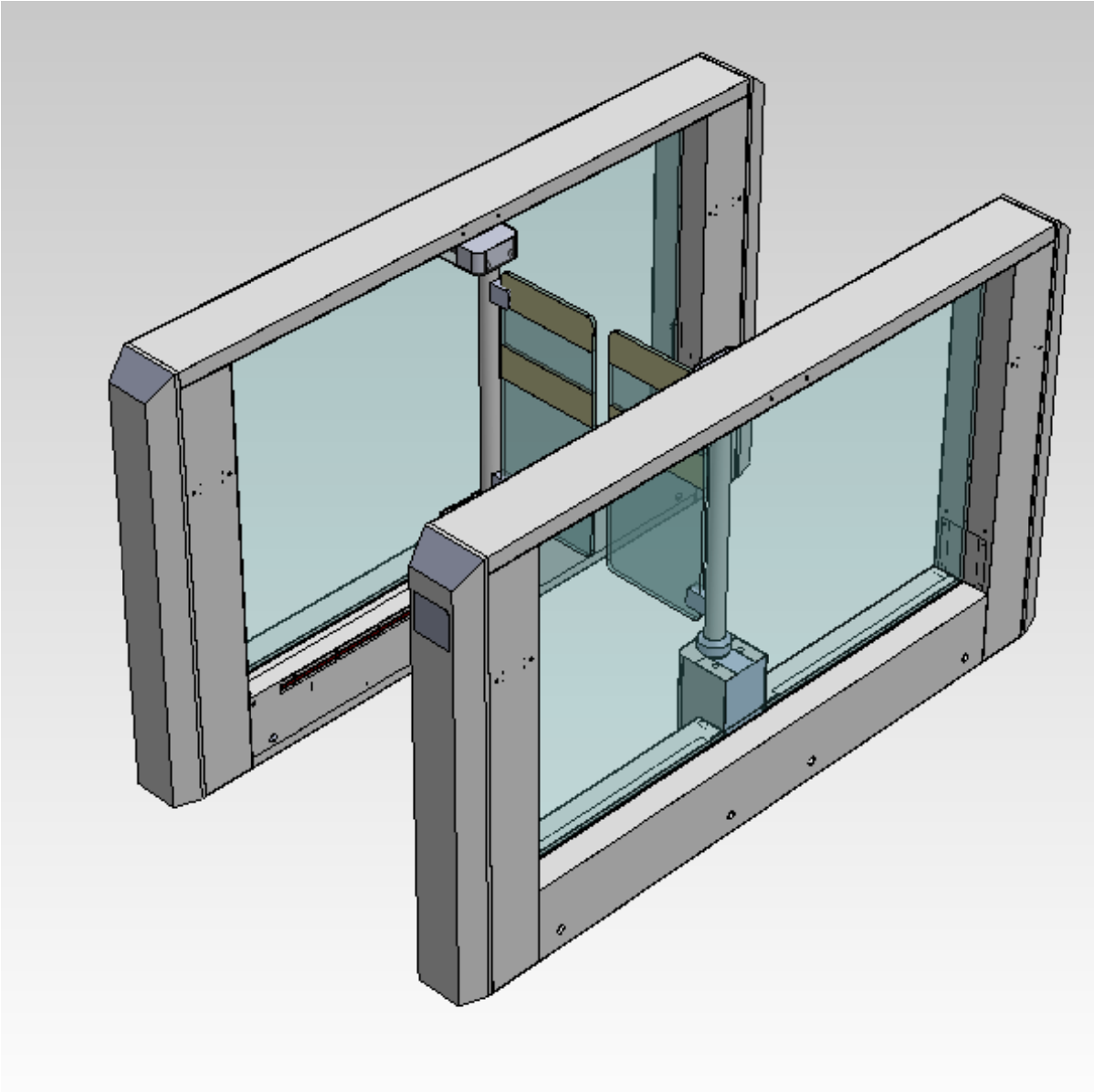


OPERATION INSTRUCTION

MPW 112



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1 GENERAL

1.1 Information regarding the operating instruction

These operating instructions provide crucial information on handling of MAGNETIC MPW112. 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 barrier's area of application and general safety regulations have to be complied with. Carefully read the operating instructions before starting any work! They are a product component and must be kept in direct proximity of the barrier, well accessible to the personnel at all times. When passing the barrier on to third parties, the operating instructions must also be handed over. Components from other suppliers may have their own safety regulations and instructions for use. These must also be observed.

1.2 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. Incidentally, the responsibilities agreed upon in the delivery contract, the general terms and conditions as well as the manufacturer's conditions of delivery and the statutory provisions valid at the time of contract conclusion shall apply.


1.3 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 guarantees all mechanical and electrical components for the duration as stated in our standard terms of sales and delivery or as contractually agreed in writing.

2 SAFETY

2.1 Intended Use

The MAGNETIC pedestrian barriers MPW are exclusively intended for managing the admission in to areas with restricted access. The MAGNETIC universal controller MBC and MMC are exclusively intended for controlling the MAGNETIC pedestrian barrier MPW. 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.


WARNING !	
	<p>WARNING! Non-intended use is dangerous!</p> <p>Any use of the barriers other than intended and/or in a different manner can cause hazardous situations.</p> <p>Therefore:</p> <ul style="list-style-type: none"> – Only use the pedestrian barrier and the controllers for the intended use. – All specifications in these operating instructions have to be strictly complied with.

2.2 Change and modification

Changes, modifications and re-builds of the barrier modules can cause unforeseen danger. A written authorization of the manufacturer is absolutely required before executing any technical changes and modifications at the barrier modules, the control unit or the control program.

2.3 Operating personnel

2.3.1.1 Requirement

WARNING !	
	<p>WARNING! Risk of injury in case of inadequate qualification! Improper handling can lead to considerable bodily injuries and property damage. Therefore:</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.

Electrical specialists

are able, due to their technical training, knowledge and experiences as well as knowledge of the relevant standards and regulations, to execute tasks on electrical systems and to independently recognise possible hazards. In Germany, the electrical specialist must 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.


2.4 Personal protective equipment

It is necessary to wear personal protective equipment when dealing with the machine so as to minimize 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. **Danger pictograms on the barrier modules.** The relevant dangerous areas on the barriers can be identified by the following pictograms:


Electrical Current

DANGER !	
	<p>DANGER! Mortal danger by electric current! ... denotes life threatening situations caused by electric current. Non-observance of the safety instructions causes severe injuries or death. Necessary work may only be carried out by an electrical specialist. This pictogram is fixed on the following components: – Mounting plates with electrical component.</p>


Hot Surfaces

CAUTION !	
	<p>CAUTION! Risk of burns! ... denotes the presence of a hot surface. Non observance of the safety instructions can lead to minor injuries. This pictogram is fixed on the following components: – Transformer</p>


Risk of Crushing

CAUTION !	
	<p>CAUTION! Risk of crushing! ... denotes the presence of components and items moving towards each other. Non-observance of the safety instructions can lead to minor injuries. This pictogram is fixed on the following component:</p> <ul style="list-style-type: none"> – Drive units


Electrical Current

DANGER !	
	<p>DANGER! Mortal danger by electric current! Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal. Therefore:</p> <ul style="list-style-type: none"> – Switch off the power supply immediately in case of damage to the insulation and arrange repair. – Only electrical specialists may carry out work on the electrical system. – Always turn the power supply 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. <p>The following safety devices have to be installed on site. The safety devices have to be provided by the customer.</p> <ul style="list-style-type: none"> – Lockable two-pole mains switch – Residual current device (RCD) – Mains circuit-breaker


Improper Transport

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


Heavy Weight

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


Insufficient fixing

WARNING !	
	<p>WARNING! Risk of injury at insufficient fixing! Insufficient fixing at the barrier modules or any single component at e.g. the glass wings can severely injure a person and cause severe crushing! Therefore:</p> <ul style="list-style-type: none"> – Before operation ensure the firm fixing of the clamp bolts. – Check the firm fixing of all screws according to maintenance schedule. – Only qualified and skilled personnel are allowed to assemble the pedestrian barrier and the appropriate riatic components.


Inadmissible operation

WARNING !	
	<p>WARNING! Risk of injury at inadmissible operation! An inadmissible operation can cause death or severe injuries. Therefore:</p> <ul style="list-style-type: none"> – Before operating the barriers check all electrical and mechanical functions. – Only qualified and skilled personnel are allowed to operate the pedestrian barrier.


Sharp edges and spiky corners

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

Signposting

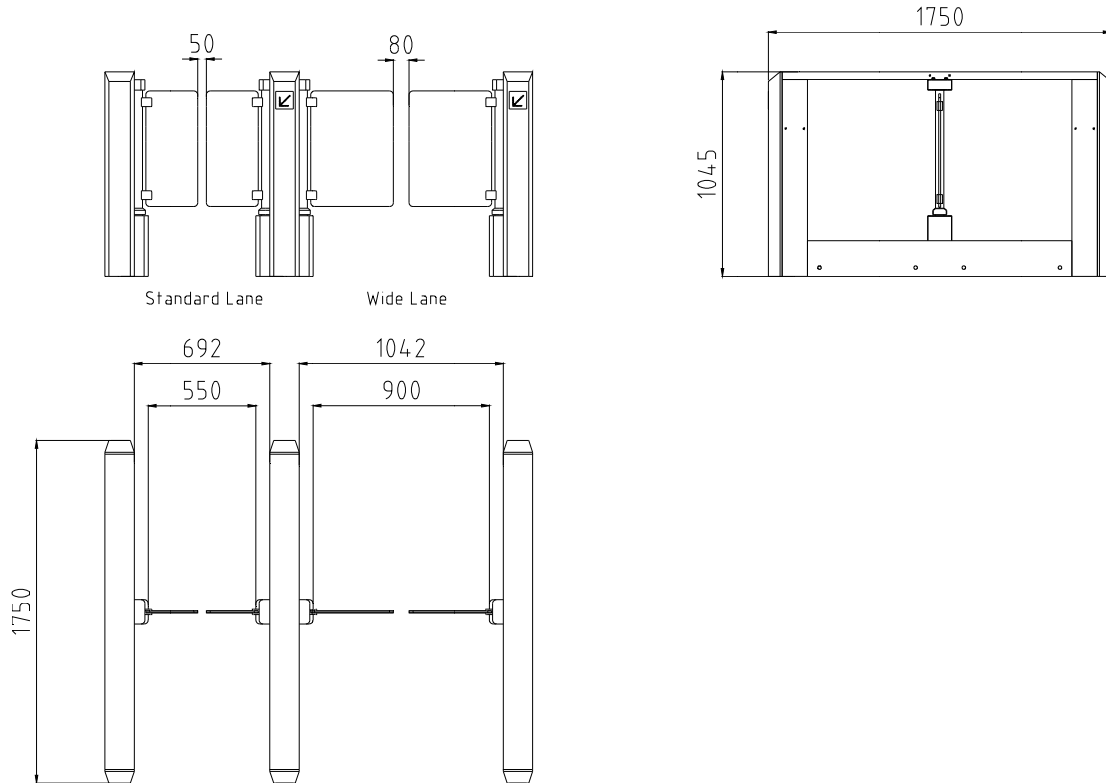
WARNING !	
	<p>WARNING! Risk of injury by illegible symbols! Labels and signs can become dirty or unrecognisable in the course of time. Therefore:</p> <ul style="list-style-type: none"> – Always keep safety, warning and operating notes in a well readable condition. – Immediately renew damaged or unrecognisable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

Broken glass elements

WARNING !	
	<p>CAUTION! Risk of injury at broken glass elements! Broken glass elements (e.g. glass wings, anti-climb panel) can cause cuts. Therefore:</p> <ul style="list-style-type: none"> – Immediately change broken glass elements. – Check glass elements according to maintenance plan.

3 TECHNICAL DATA

3.1 Dimension



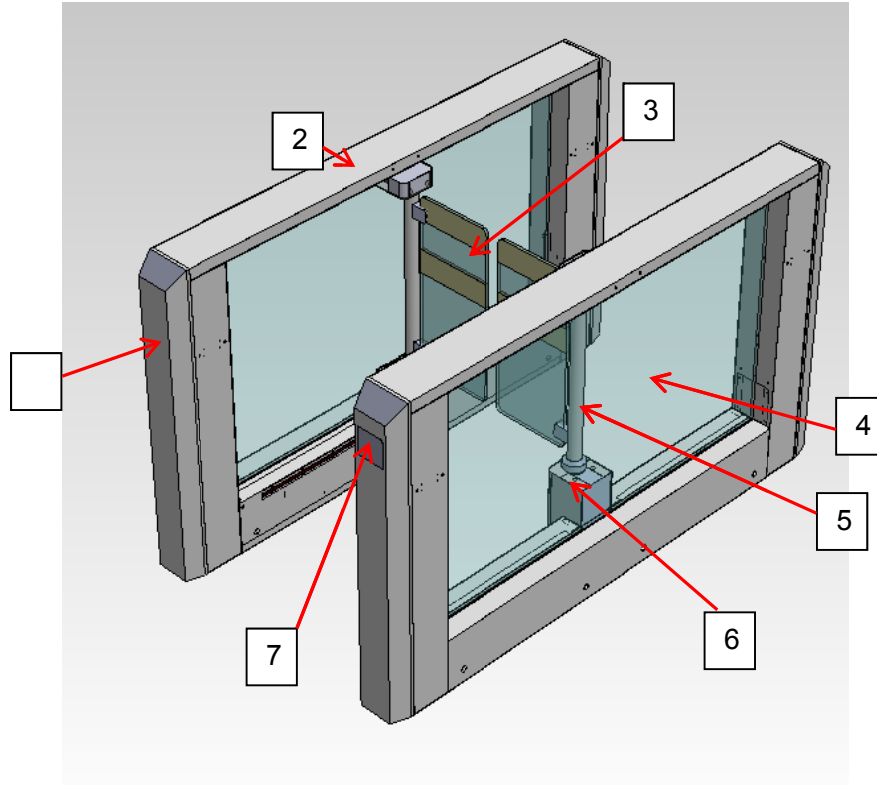
3.2 Specification

Description	Unit	Value	
		Standard Lane	Wide Lane
Operating Voltage	V (AC)	220 – 240VAC	220 – 240VAC
Operating Frequency	Hz	50-60Hz	50-60Hz
Current Consumption (standby / motion)	A	0.1-0.5	0.1-0.5
Power Consumption (average)	W	130W	130W
Duty Cycle	%	100	100

Description	Unit	Value	
		Standard Lane	Wide Lane
Controller Operating Voltage	V (DC)	30VDC	30VDC
Motor Operating Voltage	V (DC)	42VDC	42VDC
Signal Source Voltage	V (DC)	24VDC	24VDC
Operating Temperature	'C	45'C	45'C
IP rating	IP	IP 32	IP 32
Opening or Closing Speed	Sec	0.6Sec	0.9Sec
Weight	Kg	95Kg	105Kg

4 DESIGN AND FUNCTION

4.1 Basic Component Design



Figure

4.1

1. Housing Front Module
2. Housing Top Module
3. Polycarbonate Wings (Optional Sticker Shown)
4. Clear Tempered Glass
5. Motor Shaft
6. Motor Cover
7. Gate End Display

4.2 Lane Configuration

The pedestrian barrier can be supplied in the following modules:

- Basic module
- End module
- Center module
- Transition module standard / wide
- Transition module wide / standard.

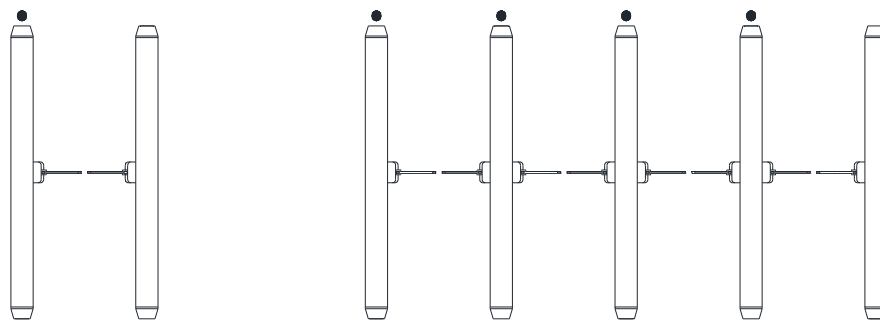
The basic module has got a master function, the end module a slave function and the others have got both, master and slave function.

For a lane, one module with slave and one with master function is always required. Each lane works independently.

The number of lanes can be expanded optionally by center and transition modules.

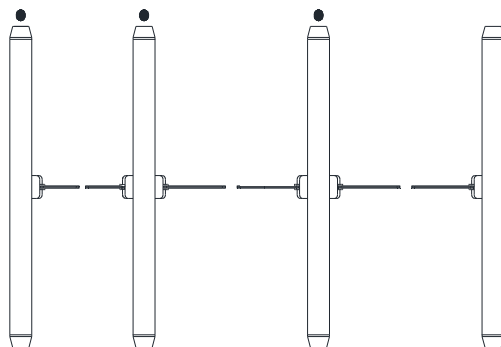
The following Fig. shows possible lane configurations.

● = MBC (Master)



Single Lane

4 Lane



Single Lane + 2 Wide Lane

4.3 Function

The pedestrian barrier MPH is used for a fast access control of pedestrians e.g. at the reception area of public buildings, hotels, companies or museums. With suitable roofing, it can be used out of doors, e.g. in sports stadiums.

The modular system permits numerous different lane configurations.

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

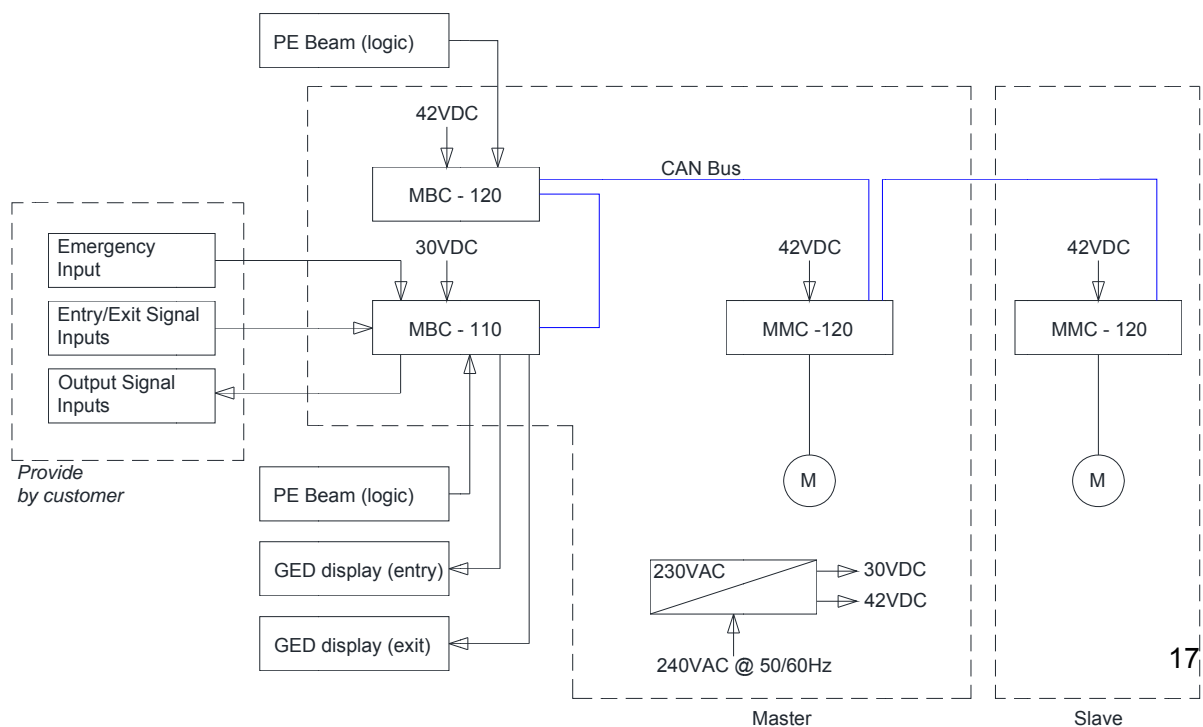
In its normal operation mode, the pedestrian barrier is closed. The glass wings only open after authorization from an external command unit, such as a card reader. Attempted cheating by unauthorized persons, e.g. passage in the wrong direction, or an attempt by a second person to follow without authorization (tailgating) is recognized and activates the alarm system. Recognition in such cases is by several infrared light barriers.

4.4 Control System

Two motor controllers MMC-120 are connected by a CAN bus to the MBC-110 and MBC 120 logic controller. A total of 12 infrared light barriers and two barrier end displays are connected to digital inputs and outputs.


For the customer, there are digital inputs to open the pedestrian barrier, e.g. for a card reader, and an emergency input. From relay outputs various feedback messages are available for the customer.

The power supply for the controllers is provided by a transformer power supply with two output voltages, 30 VDC and 42 VDC.




5 TRANSPORT AND STORAGE


5.1 Safety Note for Transport
Improper Transportation

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

Heavy Weight

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

Improper Transportation

NOTICE!	
	<p>NOTICE! The pedestrian barrier can be damaged by improper transport! Substantial material damages can result from improper transport.</p> <p>Therefore:</p> <ul style="list-style-type: none"> – Have all transport work performed by trained personnel. – When unloading the packages and during implant transportation always proceed with greatest care and caution. – Observe the symbols on the packaging. – Observe the dimensions of the unit. – Loading, unloading as well as moving the machine must take place with greatest care. – Only remove packaging directly before assembly.

Personnel Protective Equipment

The following must be worn during all transport work:

- Work clothes
- Protective gloves
- Safety shoes.

Transport Inspection

Immediately check the delivery after receipt for completeness and transport damages. Proceed as follows in the case of outwardly recognizable transport damage:

- Do not accept the delivery or only under reserve.
- Note the extent of damage on the transport documents or on the delivery note of the forwarder.
- Lodge complaint.



NOTE!

Lodge a complaint for each defect, as soon as it is recognised. Compensation claims can only be submitted within the valid complaint periods.

5.2 Transport

The pedestrian barriers arrive finally assembled. The lifting gear must be designed for the weight of the barrier module. For transport barrier modules consider the safety notes as mention on this manual

For future transports:

- Secure loose cables.
- Secure against vibrations.
- Securely fasten the barrier module prior to transport (e.g. screw it onto a pallet).
- Transport and put down pedestrian barrier with a forklift and lift with suitable lifting gear.

5.3 Storage

Store pedestrian barriers or packages under the following conditions:

- Do not store outdoors.
- Store dry and dust free.
- Do not expose to aggressive media.
- Protect against solar irradiation.
- Avoid mechanical vibrations.
- Storage temperature: -10 to +60 °C
- Relative humidity: max. 95 %, non-condensing
- Regularly check the general condition of all parts and packaging, if stored for longer than 3 months.

6 ASSEMBLY AND INSTALLATION

6.1 Safety

Personal protective equipment

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

- Work clothes
- Protective gloves
- Safety shoes.

6.2 Special Tools Require

Following special tools are required for assembly and installation works:

- Torque wrench (15 Nm)

6.3 Required Step

The following procedures have to be observed during assembly and installation:

- Laying the foundation
- Installing the empty conduits
- Unpacking the pedestrian barrier
- Mounting the pedestrian barrier on the foundation
- Assemble glass wings and anti-climb panels.
- Connect pedestrian barrier electrically, wire modules.
- Assemble housing.

6.4 Foundation and Empty Conduit

Before assembling the pedestrian barrier, if it is a new construction building then a foundation has to be laid and empty conduits have to be installed otherwise **if the pedestrian barrier to be install on to existing building then it is recommended that the Main Contractor and Building owner shall discuss further on the method of installation.**



NOTE!

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

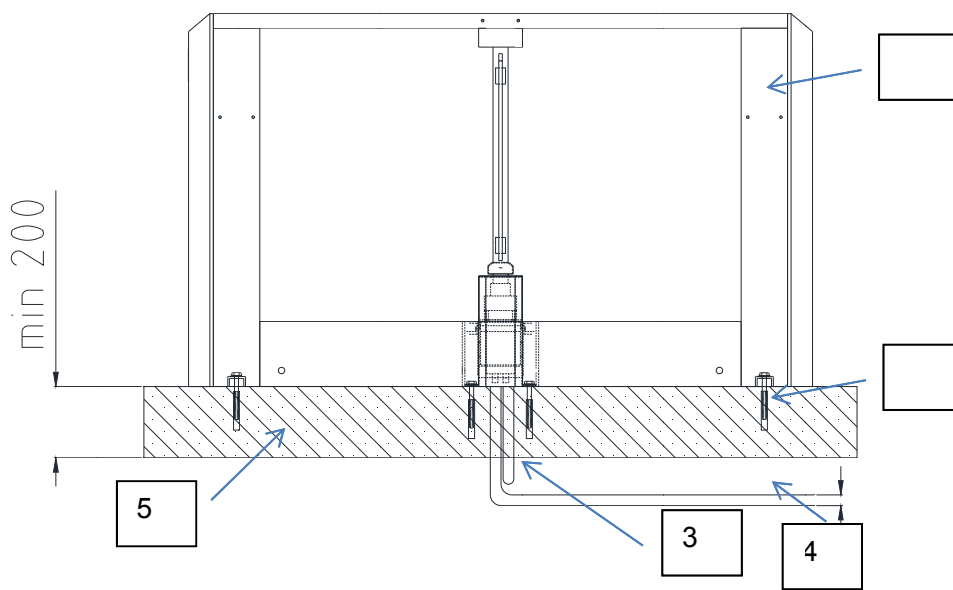
6.5 Foundation and Conduit Layout

The foundation must meet the following requirements:

- have sufficient load-carrying capacity.
- have a skid-proof surface.
- be level and horizontal
- have sufficient thickness for the fastenings.

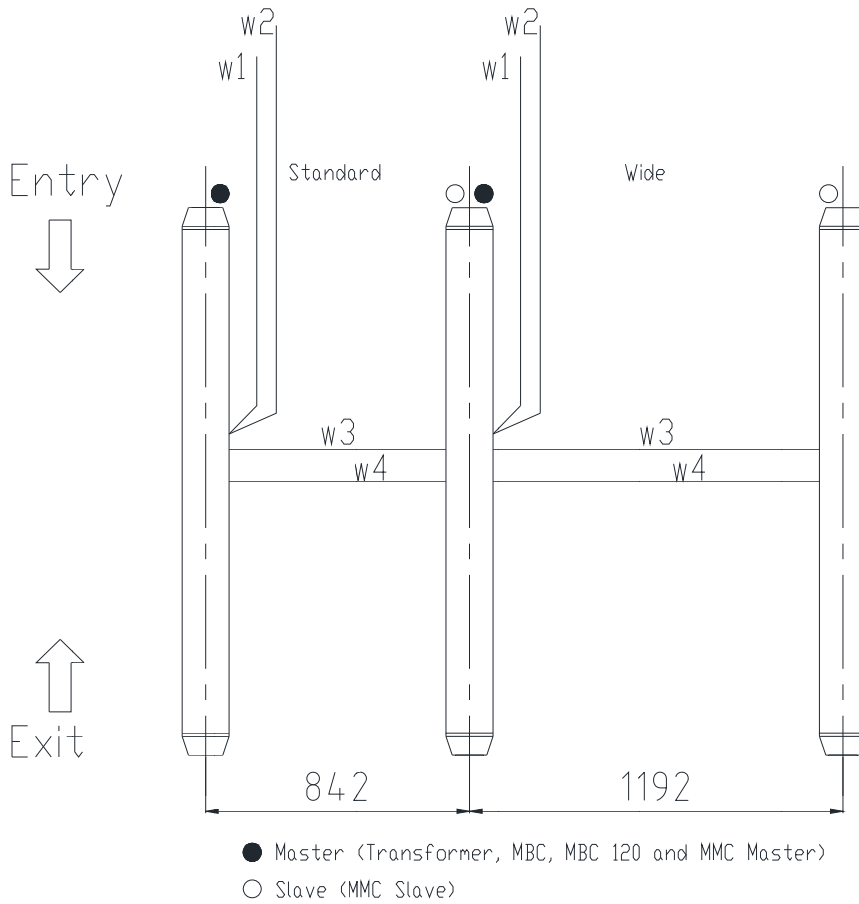
Observe the following during planning and installing of the empty conduits:

- Install empty conduits according to the foundation plan.
- Install 2 conduits between each module.
- Install 2 conduit for each module with master function for the mains cables.
- Additional cabling for access control and other peripheral equipment is the customer's responsibility.
- Conduits have to be planned to a sufficient length



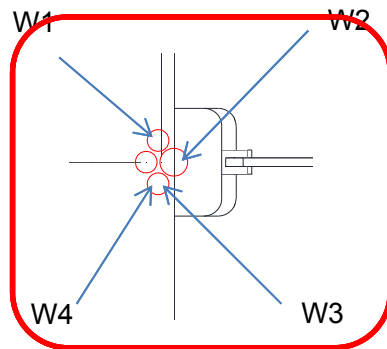
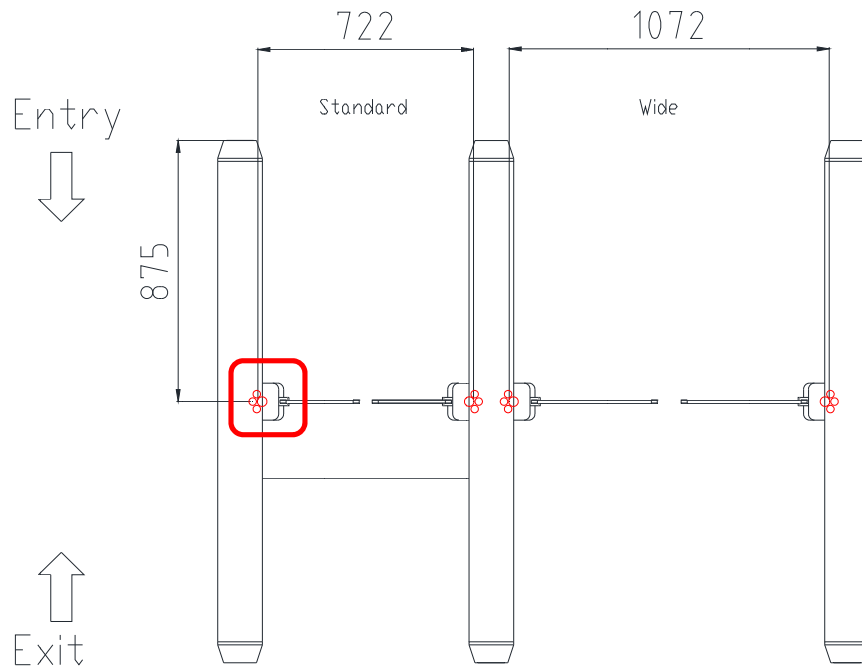
1. Pedestrian Gate
2. Mounting Anchor Bolt M12 x 150 and Channel Clamp bar
3. 2 x Conduit for Crossing cable i.e, CAN Bus, GED, 42vdc and 24vdc and Data
4. 2 x Conduit for 230vac and Control cable + Data Cable
5. Foundation.

Typical Single Line Diagram



Wiring and Conduiting Table (typical wiring layout)			
Name	Conduit size	Cable Consist of	Remark
w1	25mm dia x 1	3c 1.5mm sq	240VAC @50fz, 13A
w2	32mm dia x 1	TBA 1 x CAT 5E	TBA by system integrator / ACS Control Signal (Entry / Exit)
w3	25mm dia x1	4c 2.5mm sq 4c 0.75mm sq CAN Bus	42vdc and 24vdc Gate End Display Communication BUS
w4	25mm dia x 1	TBA	Extra Conduit for ACS

Typical Layout for Conduit Location

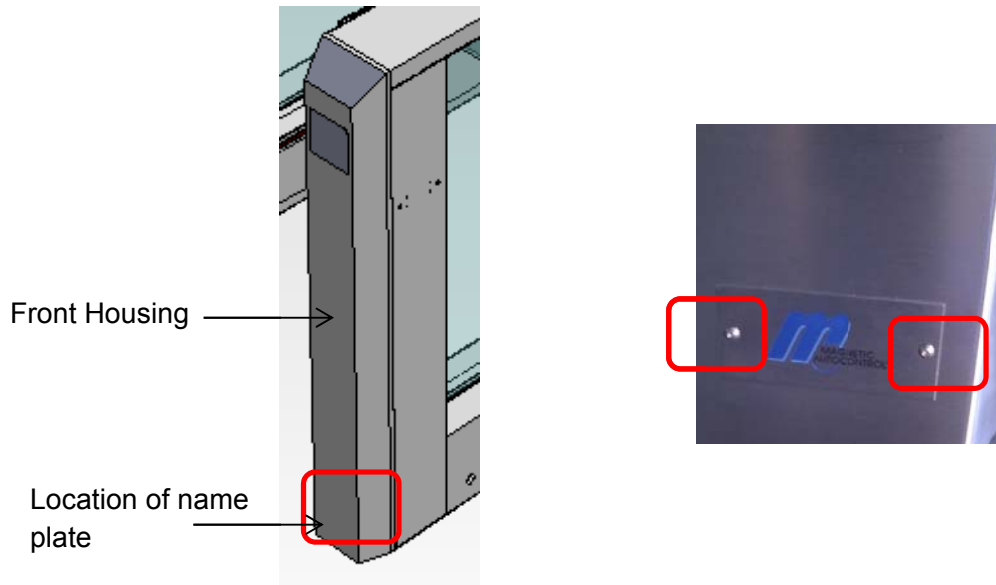


Name	Conduit size
w1	25mm dia x 1
w2	32mm dia x 1
w3	25mm dia x1
w4	25mm dia x 1

6.6 Unpacking Housing Assembly

6.6.1.1 Remove the Front Module

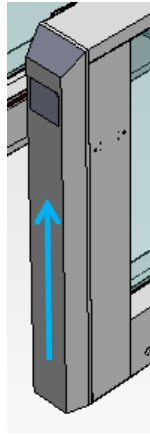
- To remove the front housing from its main housing as shown below.



- Use a correct size Allen/Hex Key to remove the screw at the Magnetic Name plate as show below, after remove the screw, please keep it in a secure place to avoid missing. Location of name is as shown above
- After the Name plate is removing and locate at secure place, you will then saw a larger bolt as shown below, use the correct size Allen Key Set again to remove the screw.



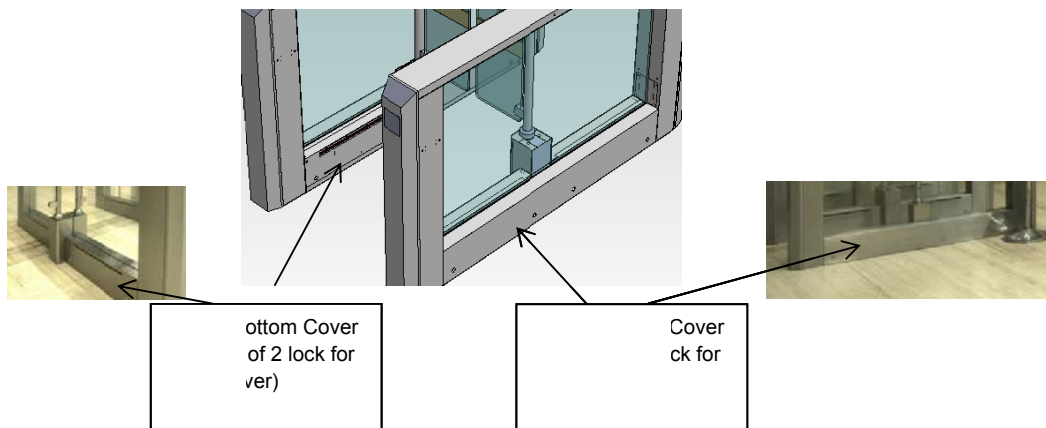
- After the larger bolt is removed, the front housing can be disassemble or remove from the main housing by first pull / push the front housing toward the top direction as shown.



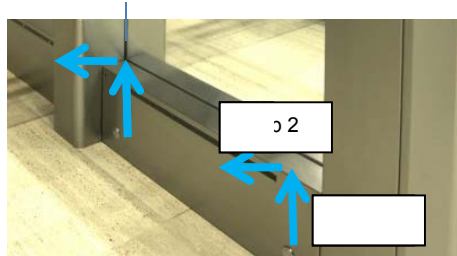
- To install the front housing back, reverse the procedure shown on step above.

6.6.1.2 Remove the bottom side cover or the back bottom cover

- Use the Euro 2500 Key provided to unlock the lock at the cover.



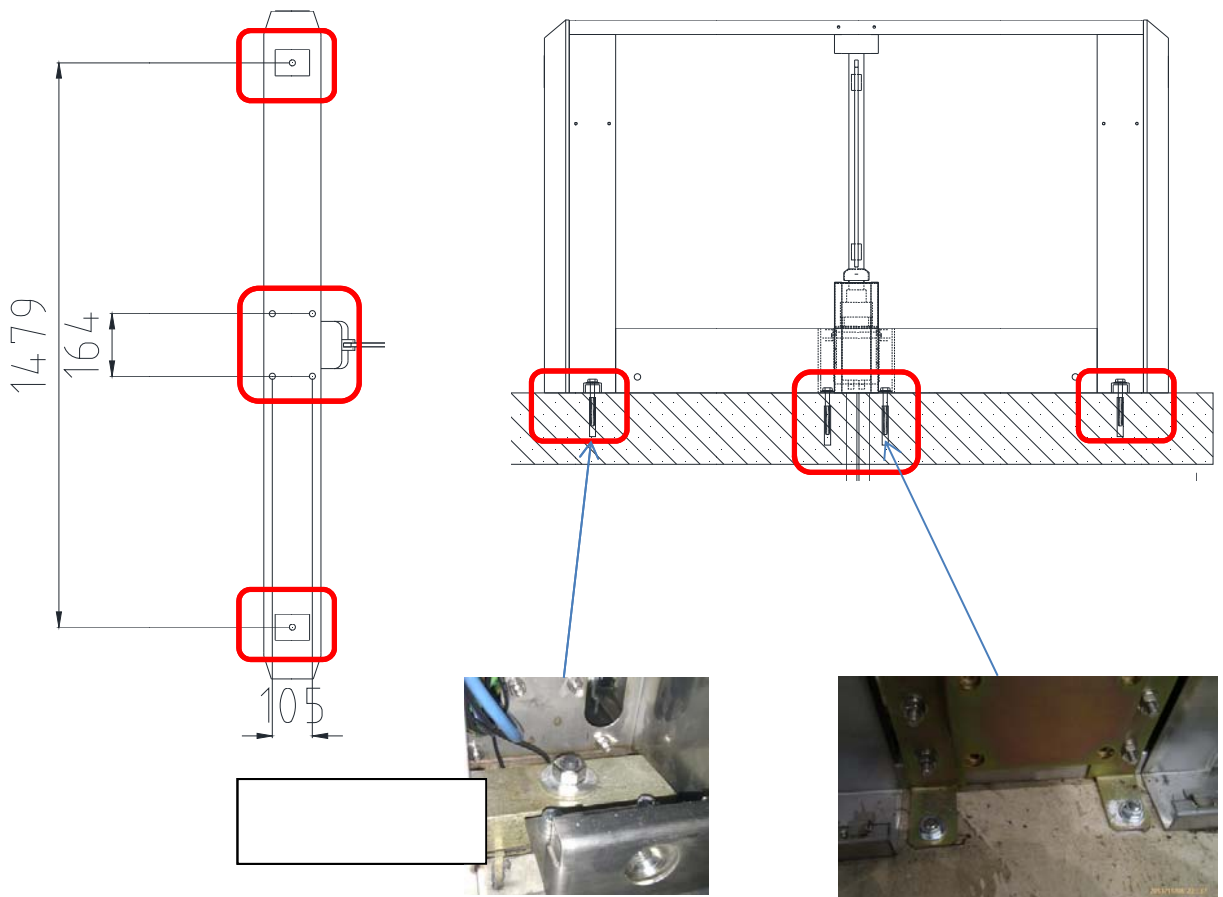
- After unlock, you main remain the key inside the lock to assist open up the cover by pull upward the cover and remove the cover from it position as shown on the step below. NOTE: please take extra care to open this cover as it may scratch the housing.



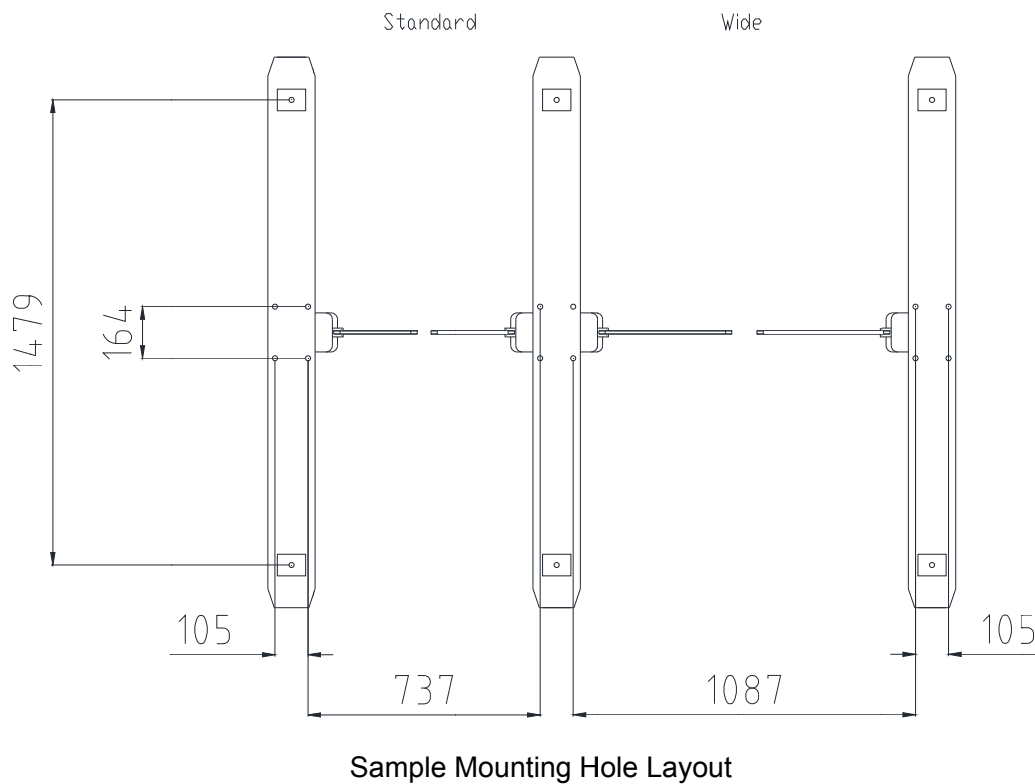
- After all cover has been disassembled or remove, the gate can be now installed.

6.7 Installation on to the floor / ground

- Location of mounting hole the MPW




- Drill the floor with size hole accordingly to the size of mounting bolt to be used to install the MPW gate and align the gate accordingly
- Align the gate and install the MPW gate as shown on below sample layout




7 **ELECTRICAL CONNECTION**

7.1 **General Safety**

Safety

WARNING !	
	<p>WARNING! Danger by inappropriate installation! Inappropriate installation can causes severe injuries or death. Therefore:</p> <ul style="list-style-type: none">– Only qualified personnel, authorized 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.

Electrical Current

DANGER !!!!	
	<p>DANGER! Mortal danger by electric current! Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal.</p> <p>Therefore:</p> <ul style="list-style-type: none">– Switch off the power supply immediately in case of damage to the insulation and arrange repair.– Only electrical specialists may carry out work on the electrical system.– Before starting work ensure that the electrical system is dead!– Always turn the power supply off and safeguard against unintentional restarting before maintenance, cleaning, and repair work.– 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. The follow flaps safety devices have to be installed on site. The safety devices have to be provided by the customer.– Lockable 2-pole mains switch– Residual current device (RCD)– Mains circuit-breaker

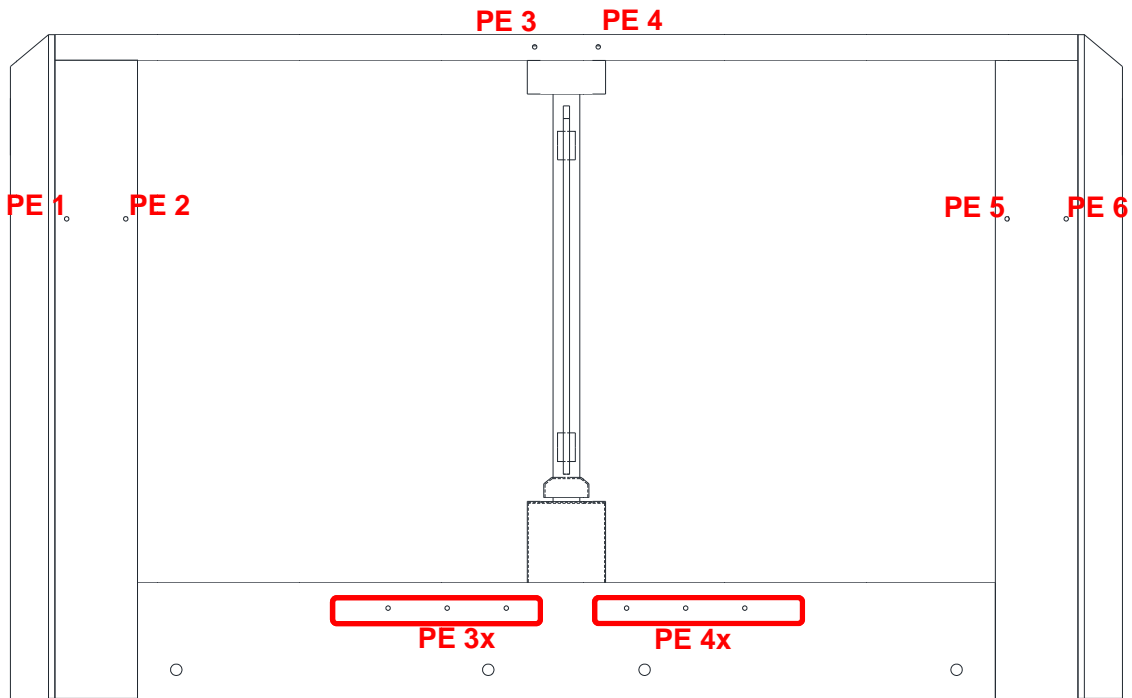
Protective Equipment

The person must be worn during all installation work:

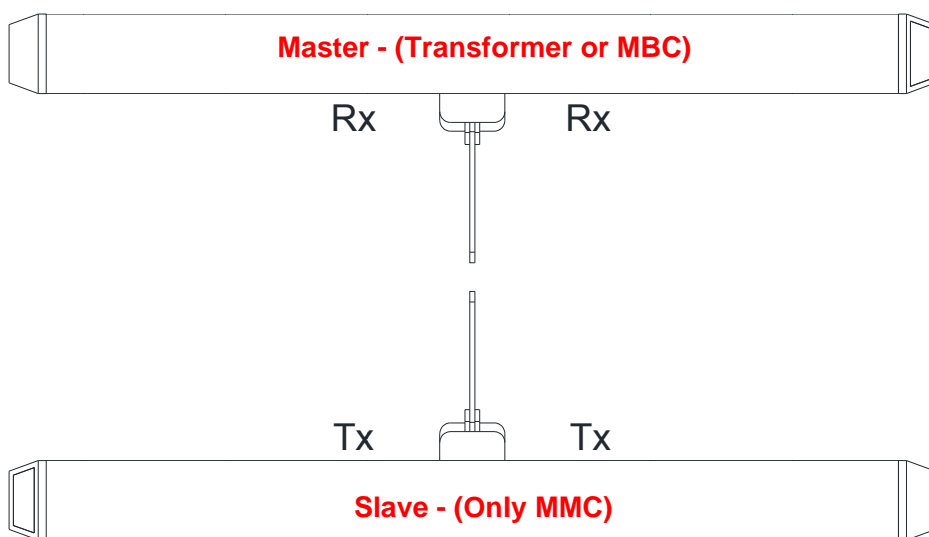
- Work clothes
- Protective gloves
- Safety shoes.

7.2 Electrical Component – Location

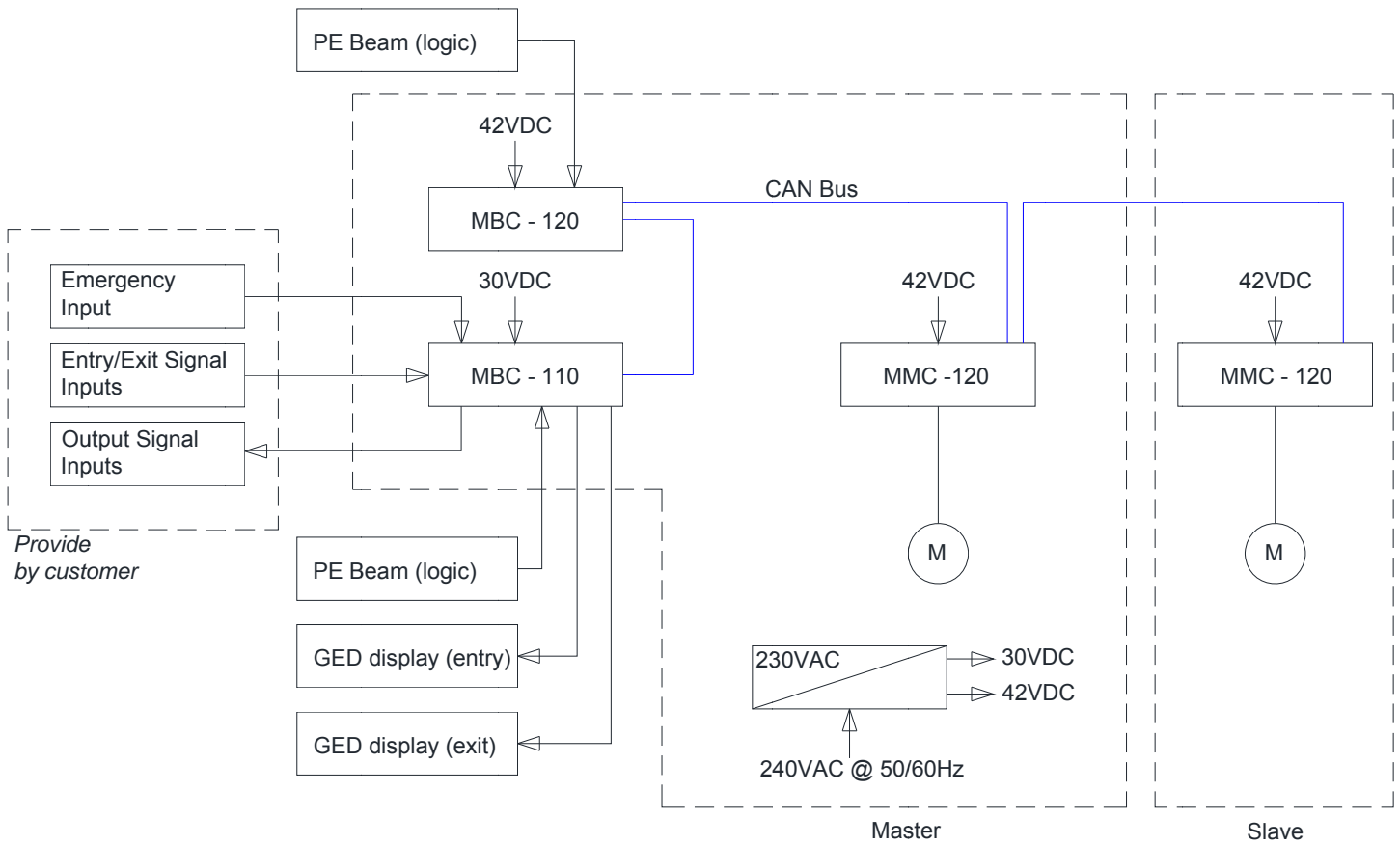
7.2.1 PE Beam Location



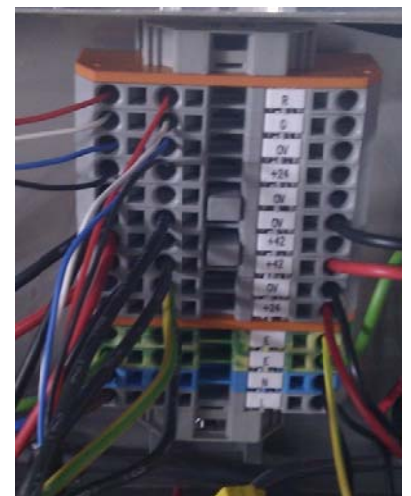
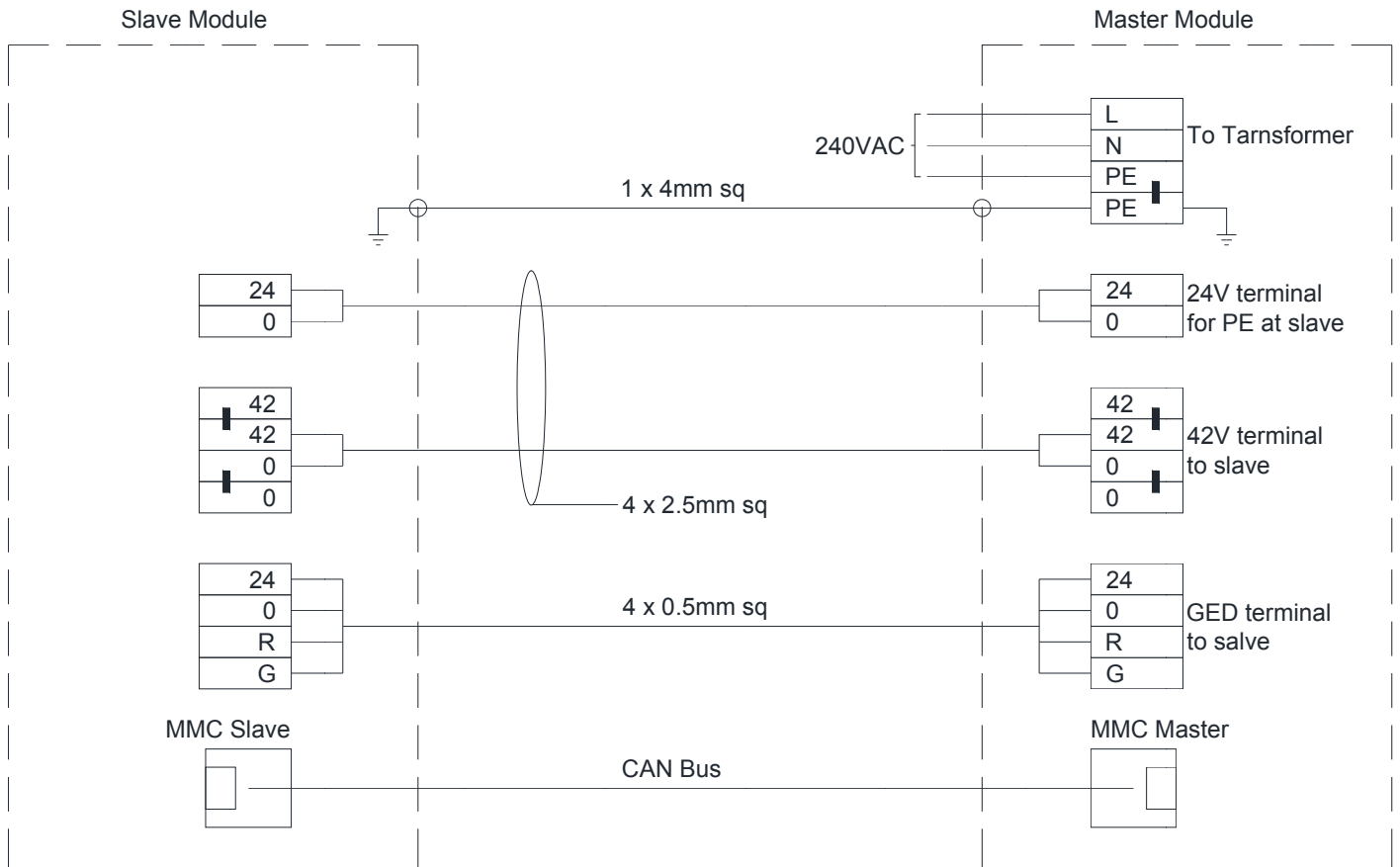
PE Beam Location – Transmitter and Receiver



7.2.2 Single Line Layout



7.2.3 Crossing Cable



7.2.4 Connecting Customer Wiring / Signal To Open

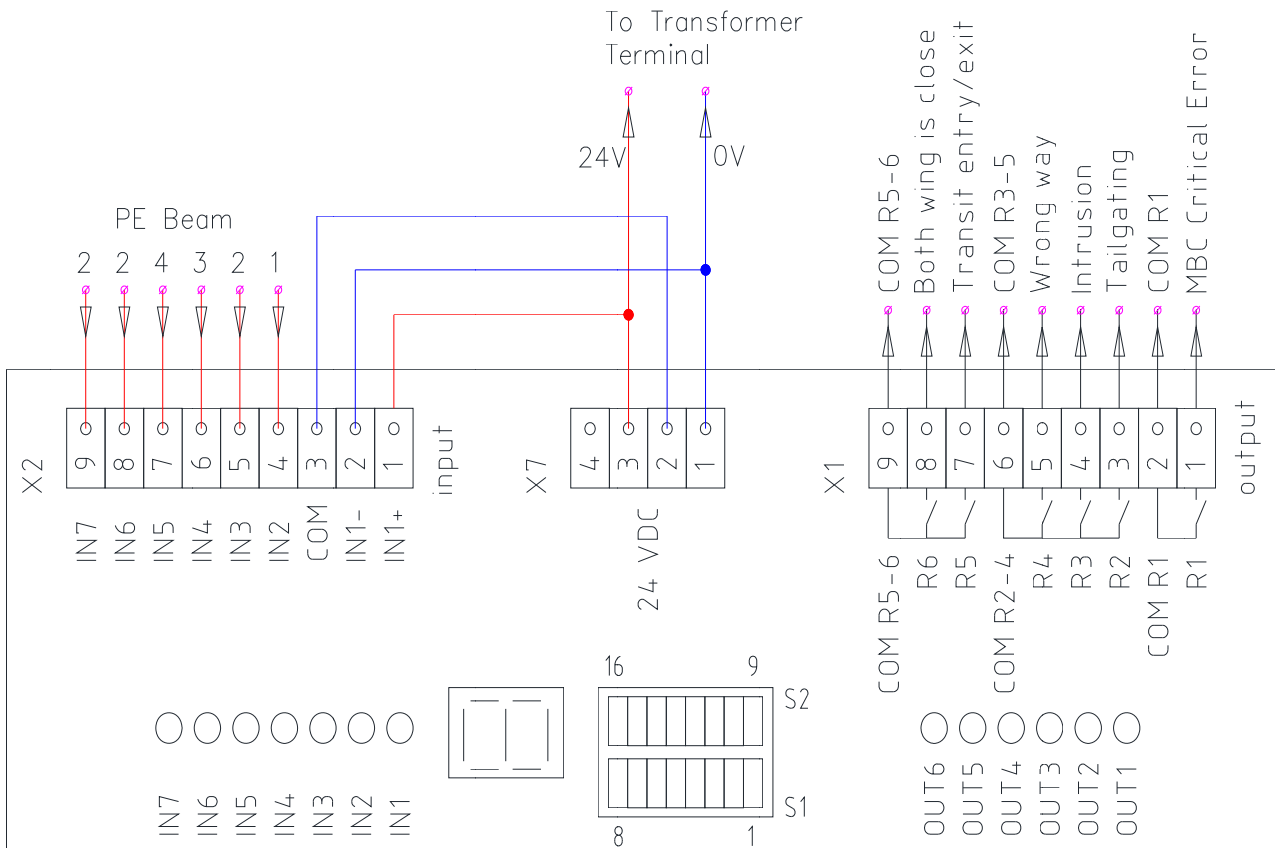


Figure 7.2.4A

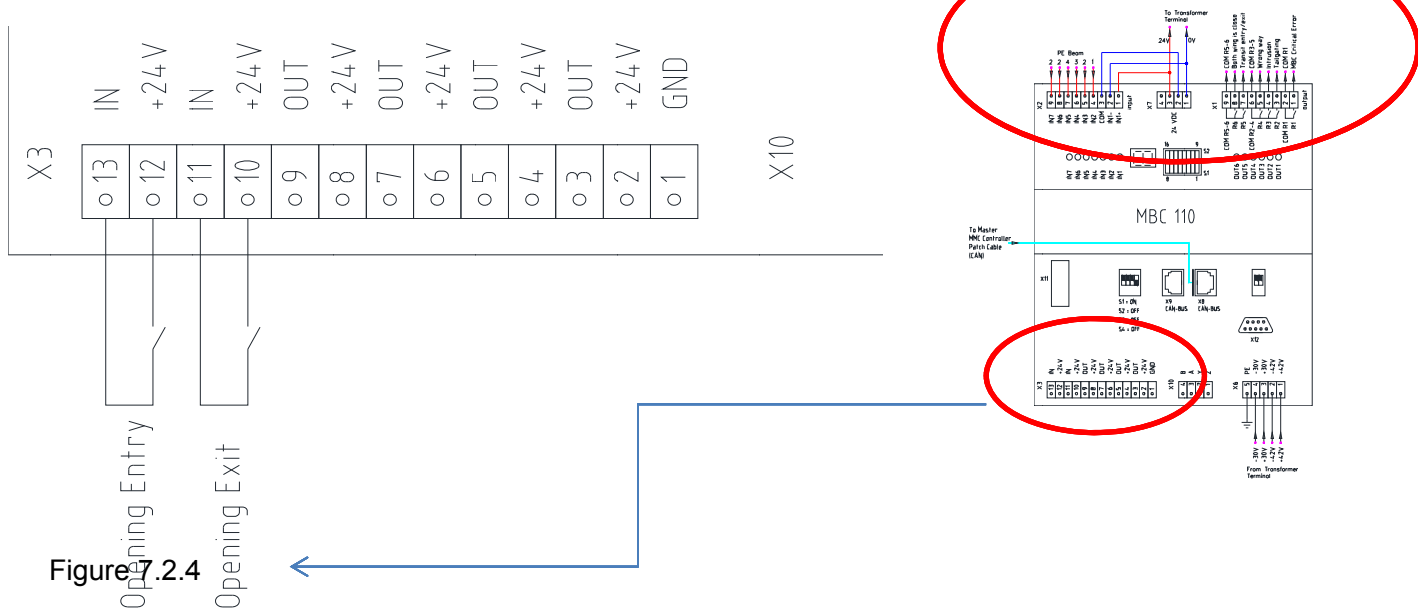
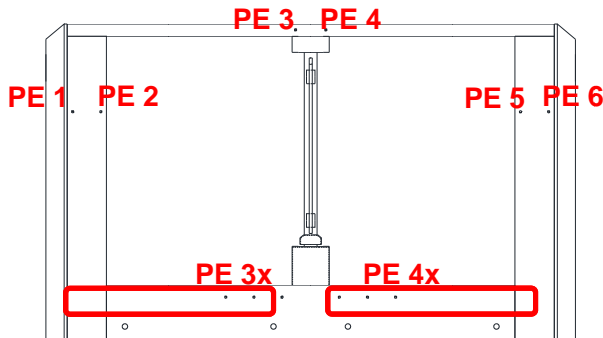


Figure 7.2.4

7.3 Digital Input – MBC 110

7.3.1 Input

- All inputs galvanically isolated by optocouplers
- Input voltage 24V ±10%
- Input current 10 mA per input
- Impulse length for inputs 100 ms – 300 ms



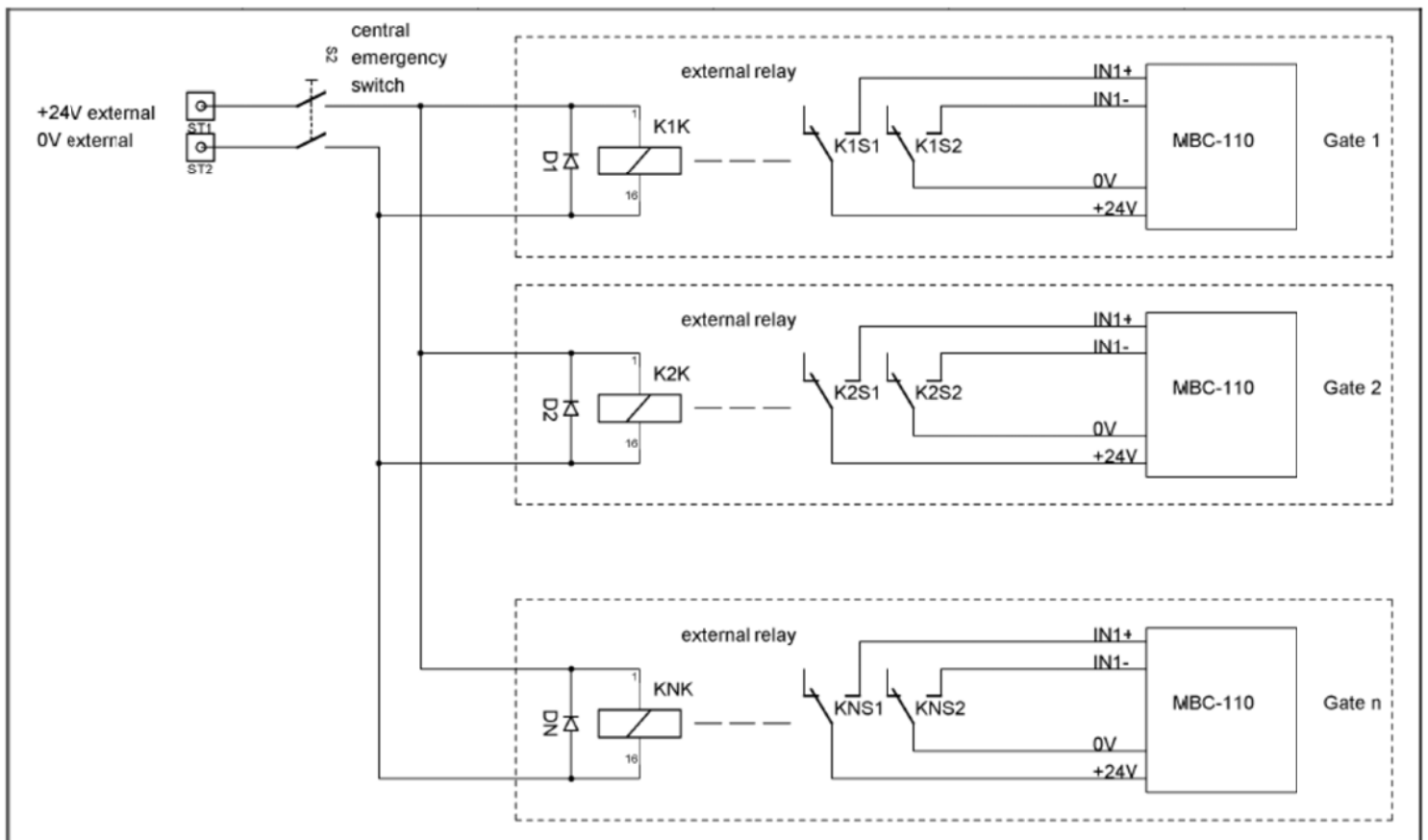
Input	Function	Description
1	Deactivate motor end stages in case of emergency	This input permits to power of the motor end-stages in case of an emergency. The glass flaps are pulled open by springs then. The input is fail-safe, i.e. the pedestrian barrier is only operative when a continuous signal is present.
2	PE 1 (refer diagram above)	The two light barriers LS 1 and LS 2 are valuated together to permit direction detection of a passage. They are in front of the card reader on the entry side of the pedestrian barrier.
3	PE 2 (refer diagram above)	
4	PE 3 (refer diagram above)	The two light barriers LS 3 and LS 4 are valuated together to permit the logic direction flow
5	PE 4 (refer diagram above)	
6	PE 5 (refer diagram above)	The two light barriers LS 5 and LS 6 are valuated together to permit direction detection of a passage. They are in front of the card reader on the entry side of the pedestrian barrier.
7	PE 6 (refer diagram above)	
8	Opening input exit side	At this input, the barrier can be opened by a card reader, for example, indicating a valid passage on the exit side.
9	Opening input entry side	At this input, the barrier can be opened by a card reader, for example, indicating a valid passage on the entry side.

7.3.2 Connecting the Emergency input (Suitable for Fire Emergency)

The inputs IN1– and IN1+ are intended to be used as superior emergency opening inputs, for example for fire alarm systems. Factory setting of these inputs are defined at 0 V or 24 V by means of two wire jumpers. Several pedestrian barriers should be interrupted at the same time by a central emergency switch:

- Install a customer’s 24V power supply in the external control cabinet to drive the relays.
- In every pedestrian barrier install each a customer two-pole relay.
- Remove wire jumpers from terminals IN1– and IN1+.
- Wire emergency input according to Figure below as shown.

In case that input IN1 is interrupted the motor end-stages are powered off, i. e. the motors are powerless, the flaps are opened by springs and the passage is completely free.



Above wiring method is suitable for Fire Emergency connection to Fire Control Panel.

7.3.3 Relay Output

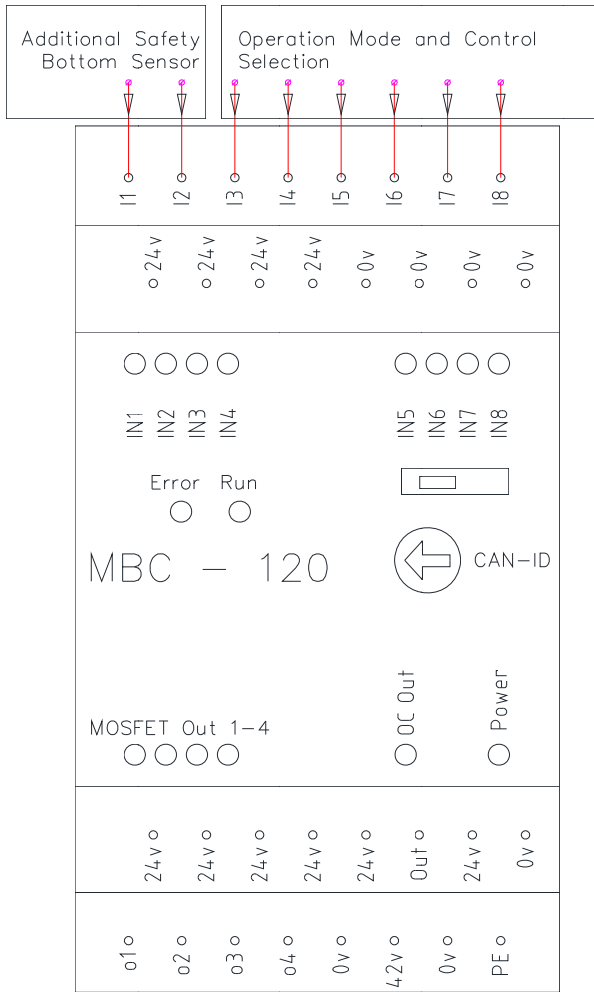
Input	Function	Description
1	Global error / alarm output	When certain errors occur, an alarm is given at this output; it continues as long as the error persists. Refer also to the follow flaps note. Possible errors are: <input type="checkbox"/> Obstruction detected <input type="checkbox"/> Emergency input is interrupted <input type="checkbox"/> CAN communication with end stage is impaired <input type="checkbox"/> Hardware fault in end stage <input type="checkbox"/> Software error in end stage <input type="checkbox"/> Power failure <input type="checkbox"/> Wire breakage in alarm line
	Relay 1	MBC in critical error state
	Relay 2	Tailgating detected
	Relay 3	Intrusion detected
	Relay 4	Wrong way detected
	Relay 5	Passenger has passed from entry to exit or vice versa
	Relay 6	Both flaps are closed

7.3.4 MOSFET Output

- Not isolated
- Switched voltage 5 – 24V
- Switched current 500 mA

MOSFET output	Function	Description
1	Gate End Display green arrow on entry side	This output controls the green arrow in the Gate End Display on the entry side.
2	Gate End Display red cross on entry side	This output controls the red cross in the Gate End Display on the entry side.
3	Gate End Display green arrow on exit side	This output controls the green arrow in the Gate End Display on the exit side.
4	Gate End Display red cross on exit side	This output controls the red cross in the Gate End Display on the exit side.

7.4 Digital Input – MBC 120



Input	Function	Description
1	Additional Safety Sensor at bottom	For Safety Sensor
2	Additional Safety Sensor at bottom	
3	Mode Selection	3 base mode selection (control entry, control exit, control entry and exit)
4	Mode Selection	
5	Open / Close Mode	Select between Open / Close Mode operation
6	Fully free open mode	Force mode to fully free open mode
7	Free entry open mode	Force mode to free entry open mode
8	Free entry exit mode	Force mode to free entry exit mode

8 CONFIGURATION

8.1 Configuration of the MPW gate

Some functions and parameters of the pedestrian barrier can be adjusted via one block each equipped with 8 DIP switches.

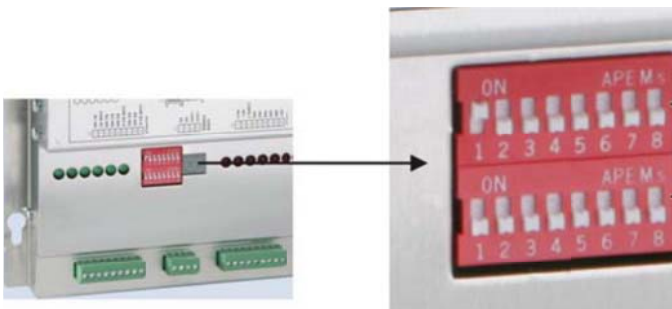
The adjustments or inspections have to be performed:

1. Switch off power supply.
2. Adjust the program mode 2 (MPR) via the DIP switches S2.1 and S2.2.
3. Set passage direction via DIP switches S2.3 and S2.4.
4. Set the "behaviour" when an obstruction is detected via DIP switch S2.8.
5. Check DIP switch for CAN bus termination and addressing on all three control units

Following table shows the DIP switches

DIP switches	Function
1.1	Auto homing & Auto mode
1.2 → 1.6	Not use
1.7	IN1 auto reset (after emergency)
1.8	Show software ID and version (reboot needed)
2.1 – 2.2	Hold open time
2.3 - 2.4	Close delay time
2.7	Not use
2.8	Teach in the home position (only applicable for wing gate types)

Location of DIP switches



9 OPERATION MODE

There are few mode can be chose to operate the MPR gate with different mode as shown on 7.4. below are the mode explain.

9.1 Closed modes / Open modes

All of the application modes except „Fully closed“ are available as so called „closed“ or „open“ modes.

„Closed mode“ means, that the gate stays closed until a passage request is received. When the MBC is driven in an „Open mode“ the paddles stay open unless an invalid passage takes place. „Closed modes“ in general provide more security, „open modes“ are better for higher passenger throughput.

9.2 Full Free Open Mode

This mode is a little special. Both passage directions are authorized automatically, both GEDs always show the green arrow, no wrong way fraud can be triggered.

9.3 Free Entry Open Mode

In this mode the patron does not need an authorization from the MD. The MBC automatically authorizes any patron that walks from direction entry to exit. The GED on the entry side shows a green arrow, the one on the exit side shows the red cross.

9.4 Free Exit Open Mode

Same as „free entry“ but vice versa.

9.5 Control Entry

In this mode the MBC accepts passage requests for direction entry to exit and handles the passages according to the safety and security settings. When the request is received, the hold open time counter is triggered to the value set in the parameter Hold open time. The stays open until the hold open time counter reaches 0 or an object enters from the entry side. As soon as the object passed the gate, the so called „close delay time“ is triggered according to the value set in the Close delay time, As long as this counter is active, the gate stays open until the passenger to safely leave the gate aisle. The GED on the entry side shows a green arrow indicating that the lane can be used. The GED on the exit side shows the Red Cross.

9.6 Control Exit

This mode is basically the same as „controlled entry“ but vice versa. Passage requests are accepted for direction exit to entry. The GED on the entry side shows a red cross, the one on the exit side shows the green arrow.

9.7 Control Entry and Exit

This mode is a combination of the modes „controlled entry“ and „controlled exit“. Passage requests are accepted for both directions and are queued in the order they were sent to the MBC. The flaps do always open in the direction for the next passage. As long as no passage request is queued, both GEDs show the green arrow. For a passage entry->exit, the GED on the entry side shows the green arrow, the one on the exit side the red cross. When the passage direction is toggled, the GEDs are toggled.

9.8 Emergency


There are 2 ways to switch to emergency mode. First, it can be reached from all states (excluding bootloader) by sending the “Set gate mode” telegram with its parameter mode set to “emergency” (0x09). Second, input number 1 is not set. Input 1 on the MBC has a special functionality, because it is directly connected to the servo controller’s (MMC) power stage over the CAN bus connection. If IN1 is not set, the MMCs power stage cannot be powered on. Once switched to emergency mode, the only way to get out is to perform a firmware reset.

9.9 Critical Error


When the MBC encountered a non-trivial error, the FX telegram is sent and the state is forced to critical error. The only way to leave this state is performing a firmware reset.

10 START UP AND OPERATION

General

WARNING !	
	<p>WARNING! Danger by inappropriate start-up and operation! Inappropriate start-up and operation can cause severe injuries or death. Therefore:</p> <ul style="list-style-type: none"> – Only qualified personnel, authorized by the operator and instructed appropriately, may operate the barrier. – Carry out all operating steps according to the specifications of these Operating Instructions. – Prior to start of works ensure that all housing covers are correctly mounted.

Electrical

! DANGER !	
	<p>DANGER! Mortal danger by electric current! Touching live parts can be lethal. Damage to the insulation or to individual components can be lethal. Therefore:</p> <ul style="list-style-type: none"> – Switch off the power supply immediately in case of damage to the insulation and arrange repair. – Only electrical specialists may carry out work on the electrical system. – Before starting work ensure that the electrical system is dead! – Always turn the power supply off and safeguard against unintentional restarting before maintenance, cleaning, and repair work. – 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.

Protective Equipment

The person must be worn during all installation work:

- Work clothes
- Protective gloves
- Safety shoes.

10.1 Start-up

Inspection prior to initial start-up

A must be performed prior to initial startup:

- Check wiring emergency input IN1. .
- Check connection of digital inputs IN9 and IN10.
- Check connection of relays outputs 1 to 6. (if any)
- The program mode is select accordingly.

10.2 Operation

10.2.1 Program Mode MPW

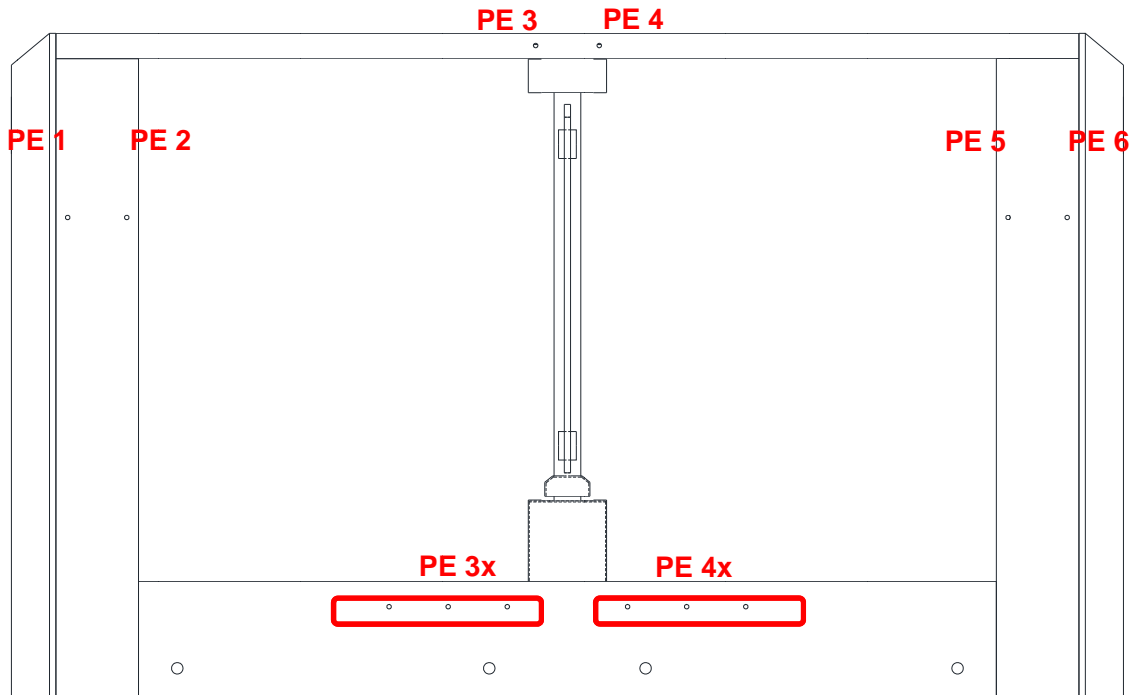
Default setting for the pedestrian barrier MPW is the program mode MPW. This one is set by the as per mode selection setting as per describe at section 7.4 on to the MBC 120 In this program mode the light barriers and the safety light barriers initiate the opening and the closing of the glass flaps and realize unauthorized access attempts.

The light barriers PE1 and PE2 as well as PE5 and PE6 and fulfill the function:

- Opening of the glass flaps if a person enters the freed side
- serve to detect the direction and
- Detect unauthorized access attempts.

The safety light barriers PE3x and PE 4x fulfill the function:

- Safety monitoring
- Close glass flaps if a person passed both light barriers.



10.2.2 Power-off state

When the power is off, the motors have no voltage and the lane is free.

10.2.3 Reference run (homing)

When the power supply is switched on, the wings carry out a reference run. If the home position is not achieved, the control system goes out of service and gives an alarm. A service technician on site must switch the power off and then on again.

10.2.4 Teaching in the home position

For wing gate product types (MPW, KPW), the **DIP 2.8** is used to teach in the home position.

Set this DIP to an and reboot the MBC. The display will show a fast blinking capital „H“ for 10 seconds. Hold both wings in the closed position and wait until you here a 3 seconds long buzzer sound. The home position is stored in the internal EEPROM now. Do not forget to switch DIP 2.8 OFF again.

10.2.5 Normal operation without pulse storage

At the opening inputs, the lane can be enabled for one passage at each input. On receipt of an opening pulse, the hold-open time starts to expire.

If a passage does not start within the hold-open time, the lane is blocked again. The associated opening signal is then cancelled.

If a passage has started, the system will wait until both safety light barriers are interrupted simultaneously for a short time. In this case the hold-open time is immediately cleared, but the barrier does not yet close. Only when both safety light barriers are clear again does the barrier close immediately, unless a safety delay is active. If a safety delay has been set, it will only start to expire when at least one safety light barrier has been interrupted. Only on expiry of the safety delay time, does the barrier close.

Depending on the setting of DIP switch S2.5, the barrier either opens again, or closes if one safety light barrier is interrupted again during closure.

Without pulse storage, a request for a further passage is ignored as long as an already recognized clearance has not been completed. Only when the barrier has closed again, or the hold open time has expired, can a new opening pulse be processed.

10.2.6 Normal operation with pulse storage

In this operating mode, up to 5 opening pulses can be stored and processed sequentially in the order in which they occur (only in bidirectional mode).

When at least one request pulse has been stored, the hold-open time starts to expire immediately. As soon as a passage has been completed, the hold-open time restarts if a pulse is still stored.

The pedestrian barrier remains open until the last opening pulse has been processed.

10.2.7 Attempted break-in

When the flaps are in their closed end position, they are blocked (linkage at top-dead-center). However, should someone succeed in pulling the glass flaps out of their end position, an alarm is given.



10.2.8 Emergency situation

If the input "emergency" is interrupted during operation, the pedestrian barrier goes immediately to a safe condition, i.e. power to the motors is cut off and springs pull the glass flaps to the open position. The lane is thus free for passage in both directions. The control system returns to operation when there is voltage again at the input "emergency"


11 MAINTENANCE

11.1 Safety


General

 WARNING!	
	<p>WARNING! Danger by inappropriate maintenance! Inappropriate start-up and operation can cause severe injuries or death.</p> <p>Therefore:</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. Reinstall all fastening elements correctly.– Before restarting, ensure that all doors locked properly.

Electric current

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

Electric current


⚠ DANGER!	
	<p>DANGER! Mortal danger by electric current!</p> <p>Touching live parts can be lethal.</p> <p>The centre module comprises the master and the slave gate system. A separate electrical circuit exists for each system. One system may be energised.</p> <p>Therefore:</p> <ul style="list-style-type: none"> – Only electrical specialists may carry out work on the electrical system. – Do not touch the mounting plate of the master or slave gate system. The other system may be energised.

Personal protective equipment

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

- Work clothes
- Protective gloves
- Safety shoes.

11.2 Cleaning

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

Carrying out cleaning work:

1. Switch off power supply and secure against restarting.
2. Remove soiling appropriately.
 - Use a water-in-oil emulsion spray as cleaning agent. We recommend the stainless steel care spray of the company 3M.
 - If necessary, pre-clean surface with a damp cloth and dry carefully.
 - Spray surface evenly and thinly with stainless steel care.
 - Clean all external surfaces of the sheet metal and glass parts with damp cloth. Never use wet cloth.
 - Dry clean surface with stainless steel care using a dry and clean disposable cloth.
3. Clean all glass parts with damp cloth.
4. Absorb lubrication and grease deposits with absorbing materials.
5. Remove dust inside the cabinets with a vacuum cleaner.
6. After cleaning work, check that all previously opened covers are closed again and that all safety equipment functions correctly.

1.1 Maintenance schedule

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

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

In case of queries regarding the maintenance work and intervals: contact the manufacturer

Table maintenance schedule

Interval	Maintenance work	To be carried out by
Weekly	Check functionality of light barriers	Electrical specialists
	Check barrier wings for condition and damages.	Operator
Monthly	Visual inspection of all assembly components for condition and damages	Operator
	Check all anchor bolts are firm.	Specialist
	Check the electrical cables and switches for condition and perfect function.	Electrical specialists
	Check if all electrical connections are firm.	Electrical specialists
	Check all glass parts for damages and sharp edges.	Operator
	Check the screws at the reverse side of the barrier wings are firm.	Operator
	Clean the gate modules.	Operator
Every 6 month	Check all glass holder brackets for tightness.	Operator
	Check signs and labels for legibility.	Operator

12 MALFUNCTIONS

This chapter describes possible causes of malfunctions and troubleshooting tasks.

Reduce the maintenance intervals if similar malfunctions occur repeatedly due to above-average intensive use so that the intervals correspond to the actual load.

Contact the manufacturer in case of malfunctions that cannot be repaired by means of the following information.

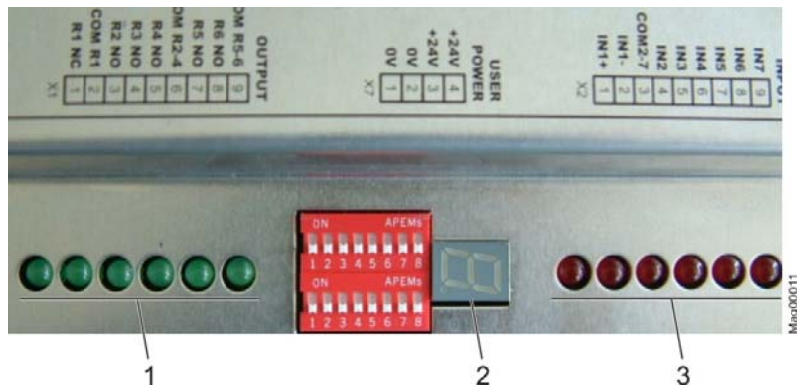
12.1 Malfunction table – Gates

Malfunction	Possible cause	Corrective action	To be carried out by
Barrier wings move too slowly	Motor is overheated.	As soon as the motor has cooled down, the speed will return to normal.	–
	I ² t surveillance has reduced speed to protect the motor.		–
One or both wings do not move.	A mechanical obstruction disables the movement.	Remove obstruction.	Operator
	Cabling inaccurate or defective. Green LEDs must be permanently illuminated at both MMC-120.	Green LED is switched off: Check that there is +42V between terminals DC+ and DC-. If not, check the wiring and power supply.	Electrical specialist
		Green LED blinks: Safety input signal is missing: Check that there is 24V at input IN1 of MBC-110 (red LED on IN1 must be illuminated). Check that the CAN cables between the controllers are not damaged. Check that the CAN addresses on all controllers are correctly set. Check that the CAN termination resistors on all controllers are correctly set.	Electrical specialist
	Check if one or both MMC-120's are showing an error.	The red LED shows the error code: Count the number of blink impulses and look up the error code. Refer to Error! Reference source not found.	Specialist / Electrical specialist
Check if the MBC-110	Read the error code in the display:	Specialist /	

Malfunction	Possible cause	Corrective action	To be carried out by
	display is showing an error.	Look up the error code. Refer to Error! Reference source not found.	Electrical specialist
	Emergency input has possibly been interrupted. Red LED at IN1 of the MBC-110 must be illuminated.	If the red LED is not illuminated, check the emergency input.	Specialist
One or both wings do not move (continuation)	Light barrier covered.	Remove obstruction.	Operator
One or more light barriers do not operate	Wiring incorrect or light barriers defective.	Orange supply voltage LEDs must be illuminated on transmitter and receiver. Green status LED on receiver must change state when the light barrier is interrupted by passing your hand through it. The status of light barriers LS 1 to LS 16 can also be checked at the appropriate red LEDs at inputs IN1 to IN 8 of the two controllers MBC-120.	Electrical specialist
Gate End Display does not work.	Incorrect connection of the Gate End Display.	Check wiring and connection of the Gate End Display.	Electrical specialist

Table 1: Malfunction table – gates

12.2 Malfunction – Logic controller MBC-110



Tab. 1: Fig. 1: LEDs on the logic controller MBC-110

- 1 Green LEDs indicate the switching status of the customer interface outputs
- 2 One-digit 7-segment 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.
- Green LED is switched on: Output is activated.
- Green LED is switched off: Output is not activated.

12.3 Display of the error codes at the MBC-110

Error codes are shown in the one-digit display of the MBC-110. The characters of the error codes are displayed one after another.

Example

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.

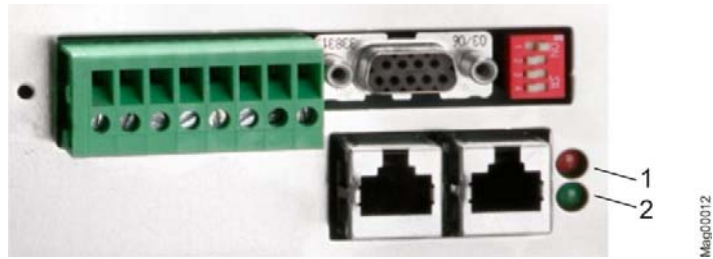
Error code(HEX)	Description
00	No program found. Running boot loader
01	Program CRC sum error
02	MCU peripherals init error
03	MCU software resources init error
04	MCU internal FLASH error
05	CAN open initialization error
06	EEPROM error
07	Communication stack overflow error. Note: Since communication is eventually not possible anymore, there's no guarantee that this error will be signaled with a „FX“ telegram.
08	-0F RFU
10	Communication with servo 1 not possible
11	Communication with servo 2 not possible
12	Communication with servo 3 not possible
13	Communication with servo 4 not possible
14-15	RFU
16	Communication with I/O extension box 1 not possible

17	Communication with I/O extension box 2 not possible
18	Communication with I/O extension box 3 not possible
19	Communication with I/O extension box 4 not possible
1A-1F	RFU
20	Servo software crosscheck discrepancy. MMC reprogramming required (deprecated, please refer to the replacing error code A9)
21	Error while reprogramming firmware of servo controller nr. 1
22	Error while reprogramming firmware of servo controller nr. 2
23	Error while reprogramming firmware of servo controller nr. 3
24	Error while reprogramming firmware of servo controller nr. 4
25-2F	RFU
30	Homing error due to mechanical blockade. Reboot or maintenance required
31	Homing error due to unset home position
32	Other critical mechanical related error
32-50	RFU
51	PE beam nr. 1 defect
52	PE beam nr. 2 defect
53-6F	PE beam nr. 3 up to 31 defect
70	PE beam nr. 32 defect
71-97	RFU
98	Power failure detected
99	Switched to emergency mode
9A-9F	RFU
A0	Servo 1 missing safety voltage
A1	Servo 1 missing resolver feedback
A2	Servo 1 power stage voltage too low
A3	Servo 1 power stage overheat

A4	Servo 1 open motor phase
A5	Servo 1 shortage between phase and ground
A6	Servo 1 shortage between motor phases
A7	Servo 1 motor phases mixed up
A8	Servo 1 firmware corrupted
A9	Servo 1 firmware outdated
AF	Servo 1 unspecified error
B0 – BF	Same as A0-AF, but for servo nr. 2
C0 – CF	Same as A0-AF, but for servo nr. 3
D0 – CF	Same as A0-AF, but for servo nr. 4

These errors are not implemented by the servo controller firmware at the moment and will be

12.4 Malfunction – Motor controller MMC-120



Tab. 2: Fig. 2: 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 / Corrective action	To be carried out by
Green LED is OFF.	No power supply	Check power supply.	Electrical specialist
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.	Electrical specialist
Green LED is ON.	Normal operation	–	–
Red LED is OFF	No error code	–	–
Red LED is ON.	External error with emergency stop	Check emergency stop.	Electrical specialist
Red LED is flashing	Error Number of blink impulses indicates the error code.	Refer to Error! Reference source not found..	Electrical specialist
Red and green LED are ON	Application program has been erased. Bootloader is waiting for downloading the application program.	Download has been interrupted. Refer to the following Section "Downloading application program".	Electrical specialist

Error code	Description	Possible cause	Corrective action
2	Resolver error	Plug not properly inserted, short circuit	Insert plug correctly
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	1 st surveillance motor	Motor overloaded	

12.5 Downloading application program

If the red and green LEDs of both MMC-120 are permanently illuminated, it is not possible to download the software from the MBC-110 to the MMC-120. The MBC-110 wrongly detects two boot loaders.



Carry out the following procedure:

1. Switch off the power supply.
2. Disconnect the second MMC-120 from the CAN bus (motor M2).
3. Switch on the power supply.
4. The first MMC-120 will be automatically programmed by the MBC-110 controller. The MBC-110 display will show the sequence "c", "d", "b" during this time. This will take about 30 seconds.
5. Switch off the power supply.
6. Re-connect the second MMC-120 (motor M2).
7. Switch on the power supply.
8. The second MMC-120 will be automatically programmed by the MBC-110 controller. The MBC-110 display will show the sequence "c", "d", "b" during this time. This will take about 30 seconds.
9. Switch off the power supply.
10. Switch on the power supply.
11. Now both MMC-120 should be programmed and ready for operation.


13 REPAIR

13.1 Safety


General

 WARNING!	
	<p>WARNING! Danger by inappropriate maintenance! Inappropriate start-up and operation can cause severe injuries or death.</p> <p>Therefore:</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. Reinstall all fastening elements correctly.– Before restarting, ensure that all doors locked properly.

Electric current

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

Electric current

⚠ DANGER!	
	<p>DANGER! Mortal danger by electric current!</p> <p>Touching live parts can be lethal.</p> <p>The centre module comprises the master and the slave gate system. A separate electrical circuit exists for each system. One system may be energised.</p> <p>Therefore:</p> <ul style="list-style-type: none"> – Only electrical specialists may carry out work on the electrical system. – Do not touch the mounting plate of the master or slave gate system. The other system may be energised.

Personal protective equipment

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

- Work clothes
- Protective gloves
- Safety shoes.

13.2 Exchanging motor controller MMC-120

1. Switch off power supply.
2. Note position of DIP switches. With the DIP switches the CAN address and termination are set.
3. Disconnect cables.
4. Replace motor controller MMC-120.
5. Reconnect cables. Set DIP switches to previous setting.
6. Power-up the gate.
7. At the first boot-up sequence the replaced motor controller will be re-programmed. The MBC-110 display will show the sequence “c”, “d”, “b” during this time. This will take about 1 minute.

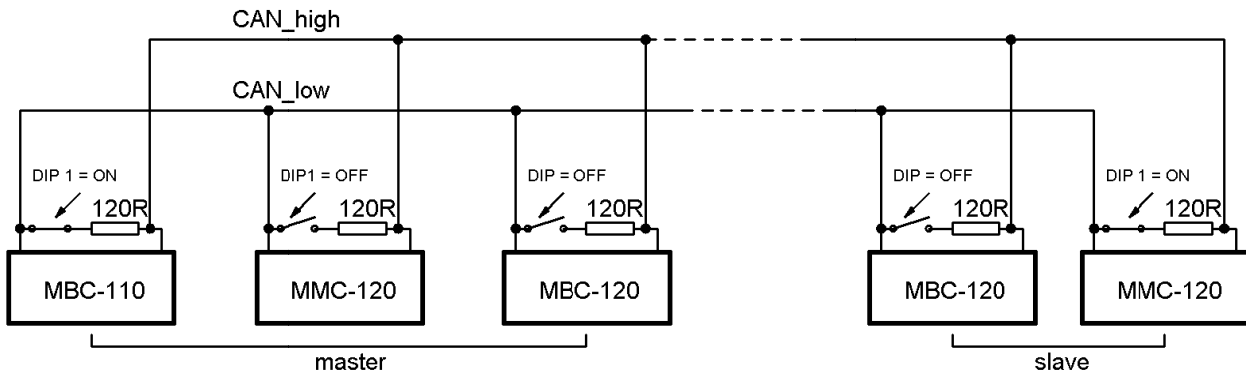
13.3 Exchanging logic controller MBC-110

1. Switch off power supply.
2. Note position of DIP switches. With the DIP switches the CAN address and termination are set.
3. Disconnect cables.
4. Replace logic controller MBC-110.
5. Reconnect cables. Set DIP switches to previous setting. Refer to your notes.
6. Set homing position as per section 10.2.4

13.4 CAN bus addressing and termination

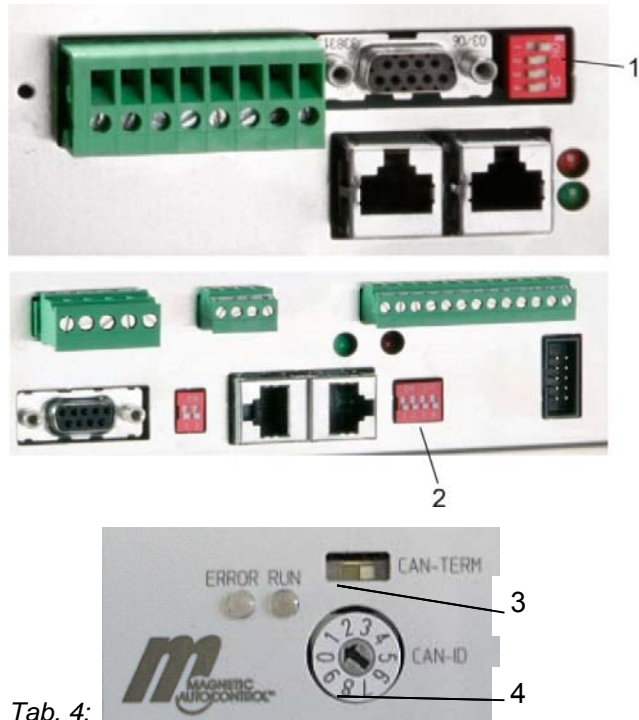
The MBC-110 logic controller, the two MMC-120 motor controllers and the two MBC-120 I/O extensions exchange data via CAN bus.

Each of the controllers must have a fixed CAN address assigned to it. Additionally, a termination resistor must be activated at both ends of the bus to prevent interference. Also see Table 11.



Tab. 3: Fig. 3: CAN bus termination

Each controller is equipped with DIP switches or rotary switches to set the CAN address and activate a termination resistor.



Mag00013

Tab. 4:

Tab. 5: Fig. 4: DIP-switches and rotary switch for CAN bus addresses and termination

- 1 DIP-switch block of MMC-120 Master and MMC-120 Slave
- 2 DIP-switch block of MBC-110 Master
- 3 DIP-switch of MBC-120 Master and MBC-120 Slave
- 4 Rotary switch of MBC-120 Master and MBC-120 Slave



The DIP switches must be set according to the following table:

Function	DIP-switch	MBC-110 Master	MMC-120 Master	MMC-120 Slave
Termination	1	ON	OFF	ON
CAN address	2	OFF	OFF	ON
	3	OFF	OFF	ON
	4	OFF	OFF	ON

Function	MBC-120 Master
Termination DIP-switch	OFF
CAN address Rotary switch	0




Table 2: Setting of the DIP-switches and the rotary switch

14 SPARE PARTS

 WARNING!	
	<p>WARNING! Risk of injury by incorrect spare parts! Incorrect or defective spare parts can result in damage, malfunctions or total failure and also impair safety. Therefore: – Use only the manufacturer's original spare parts.</p>

Procure spare parts from authorised dealers or directly from the manufacturer. Refer to page 2 for address.


Following spare parts are available:

Part number	Description	Picture
MPE A37320119	PE beam pair Tx/Rx PNP	
TFR A30845034	Power supply 115V-240V, 42V/30V	
MBC-110B-F110-5007	Logic controller including software	

Part number	Description	Picture
MMC-120A-F000	Motor controller unit 48V	
MBC-120B-F000	I/O box 30V	
MHT-110A	Motor 48Vdc 2.7 Nm	
MPR A33755003 LOC	Gate end display	
AFC A 30165015	Electromagnetic tooth brake 90-51 KPW	
AFC A10035077	Drive unit shaft (comes with flange)	
-	Polystyrene Flap foam cpl 2	NA

Table 3: List of spare parts



15 DECOMMISSIONING AND DISPOSAL

NOTICE!	
	<p>NOTICE! Danger for the environment by hazardous materials!</p> <p>Incorrect handling of environmentally hazardous materials, in particular incorrect disposal, can substantially damage the environment.</p> <p>Therefore:</p> <ul style="list-style-type: none"> – Observe the valid environmental directives. – After appropriate disassembly the parts have to be recycled. – Separate the recyclable fraction and send for recycling. – Dispose lubrication and grease properly. – Take immediate suitable measures, if environmentally hazardous materials are inadvertently released into the environment. <p>In case of doubt, inform the responsible local authority about the damage.</p>

A gate module 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 gate module, it must be completely separated from the surrounding units.
- The disassembly and disposal of the gate module may only be carried out by specialised staff.
- Lubricants and greases must be properly stored and must not be allowed to enter the environment in an uncontrolled fashion.
- The gate module has to be disposed of in accordance with the respective country-specific regulations.

Risk of fire

 WARNING!	
	<p>WARNING! Risk of injury by fire!</p> <p>Incorrect disposal of combustible or flammable materials can cause fire and therefore severe injuries or death.</p> <p>Therefore:</p> <ul style="list-style-type: none">– Dispose combustible or flammable materials correctly and not with normal rubbish.



NOTE!

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

16 **ELECTRICAL SCHEMATIC DIAGRAM – AT ATTACHMENT**