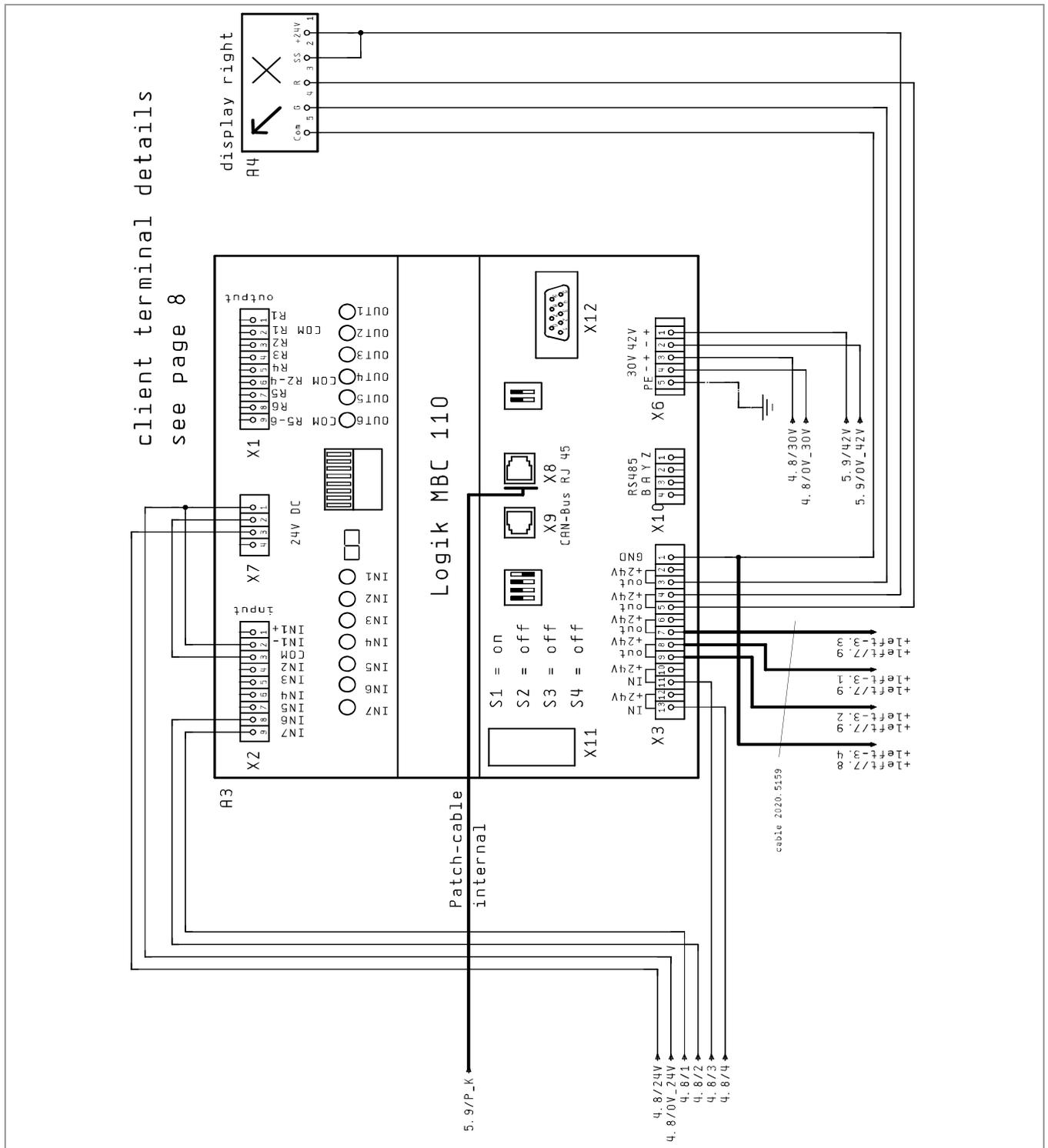


Fig. 9-5 Logic Module MBC 110

### 10. MMC-120-200 Controller

The MMC controller has been wired and adjusted und left the factory in a fully operational condition. Other adjustments are not possible by default. The DIP switches are for scheduling the CAN Bus and cannot be changed.

Conversions and modifications to the control module are not permitted. If, at any time you require to replace this controller (e. g. in case of repair) please arrange the terms of replacement with Magnetic before as otherwise any liability and warranty is declined by the manufacturer.

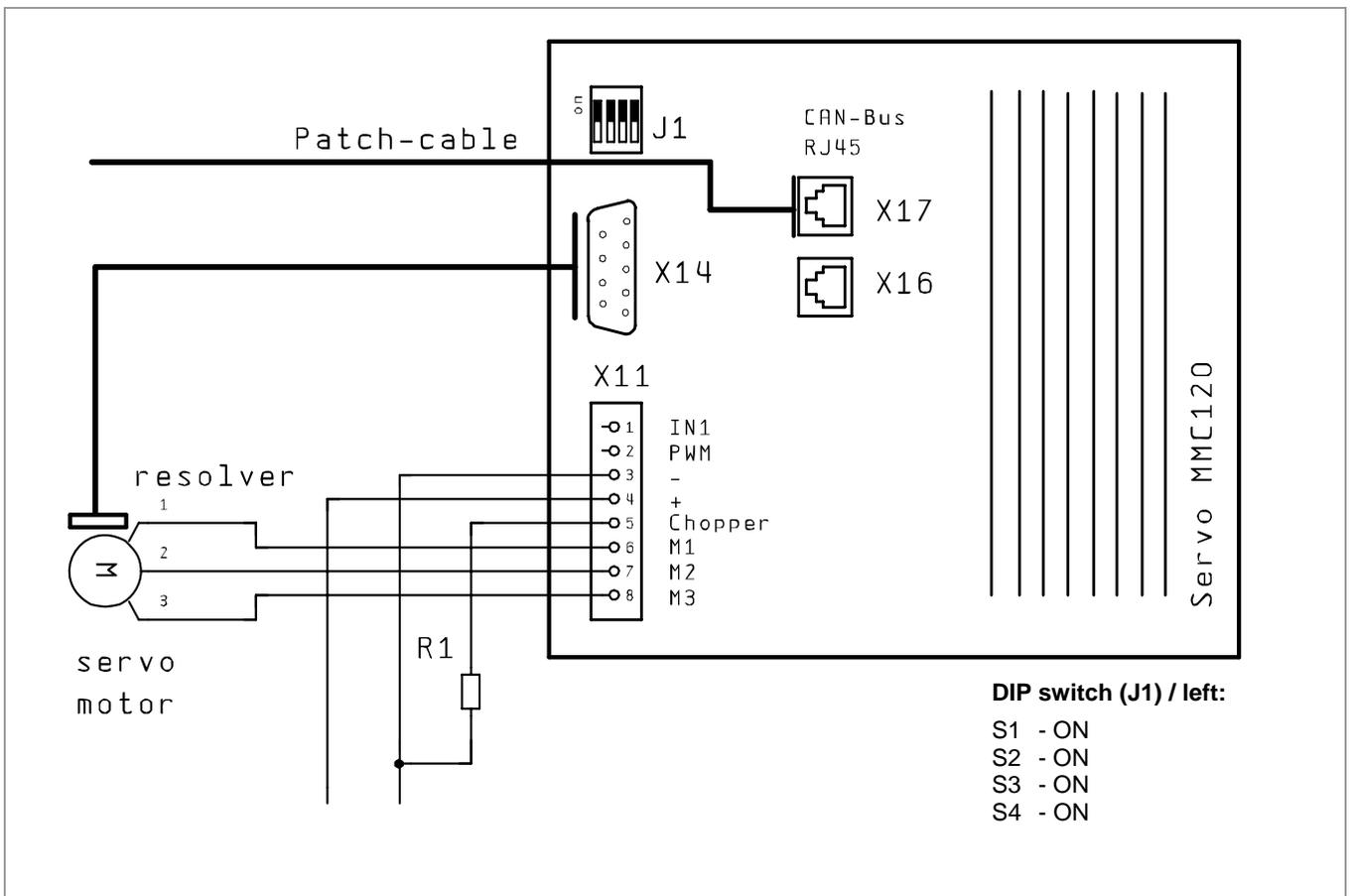


Fig. 10-1 MMC 120 Controller – left side, schema and DIP switch setting (J1)

## MMC-120-200 Controller

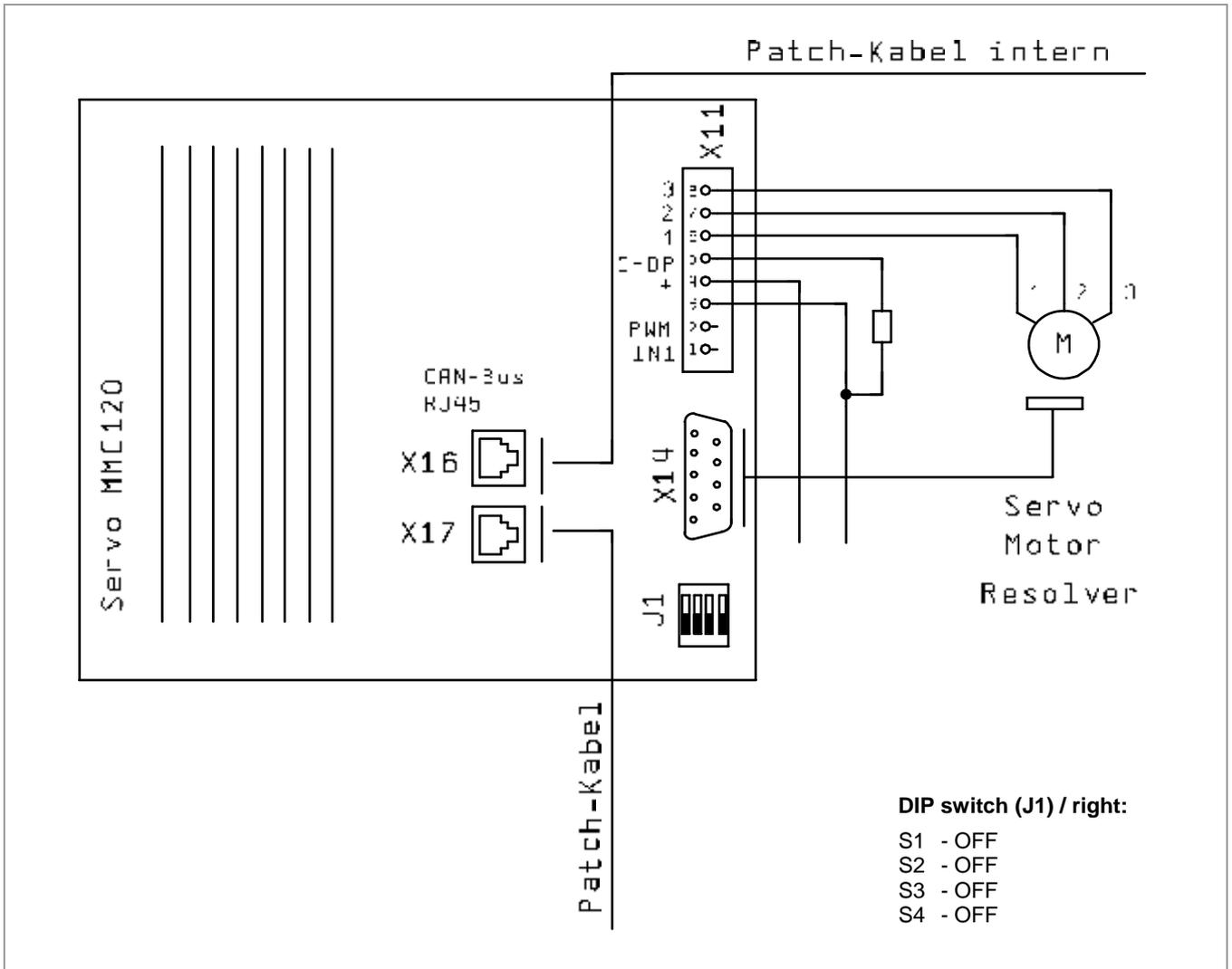


Fig. 10-2 MMC 120 Controller – right side, schema and DIP switch setting (J1)

## MMC-120-200 Controller

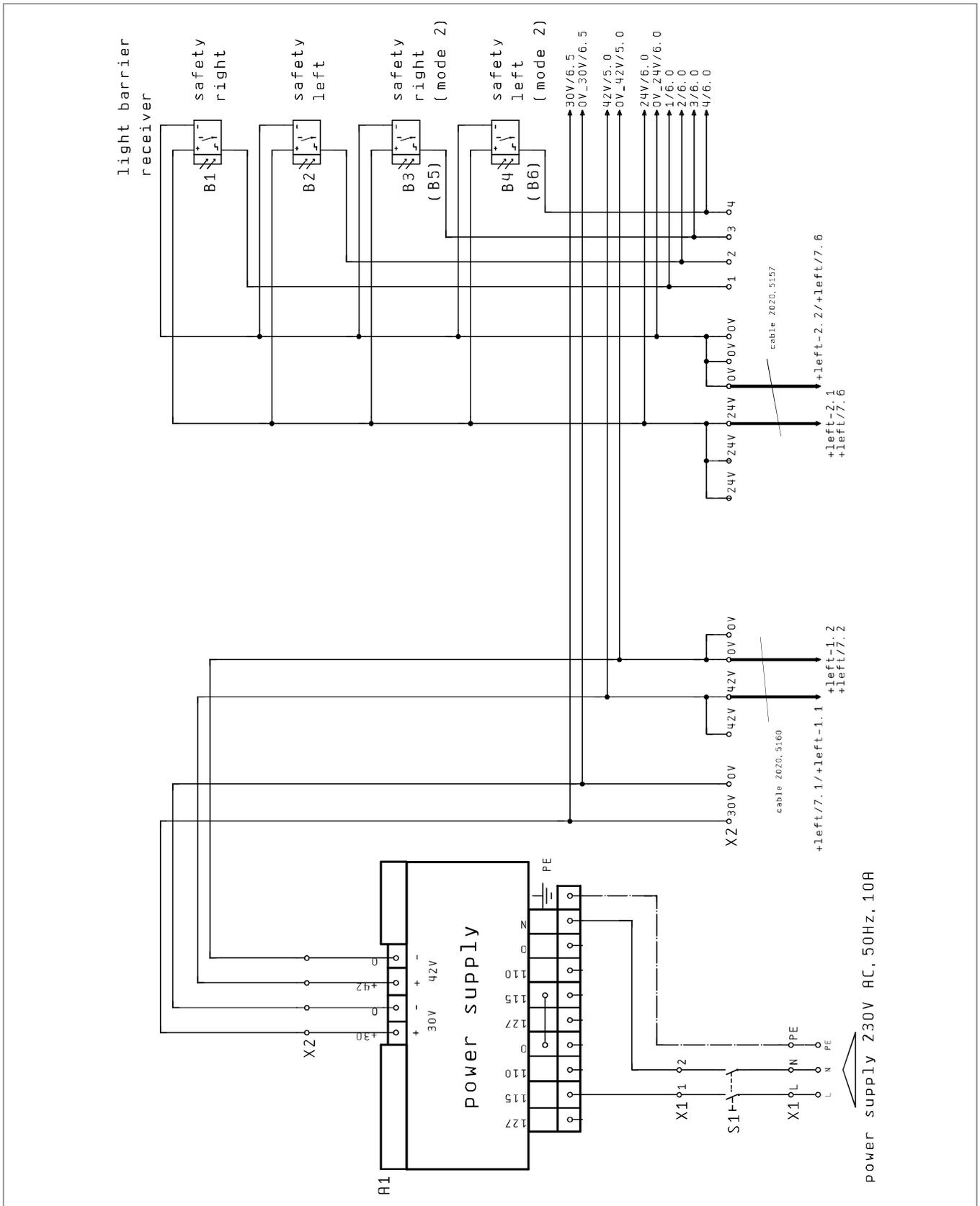


Fig. 10-3 Wiring diagram, power supply unit and PE beams

### **11. Safety PE-Beam System**

All safety beams are setup in fail-safe mode; hence, the PNP-Output is closed during normal operation and open when an object is detected.

In addition, each light beam is monitored for proper operation. Meaning that if a light beam shows detection for longer than 5 minutes the controller assumes that the light beam is malfunctioning (e.g. dirt).

## 12. Maintenance

### 12.1 Wing replacement

#### Dismounting the wing



#### CAUTION!

Before starting any kind of maintenance work make sure that the main power supply is switched OFF!

---

If it is necessary to replace a wing proceed stepwise as follows:

- Open the service door at the housing; refer to chapter 5.2 "Access Doors" on page 22. A free access to the driving components must be ensured.
- Hang out the return spring(s) ❶.

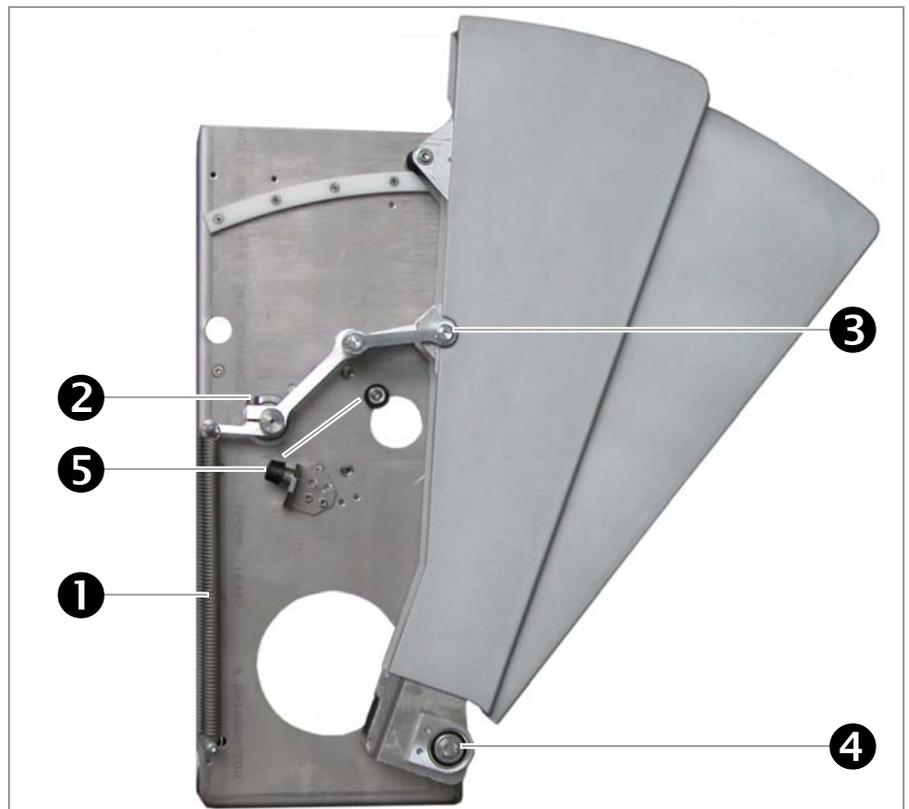


Fig. 12-1 Wing replacement

## Maintenance

---

- Loosen the socket head screw of the lever on the motor drive shaft ②.
- Remove the socket head screw of the fixing between lever and wing ③.
- Pull off the levers from the motor drive shaft.
- Remove the pivot point bolt of the wing bearing ④.
- Take out the wing backwards.
- In dependence of the spare part status dismount further relevant parts from the wing.

### Mounting the wing

- Fit the minor parts at the wing in dependence of the spare part status.
- Insert the wing into the housing.
- Fit the pivot point bolt of the wing bearing.
- Connect lever and wing by the socket head screw.
- Push the levers on the motor drive shaft.



### CAUTION!

Before tightening the lever on the motor drive shaft turn the wing – lever mechanism one complete turn by hand!

The components will align by themselves. Finally tighten the lever socket head screw.

---

- Hook in the return spring(s).
- Adjust the inner and outer buffer stop for the lever ⑤.
- Make sure that all components are fitted properly.



### NOTE!

By fitting different lever systems the extend length of the wings can be modified! Information and parts on request.

---

### 12.2 Motor replacement

---



#### CAUTION!

Before starting any kind of maintenance work make sure that the main power supply is switched OFF!

---

If it is necessary to replace the MHTM (MAGNETIC High Torque Motor) proceed stepwise as follows:

- Open the service door at the housing; refer to chapter 5.2 “Access Doors” on page 22. A free access to the driving components must be ensured.
- Hang out the return spring(s). See Fig. 12-1 on page 64.



*Fig. 12-2 Motor replacement*

- Loosen the socket head screw of the lever on the motor drive shaft (see chapter 0 “Dismounting the wing” on page 64).
- Disconnect the cable connectors at the backside of the motor ❶.
- Remove the four motor mounting screws ❷.
- Take the motor out of the housing.



### NOTE!

The resolver unit is adapted to the motor. The resolver cannot be replaced separately but only as complete unit due to special calibration!

---

For fitting the new motor proceed in opposite sequence. When starting the system after motor replacement the mechanic system is calibrated automatically by the resolver.

---



### CAUTION!

Before tightening the lever on the motor drive shaft turn the wing – lever mechanism one complete turn by hand!

The components will align by themselves. Finally tighten the lever socket head screw.

---

## 12.3 Software up date

It's possible to change the software from MBC and MMC. The program for the servo controllers MMC-120 is integrated in the MBC program. With the download we can change both software with one operation. The suitable wings and aisle width has to be determined by DIP switch 14 and 15.

The download works with two steps. First step is to change the MBC software, second step is the change of the MMC software.

Following different software version we have currently.

200 mm MPR (4914,5007\_Vxy.s)

250 mm MPR (4914,5004\_Vxy.s)

280 mm MPR (4914,5005Vxy.s)

( xy means the version stand)

## Maintenance

### How to download the Software

1. First Step is to open the down load the latest Software version to the MBC controller. This has to be done by using the M16C Flasher Software.

#### Steps

The screenshot shows the 'Magnetic M16C-Flasher' software window. The interface includes several sections: 'Port-Einstellungen' (Port Settings) with 'Portnummer' set to COM1 and 'Baudrate' set to 9600; 'Datei-Auswahl' (File Selection) with a file path field and a '...' button; 'IDs (hexadezimal)' (IDs in hexadecimal) with two rows of input fields and 'TefMBC10' buttons; 'CRC-Summen' (CRC Sums) with two checked options; 'Optionen' (Options) with several checked checkboxes; 'Funktionen' (Functions) with buttons for 'Gewählte Aktionen ausführen', 'Version auslesen', 'Abbrechen!', and 'Blank Check durchführen'; 'Hardware-Infos' (Hardware Info) with fields for Controller, ROM-Kapazität, and Bootloader-Version; and a language dropdown set to 'Deutsch'. A status bar at the bottom shows '...Status...'. Four numbered annotations with arrows point to specific elements: 1. 'right Port' points to the COM1 dropdown; 2. 'take highest Baudrate' points to the 9600 dropdown; 3. 'Software' points to the file selection button; 4. 'action' points to the 'Gewählte Aktionen ausführen' button.

1.right Port

2. take highest Baudrate

3.Software

4.action

## Maintenance

---

2. Second step is to download the servo program from the MBC to the two MMC servo controllers

To start the download, the following steps are necessary.

a) Write down the DIP switch setting as it is.( so you can restore the original setting after donload)

b) Set all 16 DIP switches to position ON

c) Turn the power OFF, wait min. 3 sec. than turn the power on again.

d) Display shows "L" ( loading ) , now set all 16 DIP to position OFF.

Display shows now

c = cleared

d= down load ( first Servo Controller)

b= re booting ( first Servo Controller)

Than c , d, and b for the second servo Controller.

After both servo Controllers are finished you will see a rotating (blank) bar on the display.

If there is a problem during the download you will get one of four possible error codes.

Error code	
30	Servo Controller cannot be erased ( cleared)
31	No communication to the servo Controllers
32	Download impossible
33	Problem with re- booting the servo Controller Software

c

e you see the rotation bar on the Display, you must turn the power off the gate.

Restore all DIP switches as you have written down before.

Turn the power off again, than the gate goes back into the normal operation.

### 13. Technical Support

In case of problems please contact an authorized after sales service representative.



#### NOTE!

Please refer to the nameplate of the MPR Kit Set for the data required in the case of inquiries.

---

### 14. Spare Parts and Accessories

An exploded drawing with details of the individual parts and their identification numbers is available on demand.

### 15. Warranty

www.TURNSTILES.us provides a limited warranty on its products, which covers all mechanical and electrical components.

The following warranty details are valid:

- 3 years after delivery
- 2 years after initial operation
- 170,000 MTBF
- 10,000,000 MCBF

Parts are excluded which are subject to wear and tear, for a period of two years from the date of first use or for a maximum of three years from the date on which the system was delivered provided that the operating instructions have been complied with, no unauthorized servicing of machine components has taken place, and that no mechanical damage to the machines is evident.

Please refer to our standard Warranty Statement

## 16. Disposal

---



### CAUTION!

All applicable regional regulations, rules and laws relevant to the disposal of materials and machinery must be strictly followed.

---

### Packing material

Once the equipment has been unpacked the packing materials have to be separated into the different basic materials (wood, cardboard, plastics, etc.) and then disposed in an expert manner.

### MPR

The MPR Set has to be sorted by different materials (stainless steel, glass, rubber, etc.) and then disposed in an expert manner.

### Electric and electronic equipment

Electric equipment has to be sorted by different materials (plastics, metal, toxic substances, etc.) and then disposed in an expert manner in compliance with the manufacturer's instructions.

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### NOTE!

For an expert information regarding disposal of electric equipment contact [www.TURNSTILES.us](http://www.TURNSTILES.us) or competent electricians.

---

### Lubricants and operating materials

Consumables (oils, lubricants, etc.) have to be separated and then disposed in an appropriate manner.

---



### CAUTION!

Do not add inflammable operating materials to normal waste. There is a high risk of fire!

---

## Disposal

---

### Environment

In order to prevent environment pollution we recommend a careful separation and disposal of all materials.



### RECYCLING!

When disposing of the unit at the end of utilisation ensure those noxious and dangerous residues are disposed of in accordance with the regional regulations.

Based on the different material, disposal must occur in a separate manner. Used lubrication and auxiliary material such as oils and fats will be disposed of in accordance with the statutory provisions.

Recyclable materials should hand to specialised recycling companies!

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www.TURNSTILES.us  
8641 South Warhawk Road  
Conifer, CO 80433

Tel.: +011 303 670 1099 ext 11  
Fax: +011 303 679 8949  
eMail: [patrick.mcallister@TURNSTILES.us](mailto:patrick.mcallister@TURNSTILES.us)