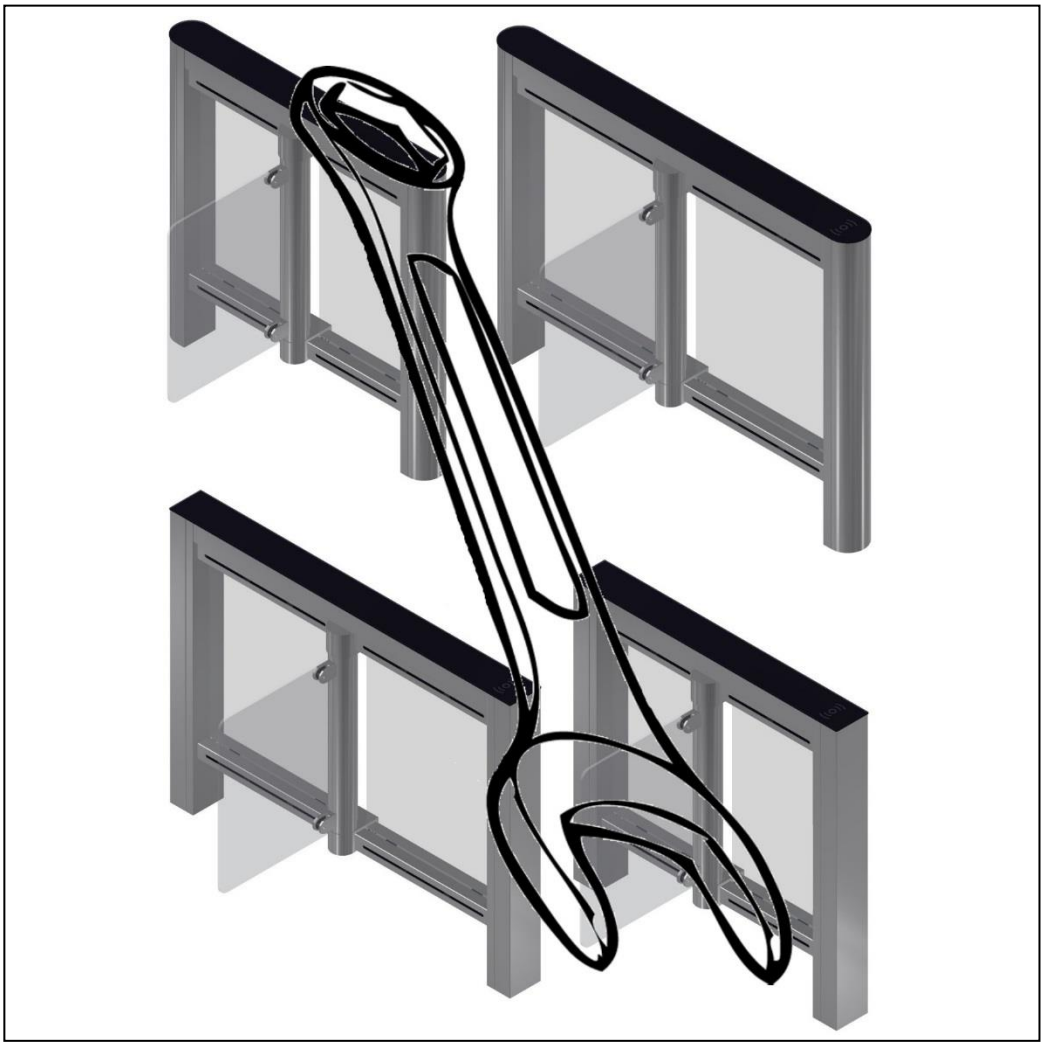


INSTALLATION INSTRUCTIONS FOR TURNSTILES TYPE:

EASYGATE

(EASYGATE-SG, EASYGATE-SR with electronics MLU5)

Appendices at the end of these installation instructions:

- CLAIM REPORT FORM

1. INTRODUCTION

These Installation Instructions are intended for technicians of the Service Department of the COMINFO Company, or workers who passed the Installation schooling provided by the COMINFO company. These Instructions describe installation procedure, electronic construction, function and connection of individual components of the whole EASYGATE system of turnstiles, which is intended for checking and control of passing persons.

Chapters dealing with connection of control electronics are for illustrative purposes intentionally compiled in a way so that the colour design of interconnecting cables is clear. In case of a printed version of these Instructions, the manufacturer strongly recommends to print them in colour. Instructions are intended for turnstiles fitted with MLU5 electronics of the 5V6 version or higher.

Turnstile installation must always be performed in accordance with approved project documentation!

Integral part of these Instructions are also the separate *Instructions for use of the EASYGATE-SG and* SR type turnstiles, which contains basic description of the turnstiles, description of the turnstile operation and a Troubleshooting chapter.

The Instructions employ the following categories of safety instructions:

DANGER!
Mechanical danger. Omission of these instructions may cause personal injuries or device damage.

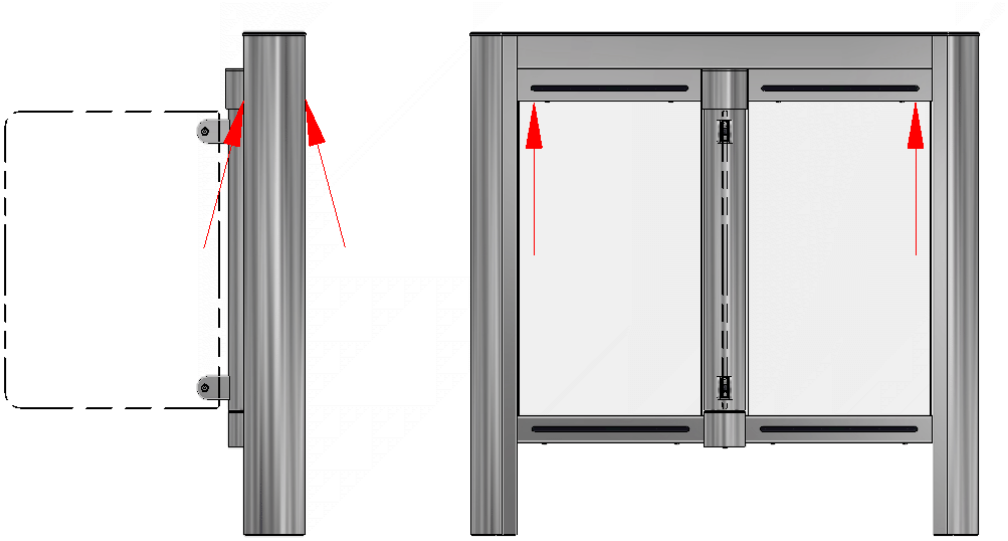
WARNING!
Important information or procedure.

NOTICE!
Information or procedure recommending how to use the device or its equipment optimally and thus prolong its lifetime, prevent potential damage and optimize work in relation to the safety standards.

2. TURNSTILE TRANSPORT AND HANDLING

Turnstile is packed in a transport wrapping. Transport the turnstile to the place of destination in its transport boxing using a forklift. When handling the turnstile, pay increased attention with regard to the safety of persons and potential damage of the turnstile.

After unwrapping, take the turnstile to a predetermined place. At least two persons should cooperate when manipulating the turnstile. Carry the turnstile by the upper sensors covers as per the arrows in the figure:



It is not allowed to carry the turnstile by its upper lid or its wings.

Table of weights of EASYGATE-SG turnstiles including wings (437mm wing):

Turnstile cabinet length:	1000 mm	1320 mm
Turnstile	Weight [kg]	Weight [kg]
EASYGATE-SG-S -0W	**49**	**61**
EASYGATE-SG-S -1W	**66**	**78**
EASYGATE-SG-M-0W	**52**	**64**
EASYGATE-SG-M-1W	**68**	**81**
EASYGATE-SG-M-2W	**83**	**96**

Table of weights of EASYGATE-SR turnstiles including wings (437mm wing):

Turnstile cabinet length:	1000 mm	1320 mm
Turnstile	Weight [kg]	Weight [kg]
EASYGATE-SR-S -0W	**50**	**62**
EASYGATE-SR-S -1W	**67**	**79**
EASYGATE-SR-M-0W	**53**	**65**
EASYGATE-SR-M-1W	**69**	**82**
EASYGATE-SR-M-2W	**84**	**97**

- the weight is valid for turnstiles that include complete optional accessories
- glass wing width 437mm is used for these passage gates:
  - one-wing version = gate width 550mm
  - two-wing version = gate width 950mm

Information on assignment of glass widths depending on the required gate width can be found in the chapter *Turnstile wings dimensions*.

3. INSTALLATION OF THE TURNSTILE

Turnstile is supplied partially disassembled and its installation requires technical knowledge, knowledge of technological assembly procedure and skillfulness.

Turnstile can only be installed by a COMINFO service department employee or worker, who possess the certificate of installation schooling from the COMINFO Company.

Connection to the mains power supply may only be performed by an authorized person with the appropriate qualifications.

For correct function of the turnstile, the area of installation must be perfectly level.

When putting the turnstile into operation, initialization of the turnstile takes place after each connection or loss of power supply. During the initialization, the turnstile wings slowly move to the stop ends in both directions and then stop in a closed position. It is forbidden to enter the turnstile corridor and manipulate the wings during initialization.

3.1. TURNSTILE WINGS DIMENSIONS

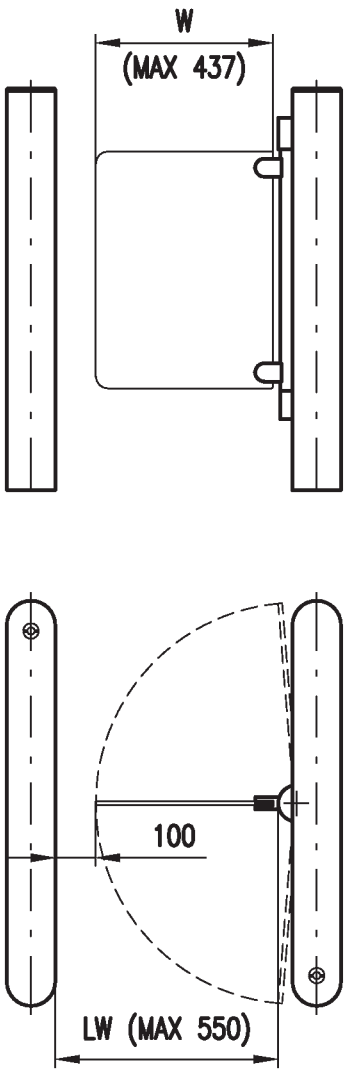
The glass wing can have any width up to the maximum allowed dimensions for all types of turnstiles.

CAPTIONS FOR THE FIGURES AND THE TABLES:

W Wing glass width
LW Passage gate width

3.1.1. EASYGATE-SG-1000 and SR-1000

ONE-WING VERSION:



TWO-WING VERSION:

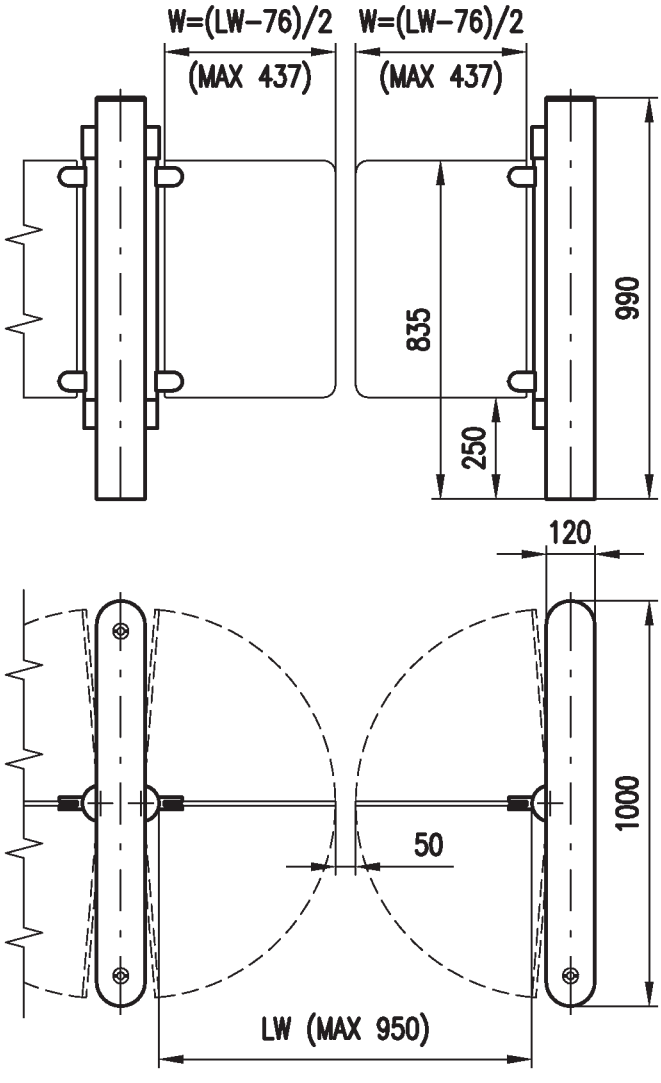
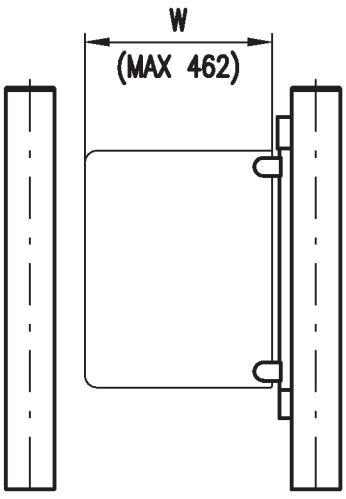


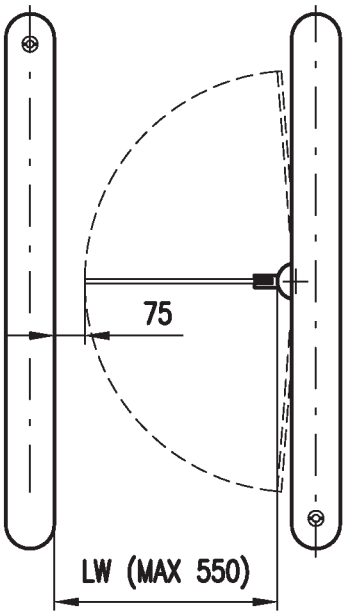
Table of standard widths of glass wings:

	LW	W
One-wing version	550 mm	437 mm
Two-wing version	650 mm	287 mm
	920 mm	422 mm

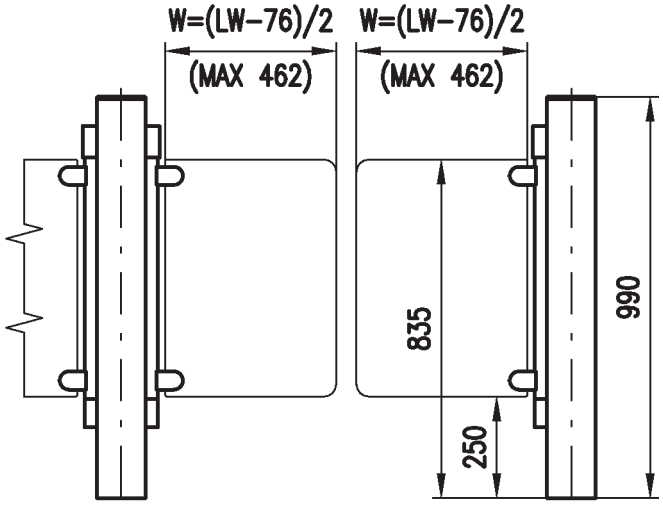
3.1.2. EASYGATE-SG-1320 and SH-1320

ONE-WING VERSION:





TWO-WING VERSION:



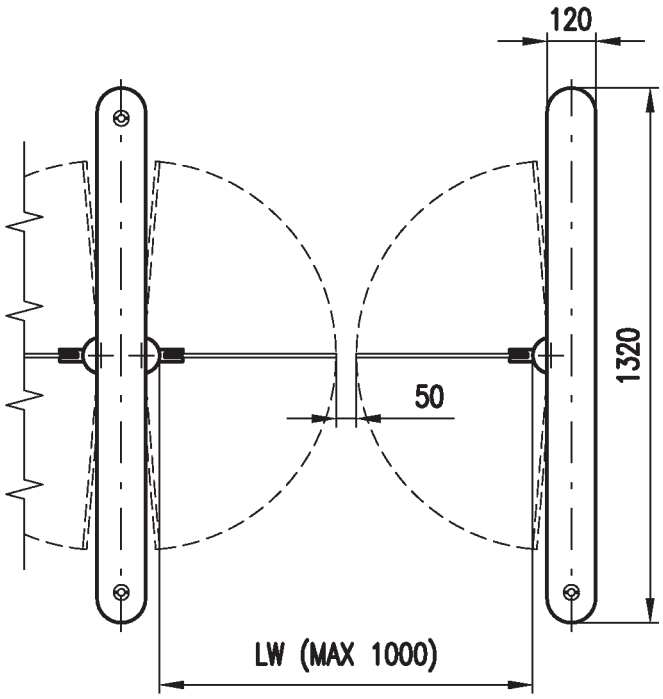


Table of standard widths of glass wings:

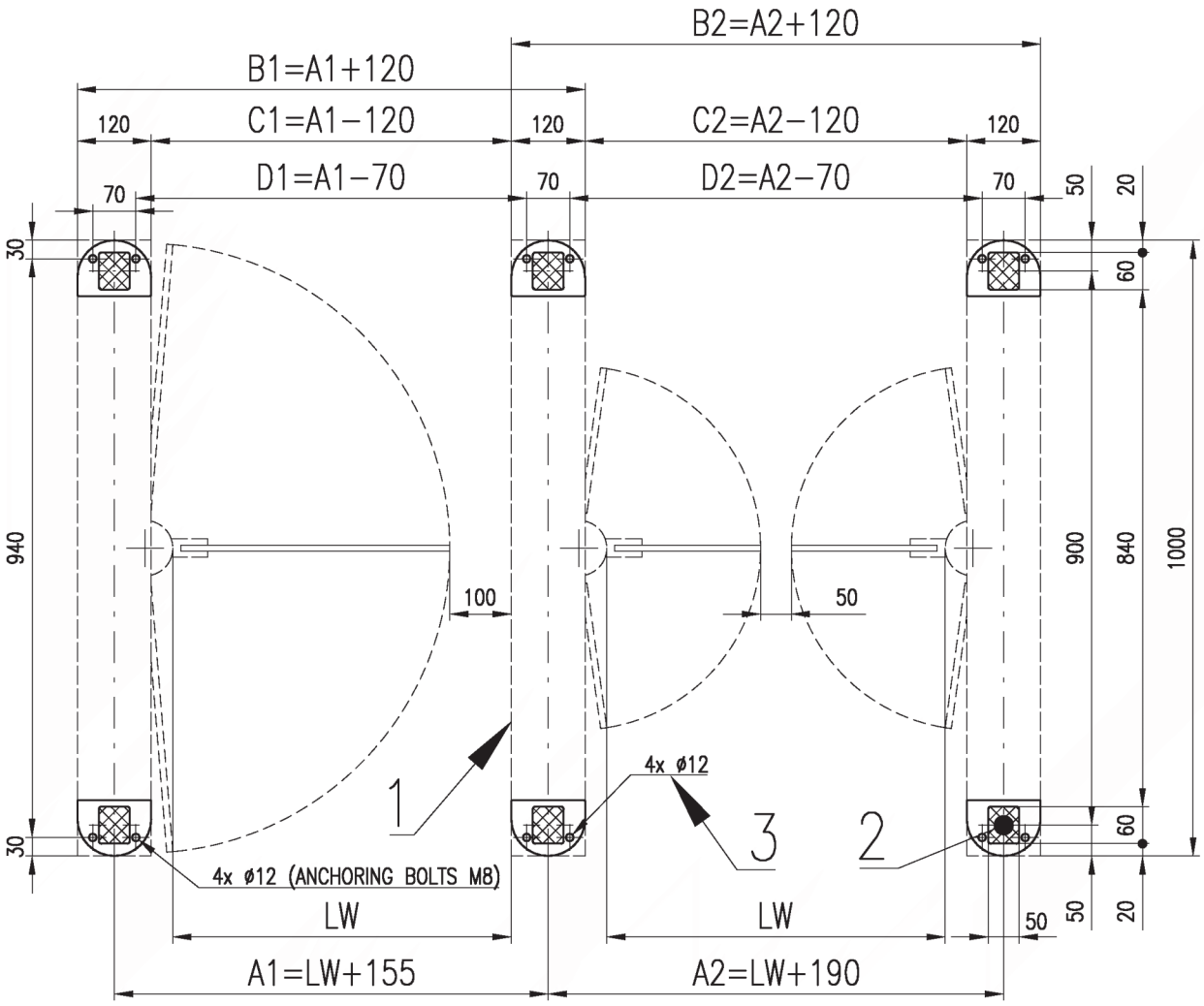
	LW	W
One-wing version	550 mm	462 mm
Two-wing version	650 mm	287 mm
	920 mm	422 mm

3.2. DIMENSIONS FOR ANCHORING

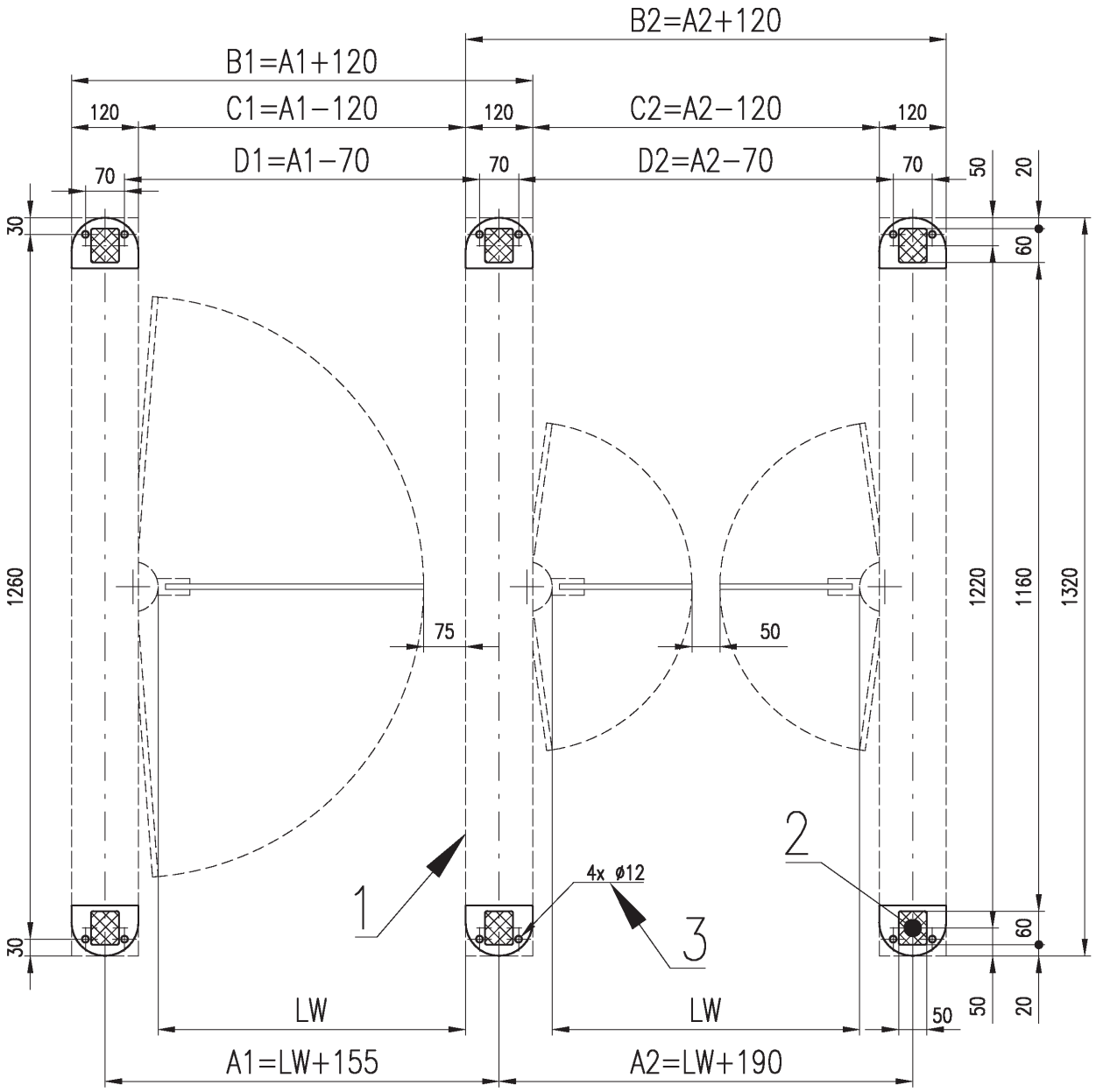
CAPTIONS FOR THE FIGURES:

1. Contour of the turnstile (dashed lines)
2. Holes for cables (cross-hatched)
3. Holes for M8 anchoring bolts

3.2.1. EASYGATE-SG-1000 and SR-1000

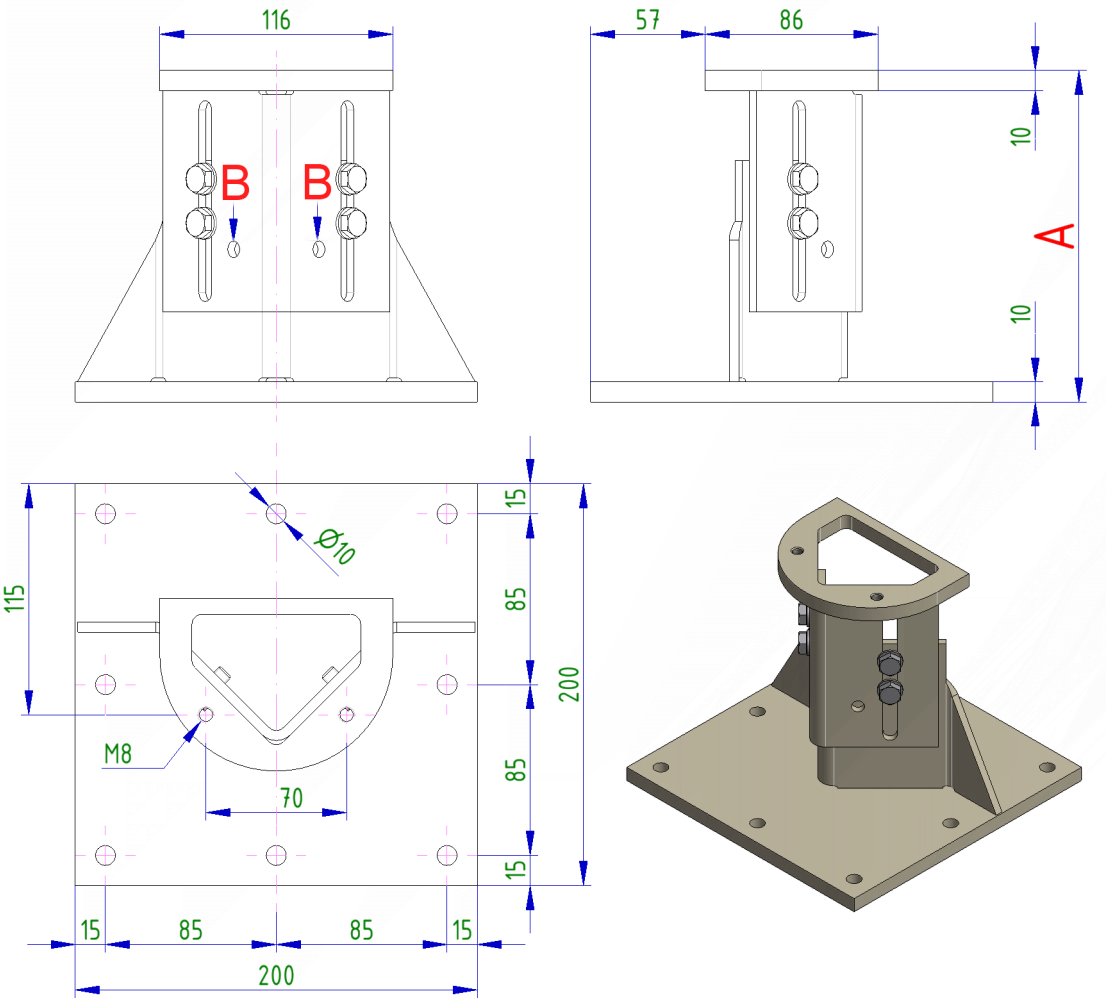


3.2.2. EASYGATE-SG-1320 and SR-1320



3.2.3. Anchoring base

In case of EASYGATE-SG and SR turnstiles, the anchoring base is used when installing to interlocking paving or double floor. Two anchoring bases are necessary for installation of one turnstile. The base is height adjustable in different ranges "**A**" (75-112mm, 90-142mm, 130-200mm, 180-280mm, 215-350mm). After the anchoring base is anchored and the required height is set, it is necessary to drill the lower part with the upper part of the base in the "**B**" spots, and secure them by an M8 bolt and nut.



3.3. THE SYSTEM OF TURNSTILE ARRANGEMENT

The system of turnstile arrangement is always that the outer turnstiles are the SIDE type and in between are the MIDDLE type, this way you can arrange any number of gates. Two SIDE type turnstiles are necessary to form one basic gate. When placing turnstiles for multiple gates with a EASYGATE MIDDLE turnstile type, it is necessary to differentiate the outer EASYGATE-SIDE turnstiles in terms of internal electronic equipment:

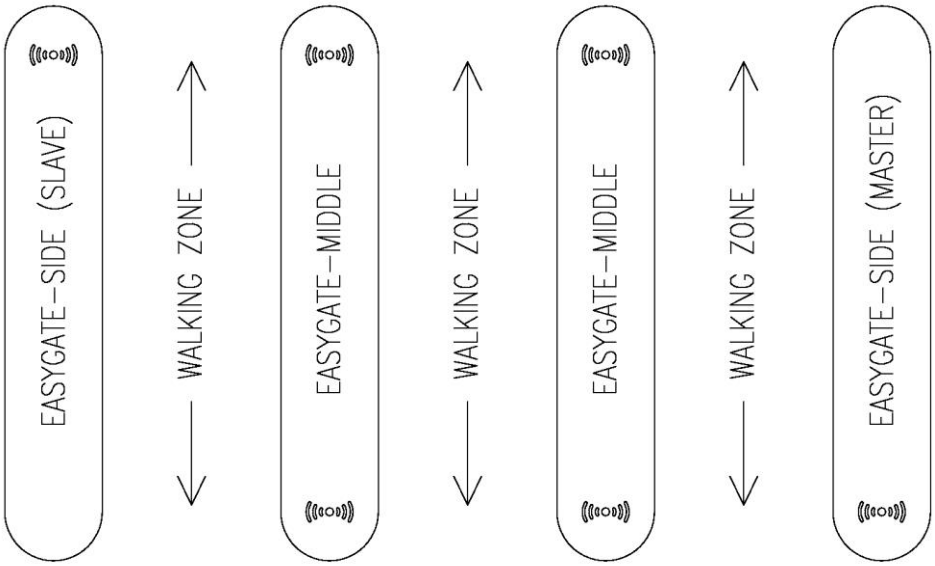
EASYGATE SIDE MASTER:

The turnstile has built-in receivers of optical passage sensors and control electronics which controls both drive units of one gate.

EASYGATE SIDE SLAVE:

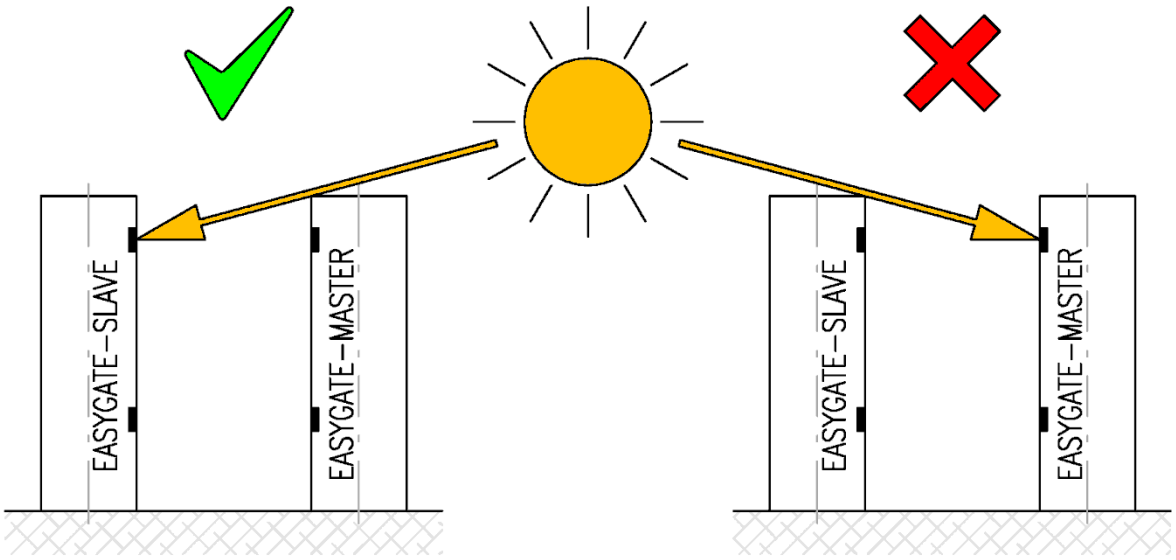
The turnstile has only a motor unit built-in, it is equipped with transmitters of optical sensors and is only able to operate in connection with the EASYGATE SIDE MASTER or EASYGATE MIDDLE turnstile.

Example of turnstile arrangement for three gates:



THE EFFECT OF SUNLIGHT ON THE WAY OF TURNSTILE INSTALLATION:

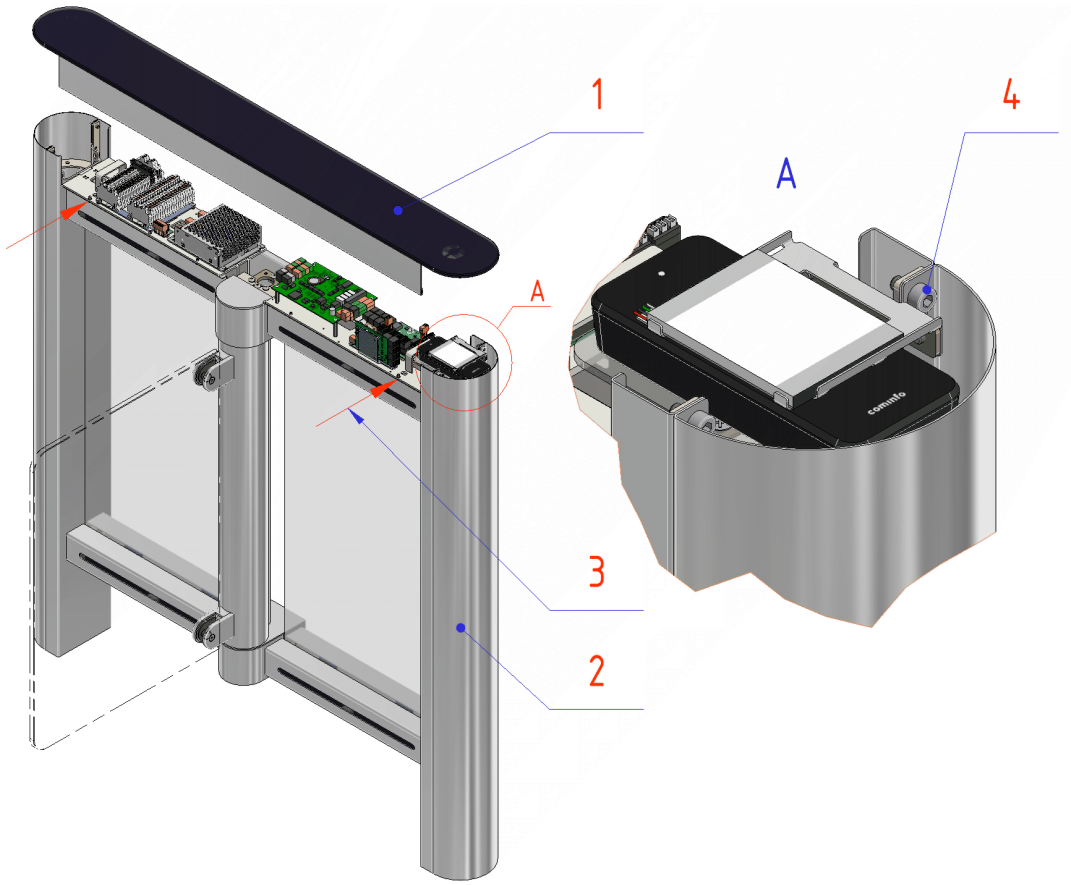
If there is a chance that the rising or setting sun will shine directly on turnstiles in the place of installation in a way that receivers of optical sensors of passage gate of a **MASTER** turnstile will be exposed to direct sunlight, we must carry out appropriate measures so that this does not happen, or turn the installation in a way that the sun shines to the transmitters of optical sensors of the **SLAVE** turnstile. Oversaturation of receivers of optical sensors by sunlight would cause the sensor to evaluate an obstacle in the turnstile corridor and make the turnstile close and open incorrectly, making it non-functional.



If it is not possible to carry out appropriate measures or turn the installation, we must substitute the transmitting and receiving optical sensors of the respective passage gate. In case such substitution is performed, it is necessary to expect that the turnstile will be put out of operation for about 3 hours. If you are about to make such a substitution, please request a separate Manual for the respective turnstile type.

3.4. DESCRIPTION OF ACCESS TO THE ANCHORING HOLES

Access the anchoring holes after disassembling two front covers (pos.2) of the turnstile. To dismantle the front covers, first dismount the upper turnstile lid (pos.1).



Removing the upper lid:

- Unscrew four M4x8 bolts (pos.3). The bolts are located on both sides of the turnstile from the underside of the top lid.
- Carefully pull the top lid (pos.1) directly upwards so the internal accessories cannot be damaged.
- Put the dismounted cover on a predetermined place.

Removing the front cover:

- Loosen the two M5x10 bolts (pos. 4).
- Pull the front cover (pos.2) upwards by approximately 9mm.
- Pull the front cover away from the turnstile.
- Put the dismounted cover on a predetermined place.

When putting the upper lid back, pay attention that the internal accessories of the turnstile are not damaged.

3.5. DESCRIPTION OF ACCESS TO THE CONTROL ELECTRONICS AND TERMINAL BLOCKS

To access the control electronics, terminal blocks and power supply of the respective gate, remove the upper lid and front cover according to chapter *Description of Access to the Anchoring Holes*. The control electronics is always located in the MASTER turnstile.

Two-wing version:

In this case, the control electronics is usually placed on the entrance side of the passage gate of the right turnstile. Location of the control electronics depends on mutual combination of two-wing and one-wing versions in one set, depending on optimal cable interconnection of the turnstiles. Correct arrangement of the MASTER and SLAVE turnstiles must always be addressed in the applicable project.

One-wing version:

In this case, the control electronics is always placed in the turnstile, in which the drive unit for the given passage gate is located.

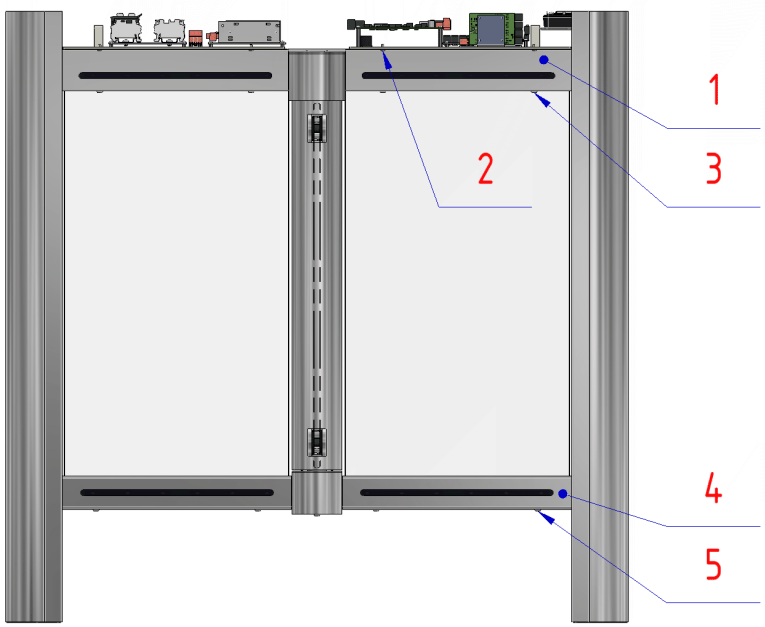
3.6. DESCRIPTION OF ACCESS TO THE OPTICAL SENSORS

Top optical sensors:

- Remove the top lid according to chapter *Description of Access to the Anchoring Holes*.
- Unscrew the M4x8 bolt (pos.2).
- Unscrew the two M5x6 bolts (pos.3).
- Pull the sensors cover (pos.1) away from the turnstile.

Bottom optical sensors:

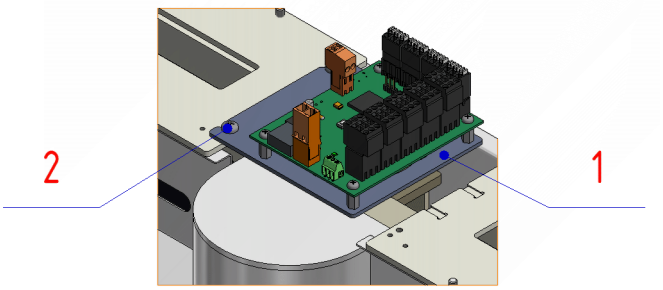
- Unscrew the two M5x6 bolts (pos.5).
- Pull the sensors cover (pos.4) away from the turnstile.



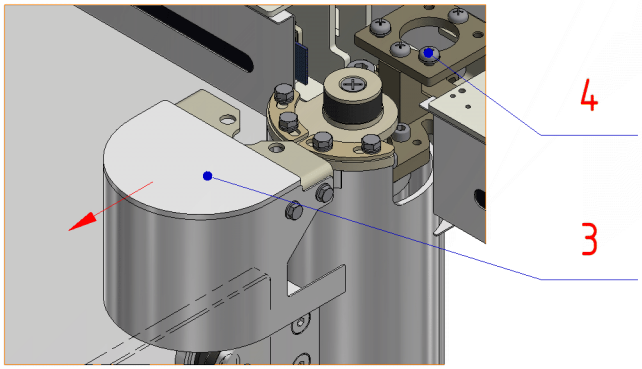
When handling the sensor covers, make sure you do not damage the surface of the surrounding turnstile covers. Always put the covers to a predetermined place.

3.7. DESCRIPTION OF ACCESS TO THE WING STOPPERS

1. Remove the top lid according to chapter *Description of Access to the Anchoring Holes*.
2. Loosen the two M4x6 bolts (pos.2) and dismantle the CLU electronics board (pos.1).



3. Unscrew the two M5x10 bolts (pos.4).



4. Carefully pull the stoppers cover back in the direction of the arrow (pos.3).

3.8. ATTACHING THE WINGS

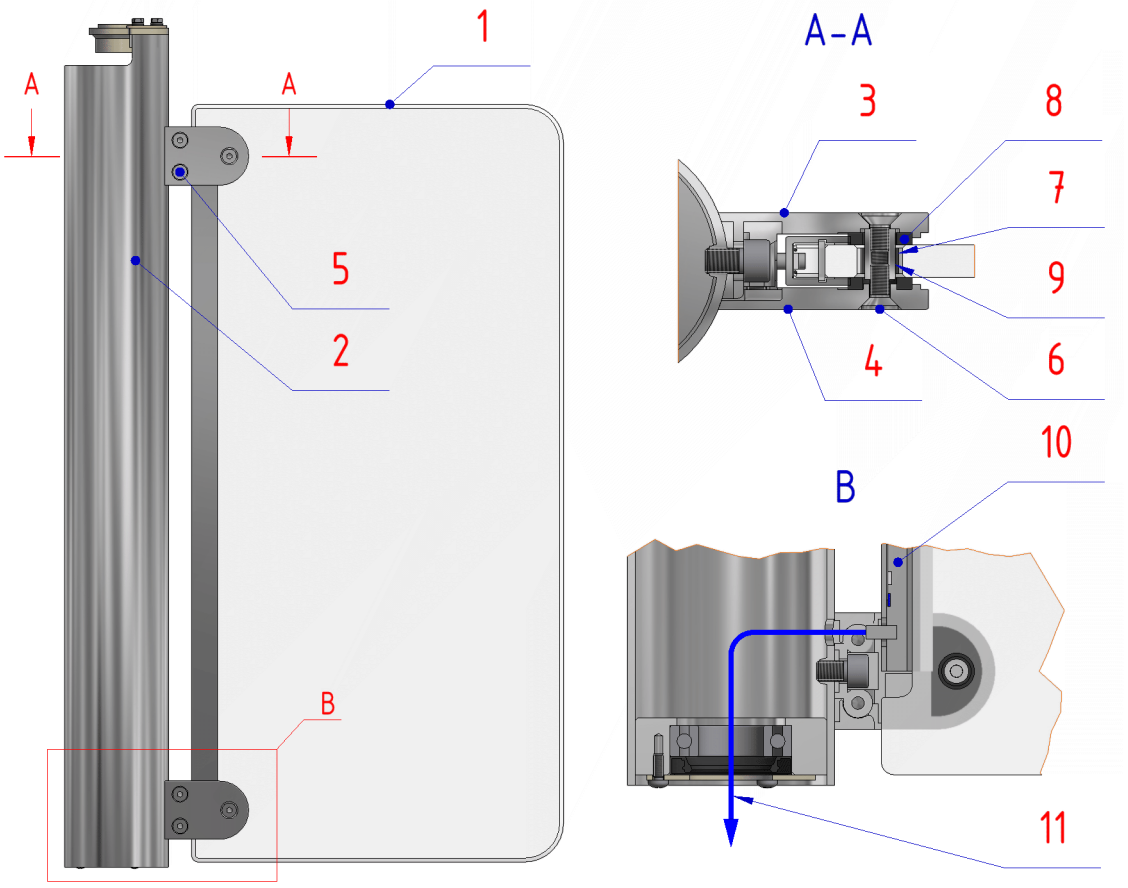
At least two persons should cooperate when manipulating the glass wings. The loose and fixed parts of the glass holders are paired and must not be interchanged. Tighten the bolts (pos.5 and 6) with a tightening torque of 5Nm.

The wings of EasyGate-SG and SR turnstiles are available in four versions:

1. without Hinge Capping / without Wing Light (standard)
2. without Hinge Capping / with Wing Light
3. with Hinge Capping / without Wing Light
4. with Hinge Capping / with Wing Light

3.8.1. Wings without Hinge Capping

The glass holders consist of a fixed part (pos.3) which is a part of the wing tube (pos.2) and a loose part (pos.4). By default, these holders are mounted in the turnstile gate so that the fixed parts (pos.3) are on the entry side.



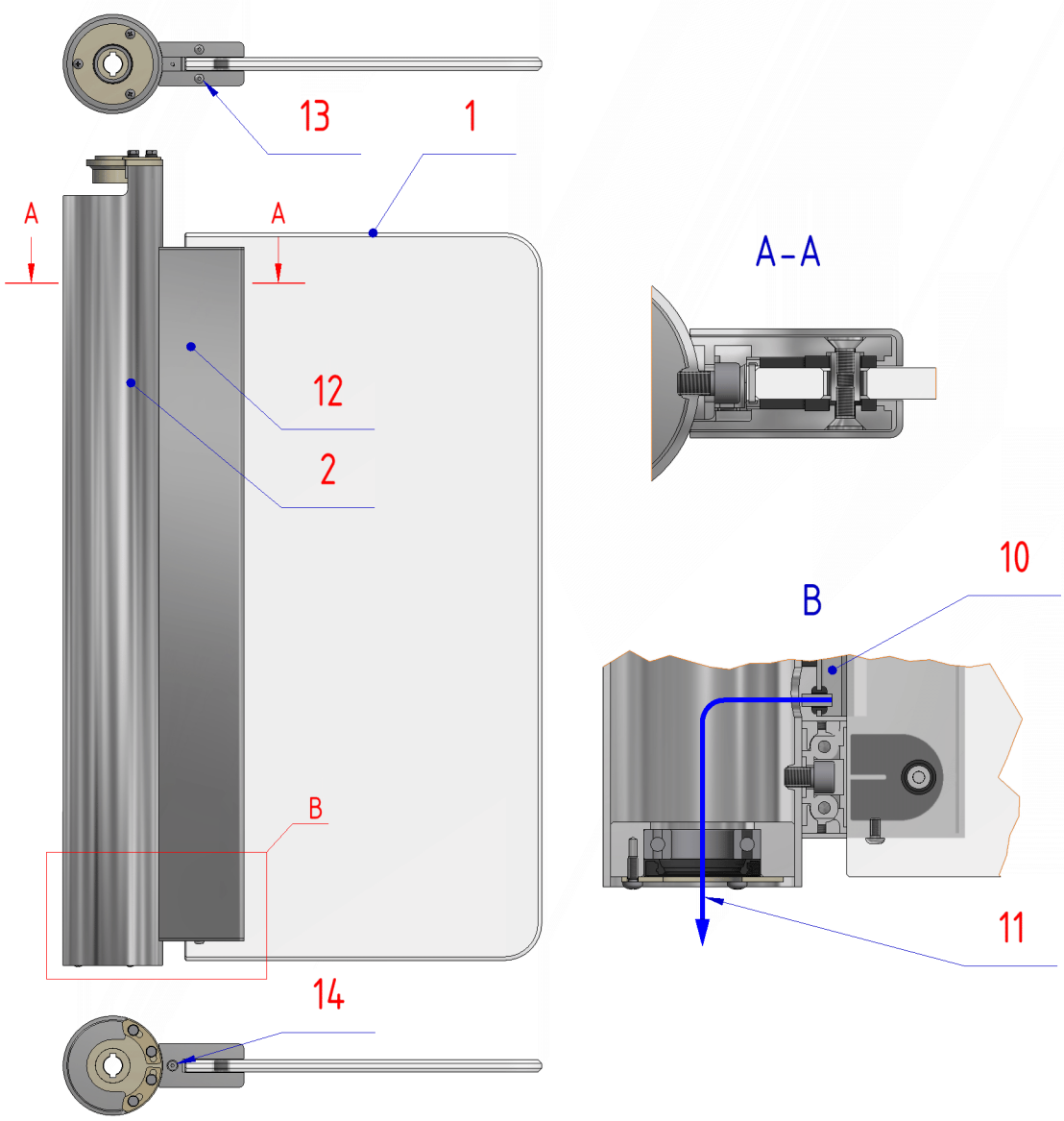
DESCRIPTION OF MOUNTING THE GLASS WING

1. Remove all the M6x14 (pos.5) and M6x16 bolts (pos.6) from the side of loose parts of glass holders (pos.4). Remove the loose parts of the glass holders (pos.4).
2. Check that all holders include rubber inserts (pos.8) used for contact with glass.
3. If Wing Light (pos.10) is included, lead the wiring through the bottom part of the wing (pos.11).
4. In cooperation of two persons mount the glass wing (pos.1) on the holder pins (pos.9) which must be fitted with a rubber tube (pos.7) from the factory.
5. While one person slightly lifts the glass and sets it in position, the other person lightly screws the loose part of the holder (pos.4) to the upper holder using two M6x14 bolts (pos.5).
6. Lightly screw the bottom loose part of the holder (pos.4) using M6x14 bolts (pos.5).
7. Lightly screw the M6x16 bolt (pos.6) into all the glass holders (pos.4).

8. While one person slightly lifts the glass and sets it in position, the other person tightens all the bolts (pos.5 and 6) with a tightening torque of 5Nm.

Disassemble the glass wing in reverse order.

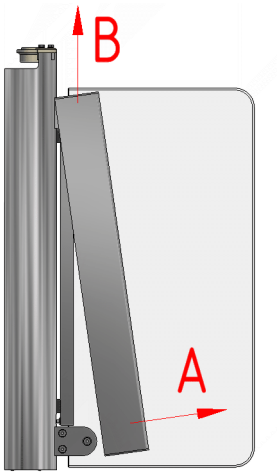
3.8.2. Wings with Hinge Capping



DESCRIPTION OF MOUNTING THE GLASS WING

1. Unscrew the M4x10 bolt (pos.14) and two M4x8 bolts (pos.13).

2. Remove the glass holders cover (pos.12). First tilt the cover (arrow **A**) and then slide it upwards (arrow **B**). Carefully lay the cover aside to avoid damaging it.



3. Now follow the same steps as in chapter *Wings without Hinge Capping*.

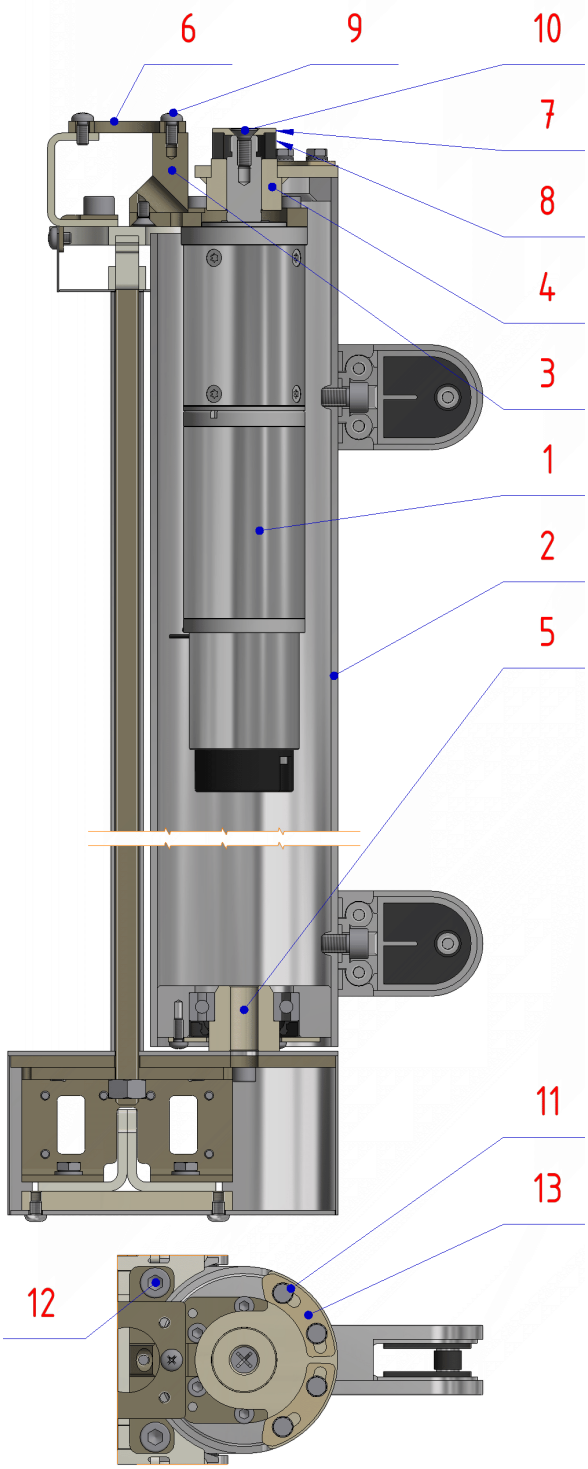
4. Place the holders cover (pos.12). First, screw the upper M4x10 bolt (pos.14) and then the two bottom M4x8 bolts (pos.13).

5. Place the holders cover (pos.12). First, screw the two bottom M4x8 bolts (pos.13) and then the upper M4x10 bolt (pos.14).

Disassemble the glass wing in reverse order.

3.9. DESCRIPTION OF ACCESS TO THE MOTOR DRIVE UNIT

Before handling the wing tube, it is recommended to remove the glass wing according to chapter *Attaching the Wings*.



1. Remove the cover of the stoppers according to chapter *Description of Access to the Wing Stoppers*.
2. Unscrew the two M5x10 bolts (pos.9) and dismount the end stoppers cover holder (pos.6).
3. Unscrew the M6x16 bolt (pos.10) and dismount the shim (pos.7) and the rubber ring (pos.8).
4. Unscrew the four M5x16 bolts with HEICO-LOCK washers (pos.11) and pull out the flange (pos.4) from the drive unit shaft (pos.1). At this moment the tube of the turnstile wing (pos.2) is attached only to the bottom pin (pos.5) and therefore it is necessary to secure its position against tilting.
5. Unscrew the two M8x16 bolts (pos.12) and pull up the holder (pos.3) with the drive unit (pos.1) from the tube of the turnstile wing.
6. If you also need to pull out the wing tube (pos.2), then if the Wing Light is installed, it is necessary to disconnect the LED bar power supply cable on the glass wing.

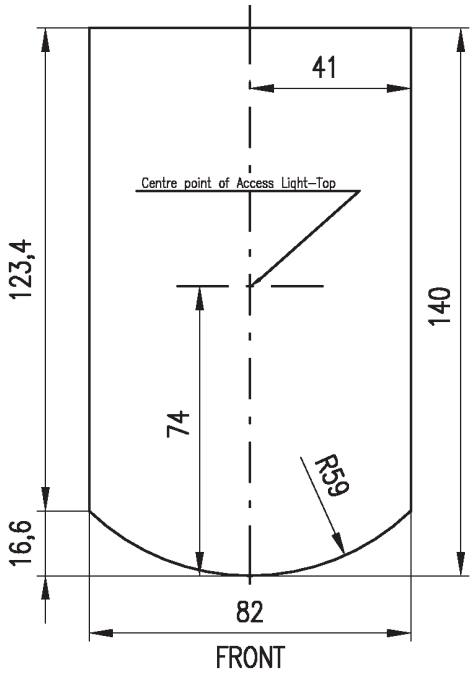
When reassembling the drive unit, it is necessary to center the turnstile wing so it doesn't collide during rotation, to ensure correct function of the turnstile. It is also necessary to readjust the wing stoppers using the stopper shims (pos.13) according to the chapter *Checking and adjusting the wing end stoppers.*

3.10. INSTALLATION OF THE RFID SENSOR

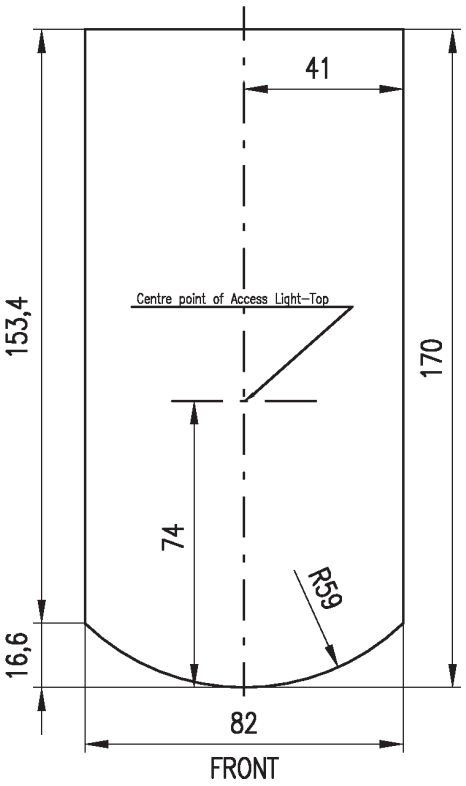
3.10.1. RFID sensor installation dimensions

The maximum height of the RFID sensor is **35mm**.

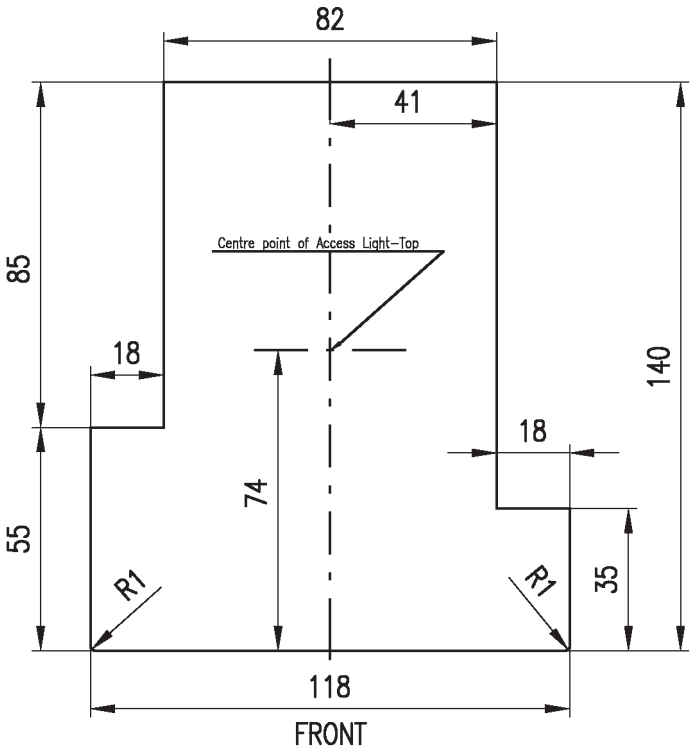
EasyGate-SG-1000:



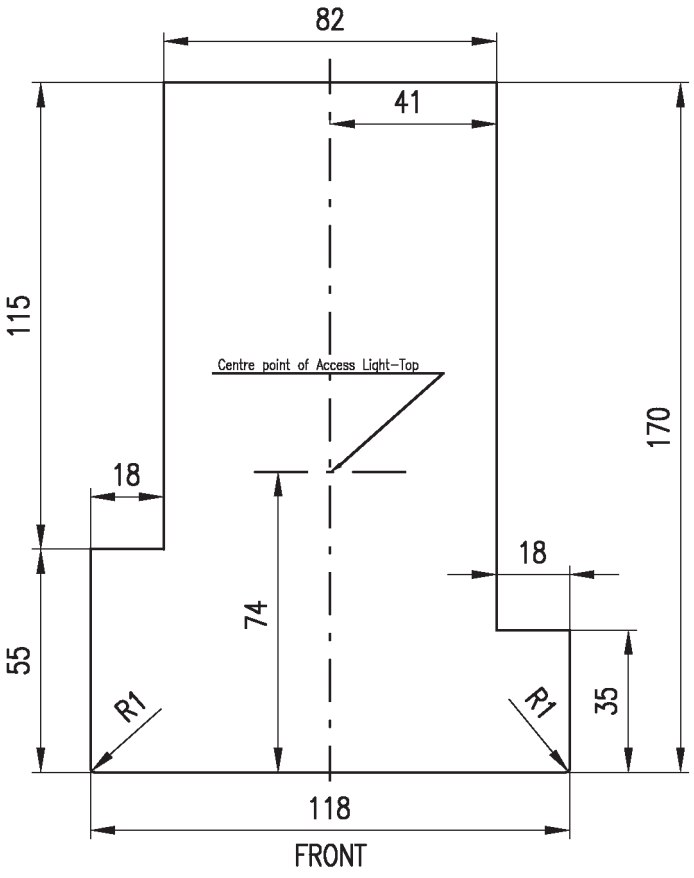
EasyGate-SG-1320:



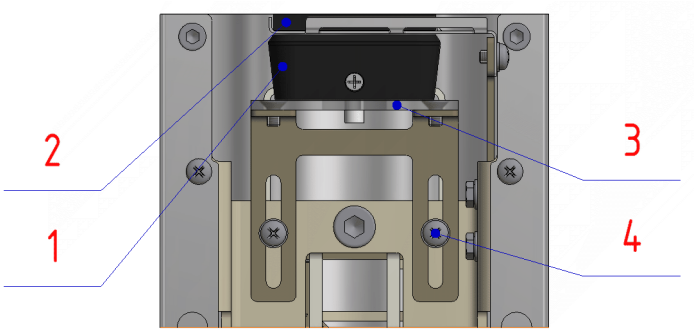
EasyGate-SR-1000:



EasyGate-SR-1320:



3.10.2. Description of RFID sensor installation



1. Remove the front cover according to chapter *Description of Access to the Anchoring Holes*.
2. Loosen the two M4x6 bolts (pos. 4) and remove the RFID sensor plate (pos. 3) outside of the turnstile.
3. Drill holes in the plastic plate (pos.3) for attaching the RFID sensor (pos.1) and an opening for the cable.
4. Attach the RFID sensor (pos.1) to the plate (pos.3).
5. Put the plate (pos.3) with the RFID sensor back in the turnstile. Using M4x6 bolts (pos.4), adjust the vertical position so that the sensor touches the Back Light plate (pos.2) or the upper lid directly.
6. Remount the front cover and the upper lid of the turnstile.

3.11. DESCRIPTION OF THE INSTALLATION

3.11.1. Necessary tools for installation

All fastening materials used in the turnstile are metric.

- Turnstile Tester
- NOTEBOOK with current version of the TCONF and TDIAG application
- USB/485 converter with connection cable
- Manuals for accessories installed in the turnstile

- drill hammer
- ACU screwdriver with adjustable torque
- set of drill bits for concrete with diameter of 8 to 12mm (for minimum drill depth of 100mm)

- set of Allen Keys from 2.5 to 6mm
- cross-point screwdriver PH1, PH2, PZ2
- slot screwdriver 2.5 and 3.5mm
- set of spanners 5.5 to 19mm
- ratchet with set of nuts from 5.5 to 19mm, TX T30 and TX T45

- Lineman's pliers
- tongue-and-groove pliers
- pincers
- cable stripping pliers
- electrical wire stripping pliers
- crimping pliers
- knife

- pencil (not a chalk or brick)
- tape measure and steel tape measure
- ruler (long straight batten or wiring lath)
- 2 cords of needed length to set installation axes
- water level
- try square
- extension cable for electrical tools
- multimeter
- tweezers

- broom and dustpan
- brush for cleaning of dusty parts
- duster and detergent for glass and stainless steel *(according to the turnstile manual)*

- chemical anchors or different anchoring material
- quick-setting concrete
- hollow pin connectors of sizes (0.25; 0.5; 0.75; 1; 1.5)
- cable ties
- insulating tape
- set of spare bolts, nuts, and washers M3 to M10

3.11.2. Recommended tools for installation

- handheld angle grinder

- set of drills for iron with diameter 2 to 10mm
- step drill bit size 6 to 30mm for metal sheet
- screwing tap size M3 to M8
- TX key T30 and T45

- round and square files
- hammer 500g

- Loctite 243 (to fix screws)
- silicone sealant
- mounting foam
- vaseline

3.11.3. List of instruction manuals for accessories, that aren't part of this manual

- **MLU5 control electronics - see manual:** *MLU5 service manual*

- **Communication line 485 - see manual:** *RS485 Connection Principles*

- **Control panel – see manual:** *Touch panel* or *Easy Touch*

- **Lane Light – see manual:** *Lane Light*

- **Wav player – see manual:** Wav player

- **CLU – see manual:** *CLU*

- **TCONF** (Configuration SW for setting the parameters and diagnostics of the turnstile)
  – see manual: *Instructions for the TCONF application*

- **TMON** (SW application for controlling and monitoring of the turnstiles activity)
  - see manual: *Instructions for the TMON application*

- **TDIAG** (SW application for controlling the 485 communication of all the devices in the turnstile)
  - see manual: *Instructions for the TDIAG application*

- **TURNSTILE TESTER** (Control panel for checking correct function of the turnstile)

3.11.4. General description of the installation

The area of installation must be free from clutter and perfectly even before you start installing. Base for anchoring has to be solid enough so that stability of the turnstile is ensured. In case of large unevenness of the ground, use special bolsters. These bolsters are made with regard to the actual state of the ground after its precise measuring.

When measuring, marking and drilling, it is essential to work with precision of 2mm. Especially in the initial phase of assembly, a cooperation of at least 3 workers is essential for observing the accuracy.

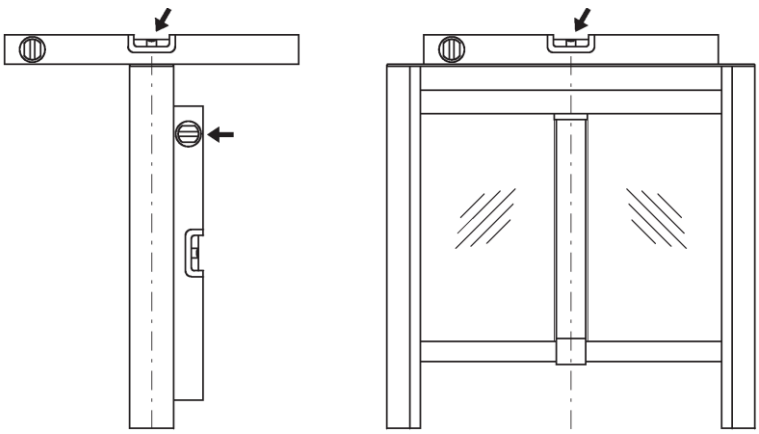
Anchoring the turnstiles to interlocking paving or double floor:

When anchoring to interlocking paving or sandwich panel floor use special, height-adjustable anchoring bases which must be anchored to the concrete base surface before laying the paving or floor.

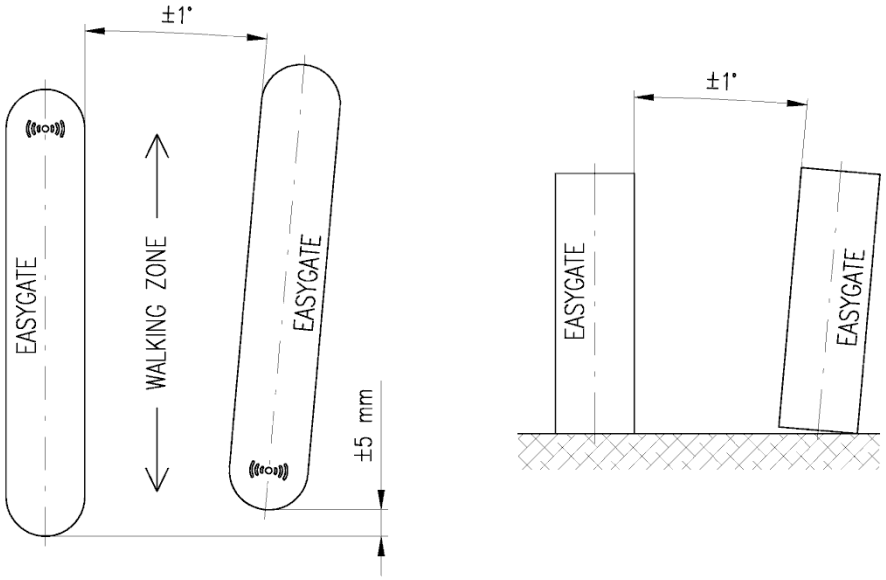
Description of the installation:

1. Determine axis (axes) of the turnstile system and other components (e.g. barriers).
2. Line up particular turnstiles or other components of the system in required distances on the axis. If needed, pad the turnstile base so the turnstile is perfectly vertical.
3. After the lining up, mark centers of the holes in accordance with anchoring dimensions in the chapter *Anchoring Dimensions* and drill holes in accordance with the used anchoring material:
   - **Chemical anchors M8x100** (recommended by the manufacturer) - drill at least 12mm x 100mm. Carefully clean the hole - get rid of dust.
   - **Bolted anchors M8x100** ("drivers") - drill 8mm x 100mm. Clean the hole and check its sufficient depth.
   - **Other anchoring material** (such as Turbo bolts) - proceed in compliance with the instructions of manufacturer of the anchoring material.

   The holes for the anchoring material must be drilled at the right angle to the floor and the procedure based on used anchoring technology must be strictly adhered.
4. Lead the power cable through the turnstile base to the MASTER turnstile
5. Lead the MASTER and SLAVE interconnecting cables through.
6. Anchor the turnstile to the floor by M8 anchoring bolts in all anchoring holes.
7. Check the side verticality of the turnstile by using a level.



For the correct functioning of the optical sensors, the turnstiles must be horizontally and vertically aligned within a minimum tolerance.



8. If the glass wing is not installed by the manufacturer, install it according to the chapter *Attaching the wings*.

9. Perform the electrical connection in compliance with the chapter *Electrical connection of the turnstile*.

10. Put the turnstile into operation according to the chapter *Putting the turnstile into operation*.

11. Install all the removed covers.

12. At the end of the installation, completely clean the turnstile and the external stainless-steel surfaces with specified agent.

4. ELECTRICAL CONNECTION OF THE TURNSTILE

The electrical installation of the turnstile must always be performed in accordance with approved project documentation!

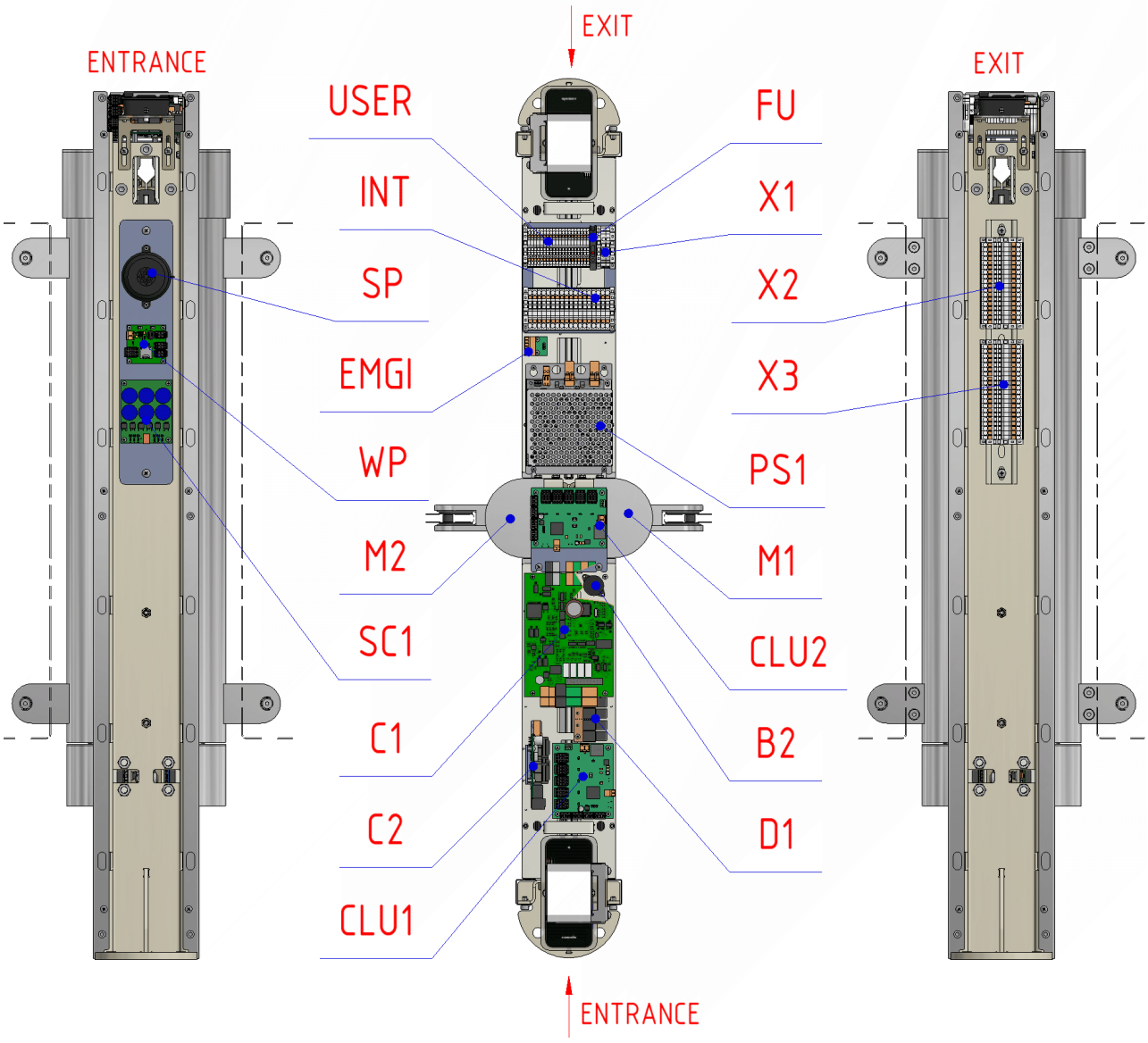
4.1. LAYOUT OF ELECTRONIC DEVICES AND INTERCONNECTING ELEMENTS

Standard accessories:

C1 - MLU5 control electronics
C2 - Control electronics of SBCB sensors with integrated RS485 distributor
D1 - Distributor RS485
CLU1 - Control electronics of MASTER optical signalization (Cabinet Lighting unit)
CLU2 - Control electronics of SLAVE optical signalization (Cabinet Lighting unit)
EMGI - Electronics for the EMERGENCY signal evaluation (Emergency Input)
M1 - MASTER drive unit
M2 - SLAVE drive unit (not available in a single-wing version)
X1 - Main power terminal block
X2 - MASTER turnstile terminal block
X3 - SLAVE turnstile terminal block
USER - User terminal block
INT - Internal connection terminal
FU - 10A fuse
PS1 - SM12 (24VAC/13.8VDC) power supply
B2 - Buzzer - acoustic alarm signalization

Optional accessories:

SC1 - Supercapacitors for PS1
WP - WAV Player Module
SP - Speaker for a WAV Player



4.2. CONNECTION PROCEDURE

4.2.1. Interconnecting the MASTER and SLAVE turnstile.

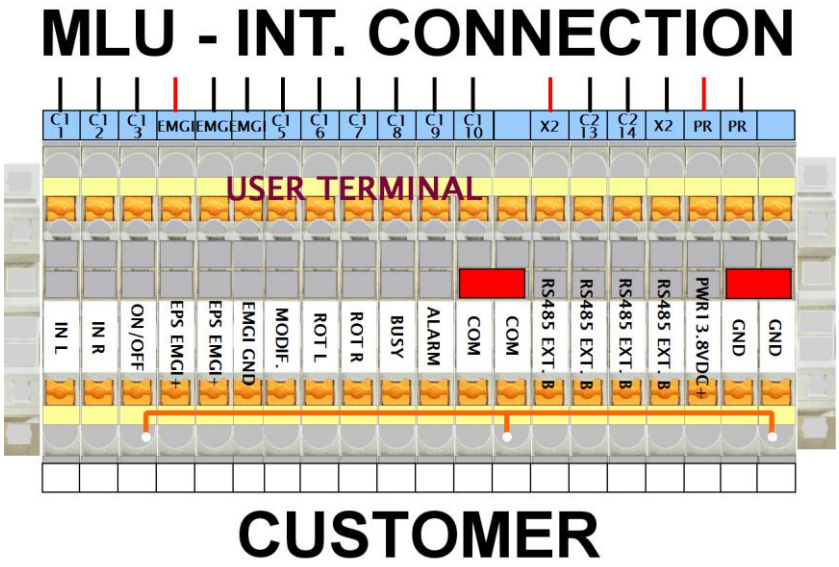
IT IS ALWAYS NECESSARY TO ONLY USE CABLES PROVIDED BY THE COMINFO COMPANY FOR INTERCONNECTING TURNSTILES.

- Connect the supplied four-core Cable **nr. 1** to the **X2** terminal in the **MASTER** turnstile according to the wire colorings in the *Master X2 terminal block* diagram.
- Connect the second end of the cable **nr. 1** to the **X3** terminal in the **SLAVE** turnstile according to the wire colorings in the *Slave X3 terminal block* diagram.

- Connect the supplied multi-core Cable **nr. 2** to the **X2** terminal in the **MASTER** turnstile according to the wire colorings in the *Master X2 terminal block* diagram.
- Connect the second end of the cable **nr. 2** to the **X3** terminal in the **SLAVE** turnstile according to the wire colorings in the *Slave X3 terminal block* diagram.

4.2.2. Connecting the superior control system of the turnstile

- All the input and output control signals are routed to the **USER** terminal in the **MASTER** turnstile.



- When performing the connection, follow the *Basic principles of the turnstile control* chapter.

4.2.3. Connecting the power supply

IT IS ALWAYS NECESSARY TO CONNECT THE POWER SUPPLY CABLES WITH DISCONNECTED POWER SUPPLY. IN CASE OF USING THE BACKUP POWER SUPPLY EVEN THE BACKUP POWER SUPPLY MUST BE DISCONNECTED.

The supply voltage must meet all the requirements listed in the *Turnstile power supply* **chapter.**

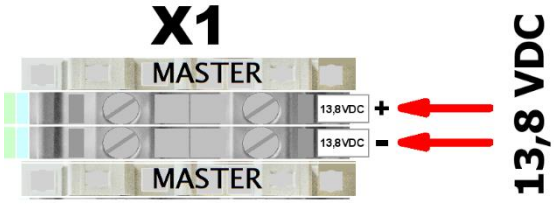
Connection to the mains power supply may only be performed by an authorized person with the appropriate qualifications.

The turnstile is made in two variants of power supply. 13.8VDC / 24VAC

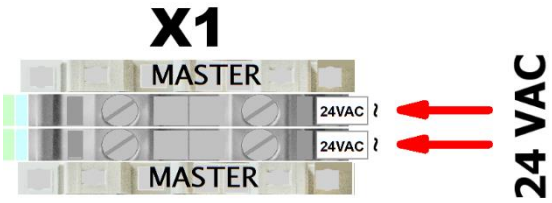
BEFORE CONNECTING THE POWER SUPPLY CABLE, IT IS NECESSARY TO CHECK IF THE SUPPLY VOLTAGE VALUE CORRESPONDS WITH THE VALUE OF THE NOMINAL VOLTAGE ON THE PRODUCTION LABEL AND ADHERE TO THE LISTED POLARITY.

IF YOU USE INCORRECT VALUE OR POLARITY, YOU MAY DAMAGE OR DESTROY THE ELECTRONIC INSTRUMENTS OF THE TURNSTILE AND PUT PEOPLE IN DANGER.

Connect the supply voltage to the **X1** terminal in the MASTER turnstile according to following figures.



Connection of supply voltage in case of using the **13.8VDC** power supply.



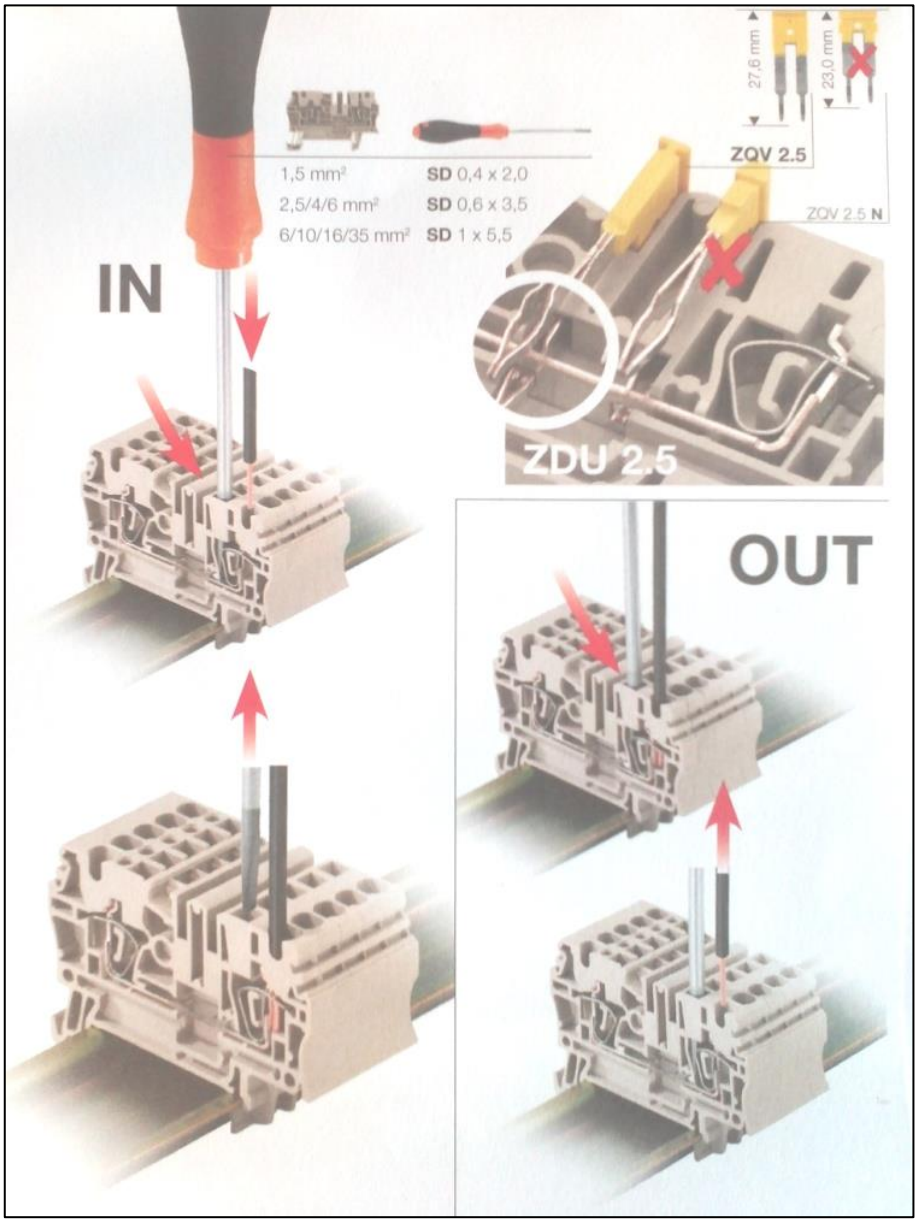
Connection of supply voltage in case of using the **24VAC** transformer.

4.3. DESCRIPTION OF CONNECTION OF TERMINAL BOXES AND CRIMP CONNECTORS

- The wires must be connected so that their insulation is inserted in the terminal recess.
- When inserting the wires without the hollow pin connectors, make sure that all strands of the wire are inserted into the terminal.
- Always check the correct wire connection by pulling.

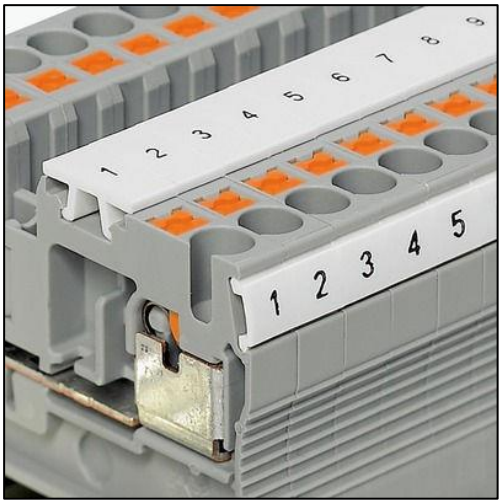
Serial <u>Weidmüller</u> terminal box with flexible clamps:

- The clamp is opened by inserting the 2.5x75 slot screwdriver into the lock as shown on the figure.
- The screwdriver must be used when connecting and disconnecting wires.



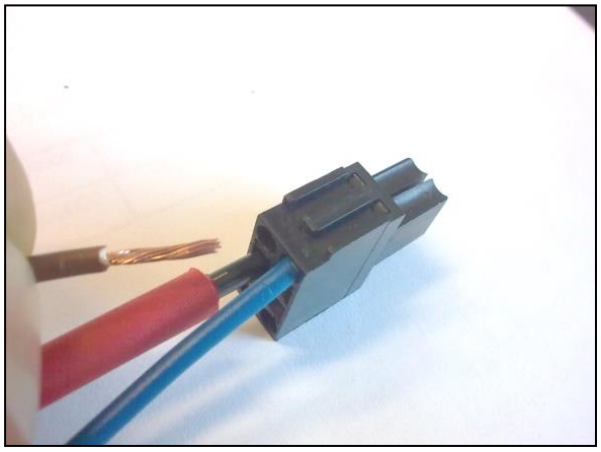
Serial <u>Phoenix</u> terminal box with flexible push-in clamps:

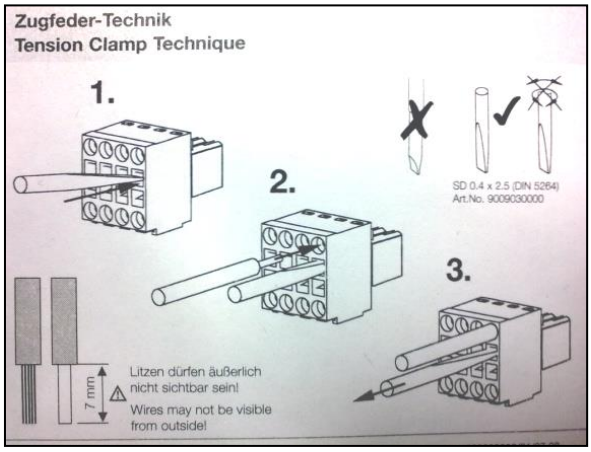
- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with any tool as shown on the figure.



<u>Weidmüller</u> connector with flexible clamps:

- The clamp is opened by inserting the 2.5x75 slot screwdriver into the lock as shown on the figure.
- The screwdriver must be used when connecting and disconnecting wires.





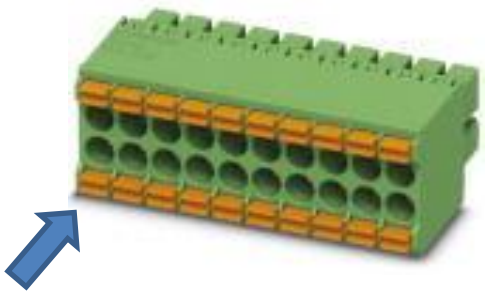
<u>Weidmüller</u> connector with flexible push-in clamps:

- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the black button with any tool as shown on the figure.

- The connector can only be used if the number of control signals of the MLU5 control electronics needs to be increased.

<u>Phoenix</u> connector with flexible push-in clamps:

- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with any tool as shown on the figure.



5. PUTTING THE TURNSTILE INTO OPERATION

After the turnstile has been put into operation, it is recommended to check the mechanical part of the turnstile after one month to see if any parts have become loose. Adjust and tighten loose parts.

5.1. CHECKING THE TURNSTILE BEFORE PUTTING IT INTO OPERATION

- While the power supply voltage is off, check if the wing stoppers were not moved during transport or installation (according to chapter *Checking and adjusting the wing end stoppers*).
- Check that all wires are connected to the appropriate terminals according to the wiring diagram.
- Check that all screw terminals are properly tightened.
- With adequate pulling of the wires check the connection with a spring push-in connector.

5.2. INITIALIZATION OF THE TURNSTILE

Turnstile can only be put into operation by a COMINFO service department employee or worker, who possess the certificate of installation schooling from the COMINFO Company.

When putting the turnstile into operation, initialization of the turnstile takes place after connection of power supply. During the initialization, the turnstile wings slowly move to the stop ends in both directions and then stop in a closed position. It must not be interfered in any way with the turnstile during the initialization procedure.

- The progress of the initialization is indicated on the MLU5 control electronics by the flashing green LED 2 (frequency 4Hz).
- When the initialization is complete, it is signaled by illuminated green LED2.
- The green LED2 will turn off after the first passage through the turnstile.

Initialization occurs whenever the turnstile is connected to the power supply, or when it is lost and restored.

5.3. CHECKING THE ELECTRONICAL COMPONENTS AFTER INITIALIZATION

5.3.1. Checking the electronics signalization

All electronical components are equipped with optical signalization of operating states.
If everything is in order, electronical components must signal following state.

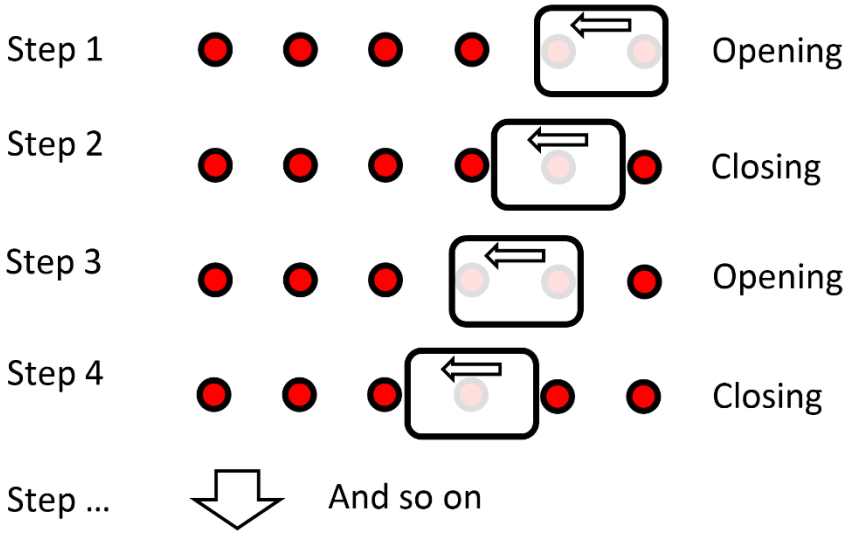
- SM12 power supply (PS1)
  - green power LED is on
- MLU5 control electronics (C1)
  - green power LED is on
- Supercapacitors (SC1)
  - green power LED is on
- SBCB sensors control electronics (C2)
  - 0 is shown on the display
- Control electronics of optical signalization (CLU1 and CLU2)
  - green power LED is on
  - green communication LED is on
- WAV Player
  - green power LED is on
  - red memory card LED is on
  - green communication LED is blinking

If the signaling is different, proceed according to the chapter *Troubleshooting* and relevant electronic manual.

5.3.2. Checking the correct function of the optical sensors

The turnstile is capable of emergency operation even when individual sensors fail. Therefore, it is necessary to check the correct function of **all** optical sensors according to the following procedure:

- We perform the check after activating the EMERGENCY function based on the following principle.
  - When covering the two adjacent sensors, closing of the turnstile wings is blocked.
  - If only one sensor is covered, the turnstile wings are closing.
  - When the two sensors are covered again, the turnstile wings open again.
- Connect the *Turnstile Tester* according to the following chapter and activate the EMERGENCY function.
- Deactivate the EMERGENCY function and using the identification card consecutively cover the sensors according to the following picture.



- When closing the wings, we have to cover the next pair of sensors before the wings reach the 45° angle.
  Otherwise the wings will close and we have to re-activate the EMERGENCY function.
- We perform the test consecutively on all four sensor bars.
- In case a sensor malfunction is discovered, proceed according to chapter *Troubleshooting - Checking the optical sensors*.

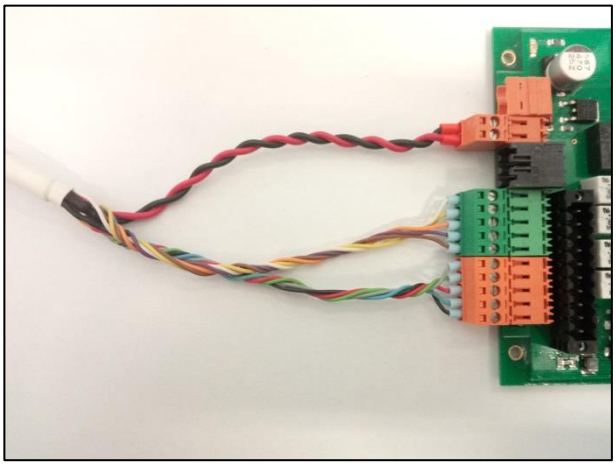
When checking, it is possible to cover transmitter or receiver sensors.

When covering the sensors with the card, we must not cover any other sensor with our hand or other body part.

5.4. TESTING ALL THE TURNSTILE FUNCTIONS

Before connecting the superior system, we will test all the turnstile functions using the *Turnstile Tester* control panel. Usage of the *Turnstile Tester* is described in a separate manual.

Connect the controller connectors to MLU5 electronics according to the colors on the figure:



5.5. ADJUSTING THE TURNSTILE BEHAVIOR TO THE CUSTOMER'S REQUIREMENTS

It is possible to adjust the behavior of the turnstile to the customer's requirements. These settings can be made only by a COMINFO service department employee or worker, who possess the certificate of installation schooling from the COMINFO Company.

The adjustment is done by reconfiguring the parameters using the TCONF application.

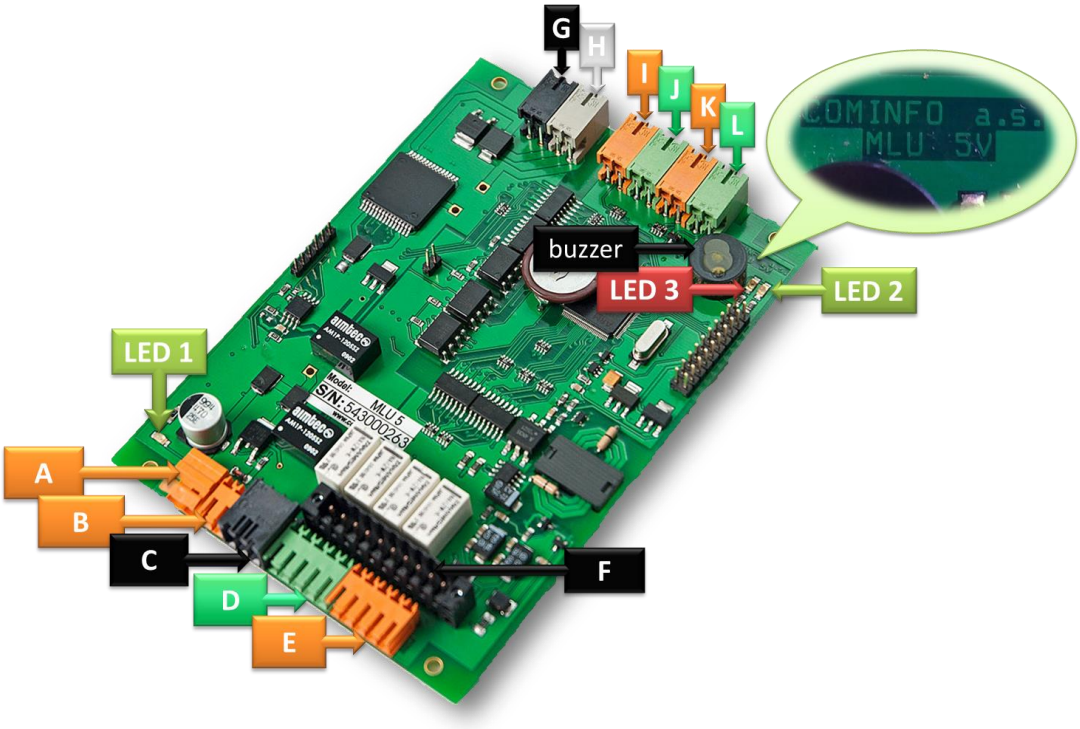
Adjustable parameters are described in detail in the *Instruction Manual***.**

The safety parameters setting may be changed to a level, when turnstile wings can close in case of an attempt for unauthorized passage and injury of authorized and unauthorized persons may be caused! The turnstile owner must be provably notified about this. In such case, the manufacturer shall not be responsible for potential bodily harm and property damage.

We recommend to print out the parameters after the adjustment and have it signed by the customer. The customer is then responsible for any incidents.

6. TURNSTILE CONTROL ELECTRONICS

6.1. DESCRIPTION OF THE CONTROL ELECTRONICS



Description of connectors:

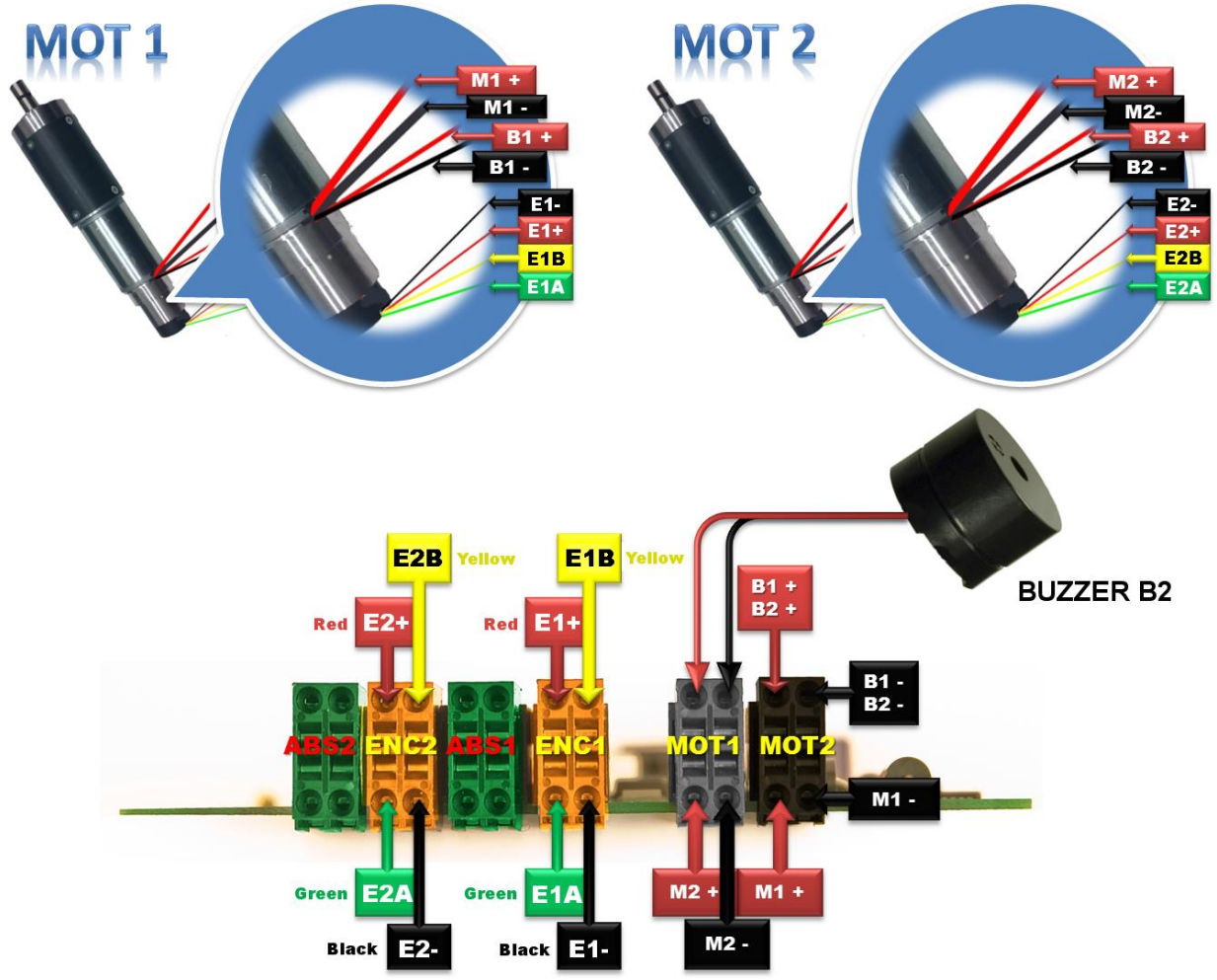
A - 13.8VDC power supply
B - GND for superior system + connection of back-up accumulator for service purposes
C - communication lines RS485 (internal + external)
D - input control signals
E - output information signals
F - expander
G - MASTER motor and brakes of both motors
H - SLAVE motor and **B2** Buzzer
I - MASTER encoder
J - not used – do not connect any circuits
K - SLAVE encoder
L - not used – do not connect any circuits
buzzer - **B1** Buzzer - signaling of operational state

Description of signaling LEDs

LED 1 - signaling of connection of power supply voltage (green)
LED 2 - signaling of statuses (green)
LED 3 - signaling of statuses (red)

When replacing electronics, setting of the new electronics must be checked by the TCONF application before connecting the new electronics to the turnstile. Basic configuration must be set for the **EASYGATE-SG** device type or as **NON-DEFINED** (setting of replacement electronics which are sent for non-defined type of turnstile). If the electronics was defined for another product type, unexpected states could occur after connecting the electronics and turning on the supply voltage. Such unexpected state could result in turnstile damage, burning of the electronics and personnel-safety hazard.

6.2. CONNECTION OF THE POWER PART



The power supply of motor drive units is realized by a pair of thicker cables of red and black colour (**M1 +, M1-**), or (**M2 +, M2 -**), coming out from the middle part of the motor drive unit. Motor 1 (MASTER) is connected directly to the **MOT2** connector. Motor 2 (SLAVE), which is located in the second half of the turnstile passage gate, is connected to the **MOT1** connector through respective terminals of the **X2** and **X3** terminal blocks.

The pair of the thinner red and black cables (**B1 +, B1 -**), or (**B2 +, B2 -**), coming out from the middle part of the motor drive unit, serve for connecting the electromechanical brake. Respective clamps of the **MOT2** connector, which serve for connecting the brake, are connected to the **X2** terminal block. From here, brake of the motor 1 is connected directly, and brake of the motor 2 through respective terminals of the **X2** and **X3** terminal blocks.

Four thin cables (**E1**), or (**E2**), coming out from the end part of the motor, serve for connecting the motor drive unit encoder. The encoder of motor 1 is connected directly to the **ENC1** connector. The encoder of motor 2 is connected to the **ENC2** connector through respective terminals of the **X2** and **X3** terminal blocks.

The **B2** ALARM buzzer is connected to the **MOT1** connector. The buzzer serves for acoustic alarm signalization when attempt for unauthorized passage occurs.

7. BASIC PRINCIPLES OF THE TURNSTILE CONTROL

7.1. CONNECTION OF INPUTS

7.1.1. Potential of input control signals

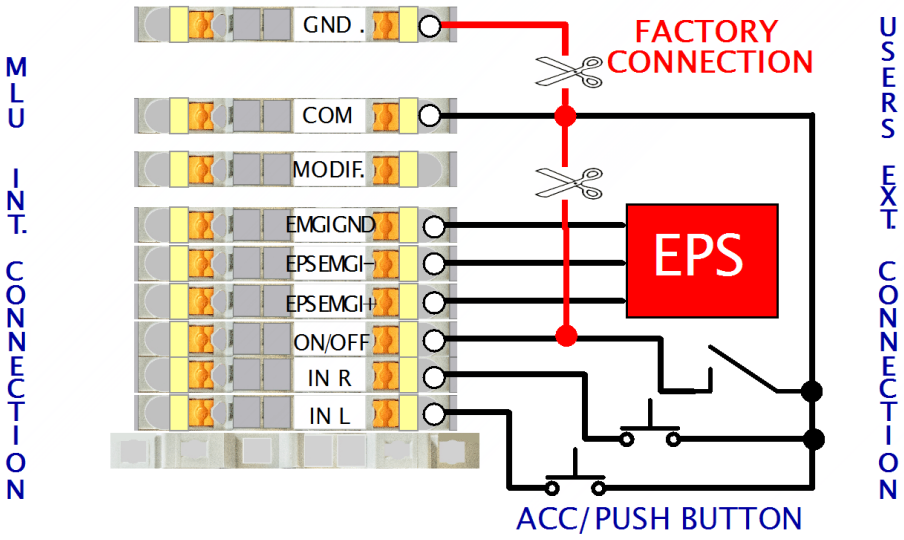
All input control signals are activated / deactivated by their connection to the GND pole of electronics power supply.

The GND potential is not and must not be connected to the machine frame or PE protective circuit.

All inputs must be switched by a contact without external potential. If the superior system uses its potential for outputs, it is necessary to separate the potentials by a relay.

Out of the factory, the GND input potential is interconnected with the common COM output potential. By default, the COM clamp is used to control inputs and outputs. In case the outputs of the superior system use their potential, it is necessary to cancel the connection and use the GND clamp.

7.1.2. Description of inputs



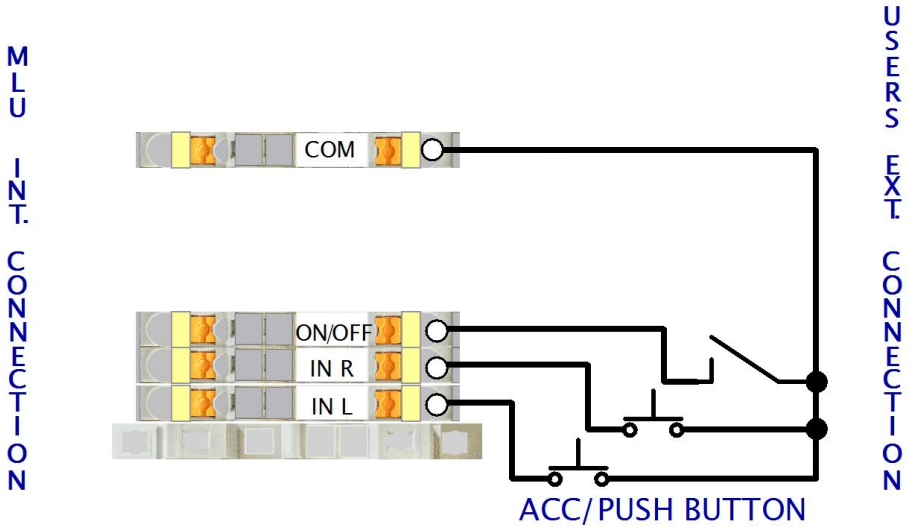
- **MODIF input** - adjustable input for the manufacturer's needs - **DO NOT CONNECT ANY CIRCUITS.**
- **EMGI inputs** - inputs for controlling the EMERGENCY function by the EPS system.
- **ON/OFF input** - input must be activated when controlling the signals connected to INL, INR inputs.

By default, the ON/OFF input is permanently activated by a wire connected to the COM. If it is necessary to control the ON/OFF function by the superior system by using status signals, it is necessary to cancel this connection.

- **INR input** - the input activates single or permanent passage by the turnstile in the INR direction.
- **INL input** - the input activates single or permanent passage by the turnstile in the INL direction.

The input signals are set to NO by the manufacturer. Using the TCONF application it is possible to invert any input to NC, independently to other inputs.

7.1.3. Controlling the turnstile by an external button

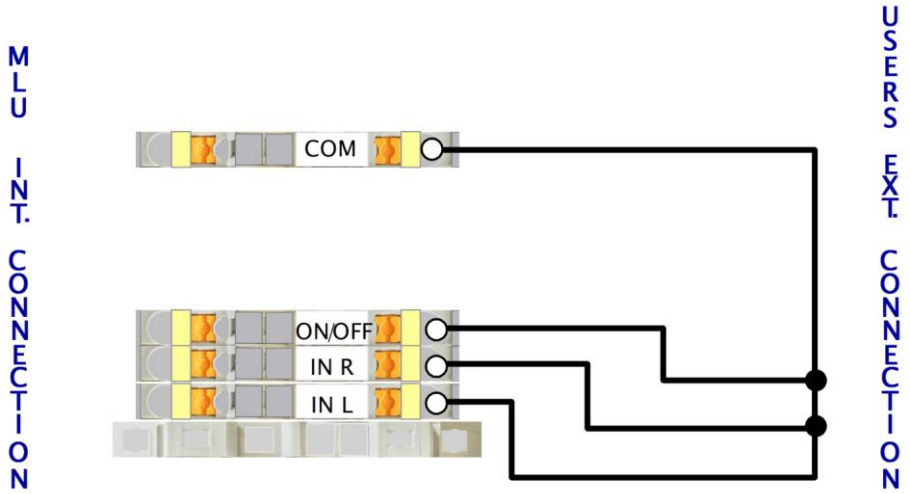


The control signals are connected to the **X2** terminal.
When controlling by the signals on the INL and INR inputs, the ON/OFF input must be activated.

7.1.4. Permanent release in one direction

Permanent release mode in one direction can be preset in three ways:

1. using the control panel - Touch panel or Easy Touch (see separate manual).
2. using the TMON application (see separate manual)
3. by earthing proper INL or INR input as required (see the figure)



The control signals are connected to the **X2** terminal.

7.1.5. Permanent blocking in one direction

For permanent blocking in one direction, it is necessary to connect the RS485 communication interface, and induce this state via control panel (Touch Panel / Easy Touch) or via the TMON application (see separate manuals).

This state cannot be induced in case of connection where only status signals are used.

7.1.6. EMERGENCY (Emergency state)

The EMERGENCY function is connected using the EMGI module

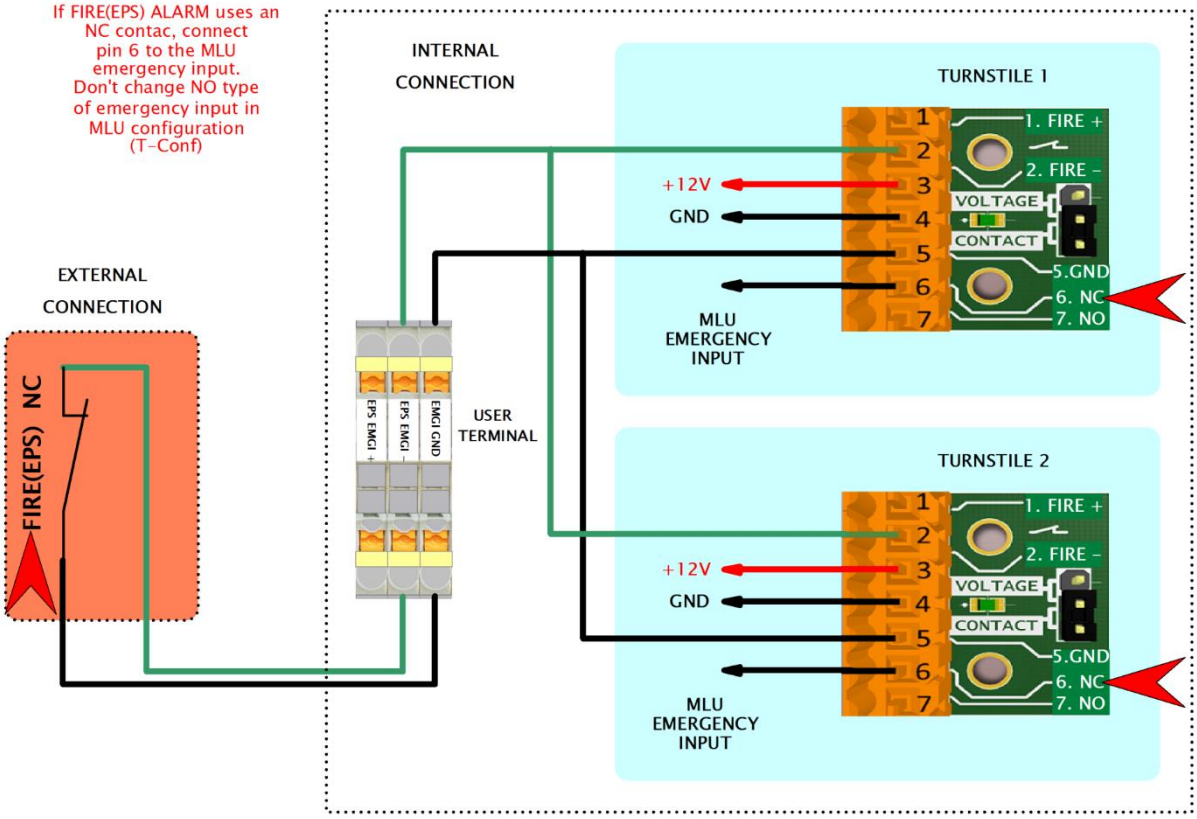
The EMGI module is used for connecting the superior EPS (electronic fire alarm) signal to the COMINFO turnstiles. Using the EMGI module it is possible to connect EPS signal from safety devices (fire detectors) disposing with NO, NC contacts or voltage output up to 24VDC also NO or NC to the turnstiles.

The type of EPS contact (voltage, potential-free) is set on the EMGI module by a jumper. Furthermore, according to the contact switching method (NO, NC), this signal is connected to the MLU5 control unit (from terminal 6 or 7).

All possible wiring options for the EMGI module are described in the following diagrams.

EPS - NC type contact, potential-free

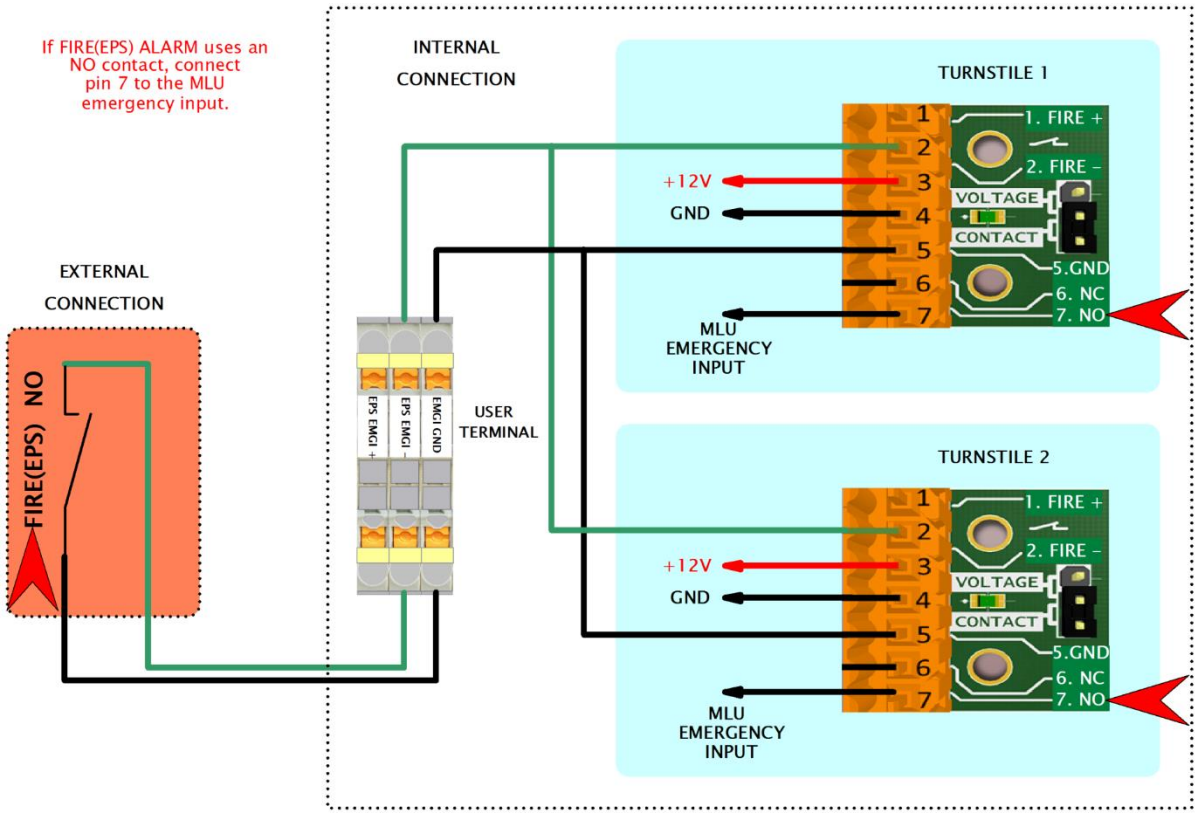
The diagram shows the wiring where the superior EPS system is equipped with a **potential-free NC** contact. The pin #6 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*CONTACT“.*



The EMERGENCY contact type setting on the MLU5 control unit must remain set to NO.

EPS - NO type contact, potential-free

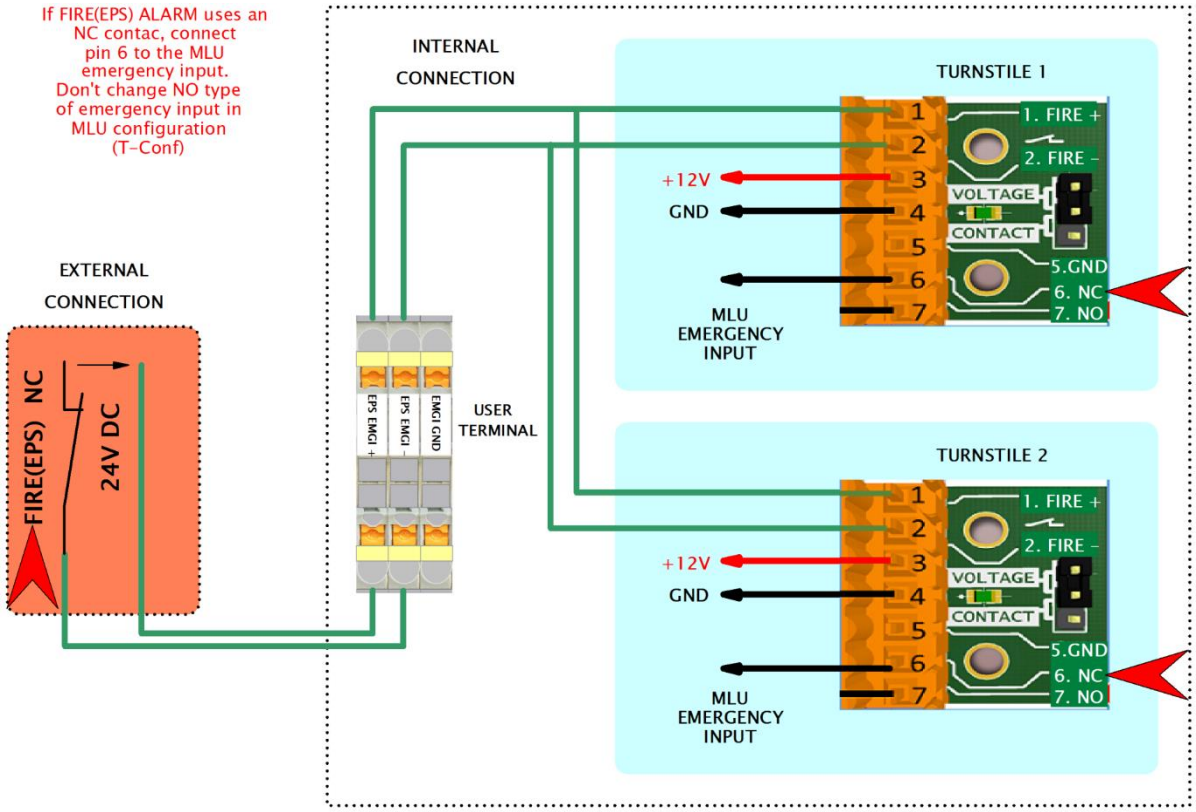
The diagram shows the wiring where the superior EPS system is equipped with a **potential-free NO** contact. The pin #7 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*CONTACT“.*



The EMERGENCY contact type setting on the MLU5 control unit must remain set to NO.

EPS - NC type contact, 24VDC

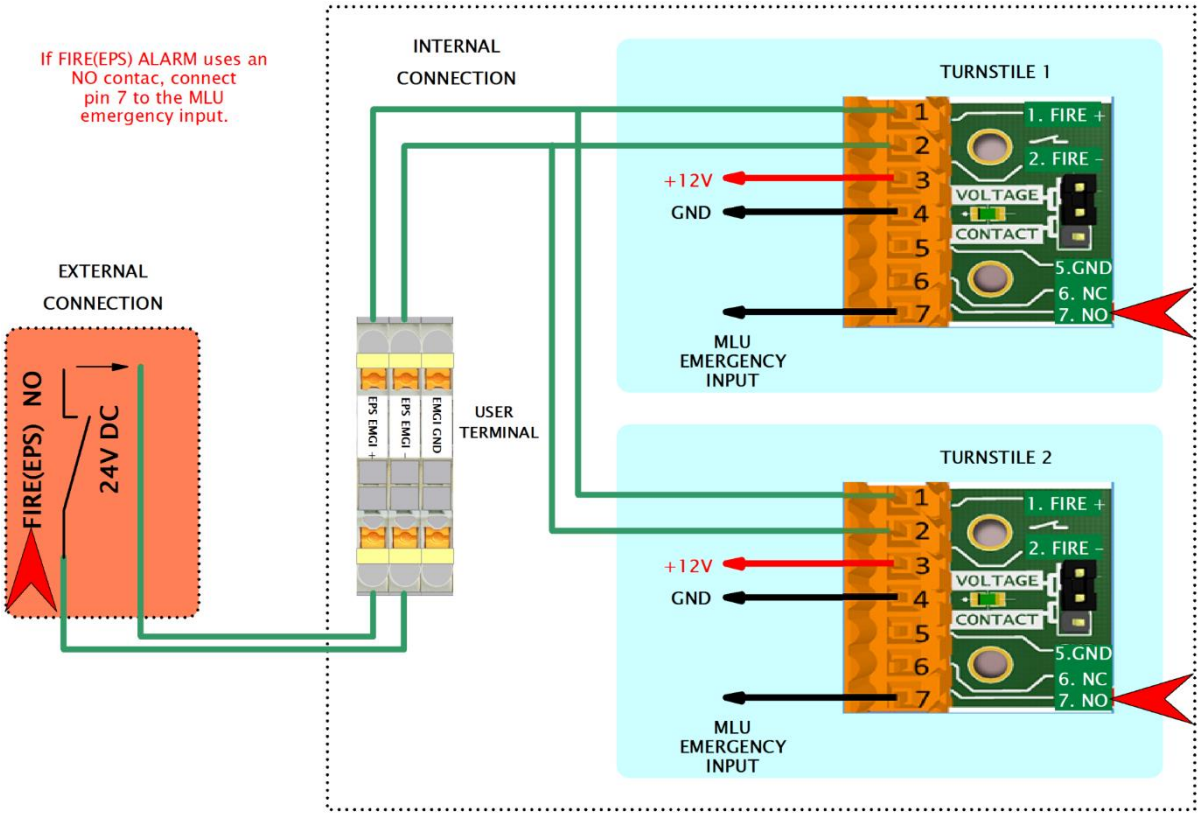
The diagram shows the wiring where the superior EPS system is equipped with a **24VDC NC** contact. The pin #6 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*VOLTAGE“.*



The EMERGENCY contact type setting on the MLU5 control unit must remain set to NO.

EPS - NO type contact, 24VDC

The diagram shows the wiring where the superior EPS system is equipped with a **24VDC NO** contact. The pin #7 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*VOLTAGE“.*



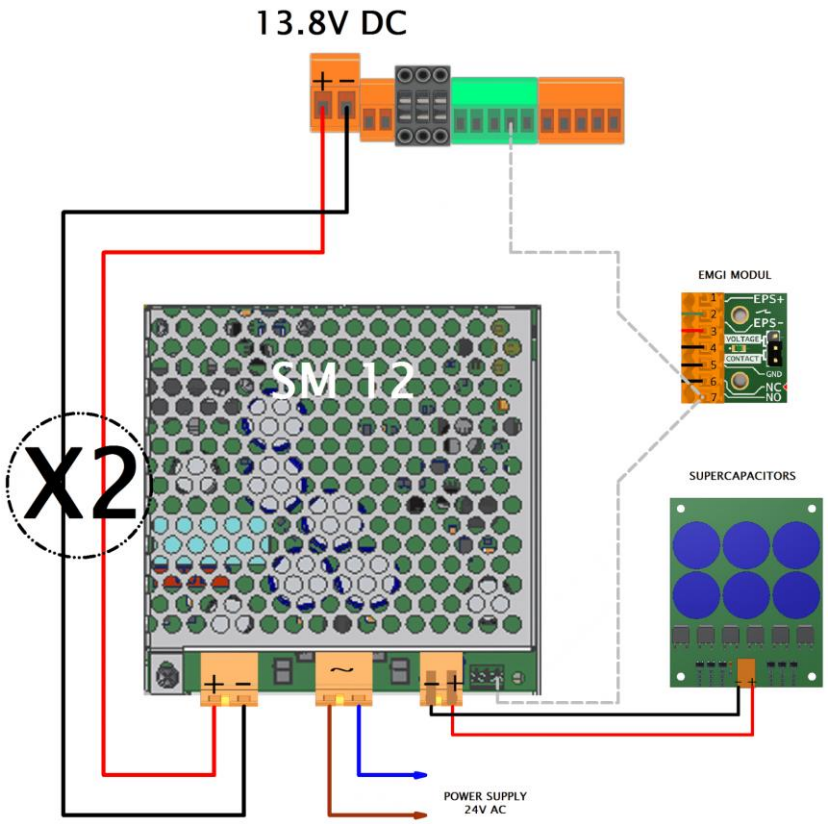
The EMERGENCY contact type setting on the MLU5 control unit must remain set to NO.

7.1.7. Activation of the emergency state in case of loss of power voltage

In case of loss of power voltage, the turnstile can be connected so that it is automatically opened by a backup power supply.

CONNECTION WITH A COMINFO SM12 BACKUP POWER SUPPLY:

The SM12 backup power supply has an output collector which is activated in case of switching to powering by supercapacitors. Clamp O1 of connector K5 of the SM12 backup power supply is connected only to the EMERGENCY electronics input (input 2). It is not necessary to configure MLU5 electronics. After the supply voltage is lost, the turnstile is opened immediately while powered by supercapacitors. When the supply voltage is restored, the turnstile is initialized, after which the wings close to their home position.



CONNECTION WITH BACKUP POWER SUPPLIES BY A THIRD-PARTY MANUFACTURERS:

Connection to third-party power supplies is only possible after consultation with Cominfo Technical Support.

7.2. CONNECTION OF RELAY OUTPUTS

7.2.1. Potential of output control signals

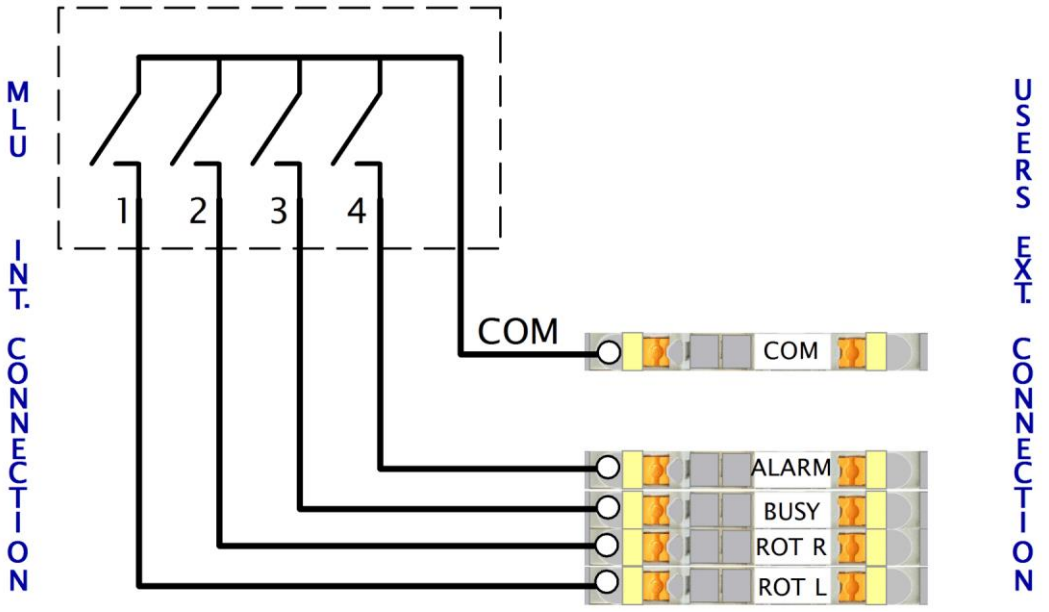
All relay outputs are put to the same COM potential.

Out of the factory, the COM output potential is interconnected with the GND input potential (- electronics power supply pole)

In case the outputs of the superior system use their potential, it is necessary to cancel the connection.

The COM potential is not and must not be connected to the machine frame or PE protective circuit.

7.2.2. Description of outputs



- **ROT L** signal for the superior system informing about opening of the passage in the L direction
- **ROT R** signal for the superior system informing about opening of the passage in the R direction
- **BUSY** signal for the superior system informing about released or ongoing passage
- **ALARM** attempt for an unauthorized passage

Output signals are connected via the **X2** terminal block to the clamps marked the same way as the clamps of electronics.

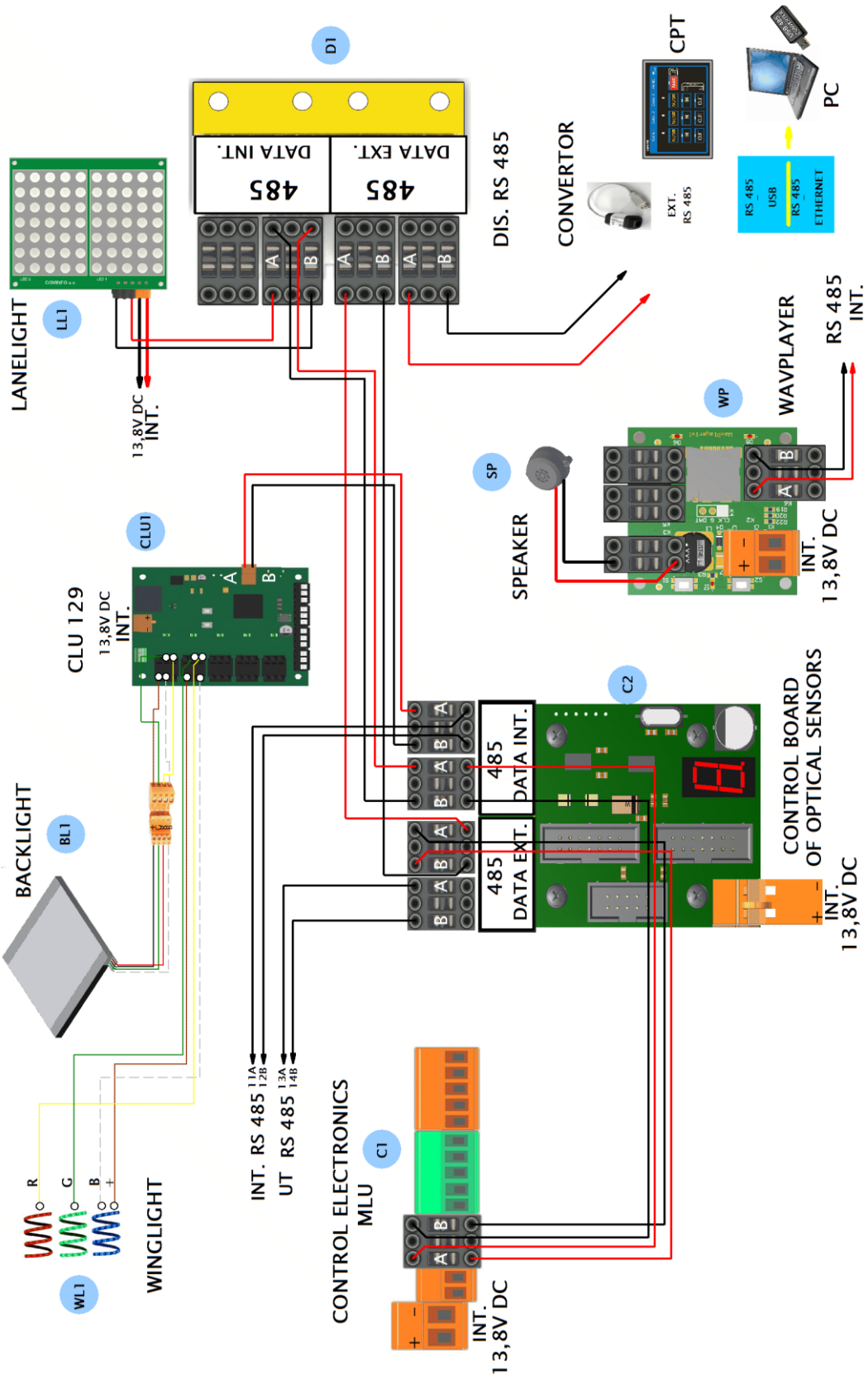
The output signals are set to NO by the manufacturer. Using the TCONF application it is possible to invert any output to NC, independently to other outputs.

Maximum load of individual outputs is 30VDC / 0.5A.

7.3. CONNECTING THE RS485 COMMUNICATION LINES

Control electronics is equipped with two RS485 communication channels.

7.3.1. Internal communication line



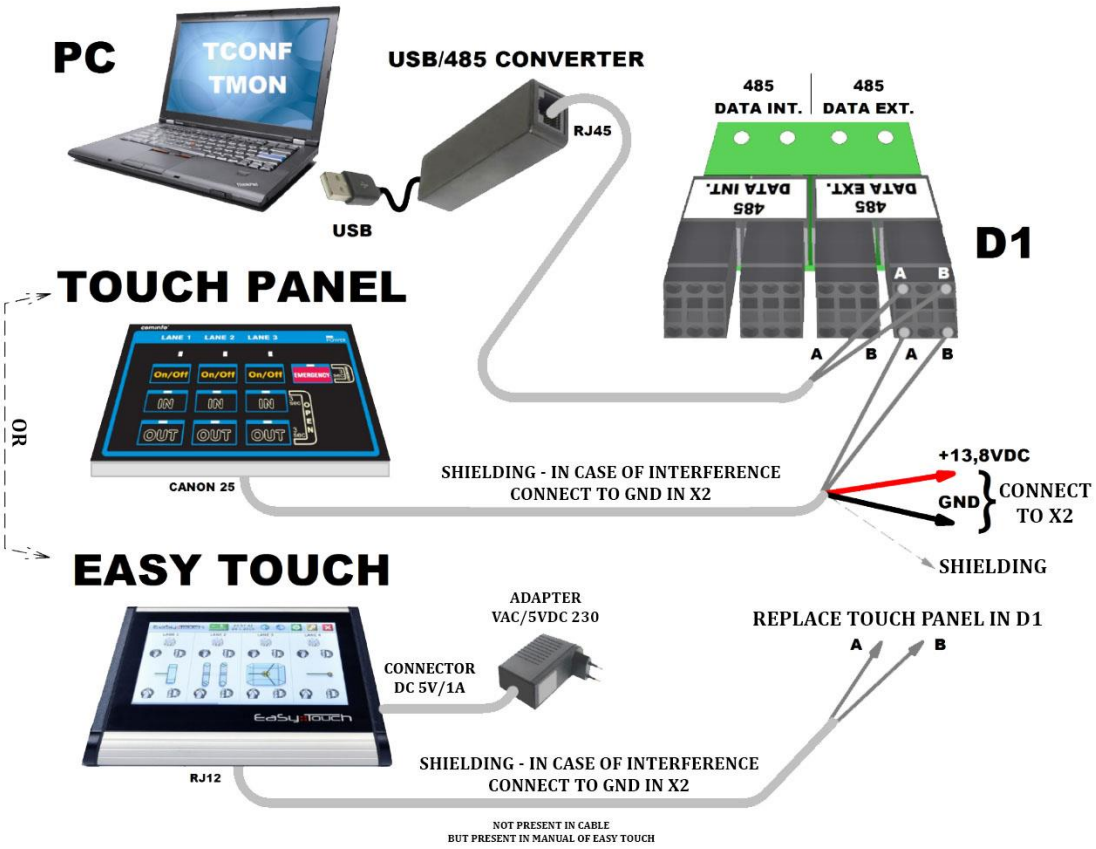
- **DATA INT.** serves for connection the SBCB, Wav Player, CLU and other peripheries.

Connection of shielding on internal devices of the DATA INT. channel:

In case of internal devices such as SBCB drive, Back Light, Lane Light, Signal Light, Wav Player, CLU, do not connect the shielding MASTER-SLAVE interconnecting cable. In case of big interference of the MASTER-SLAVE interconnecting cable, connect shielding only on the MLU5 electronics.

7.3.2. External communication line

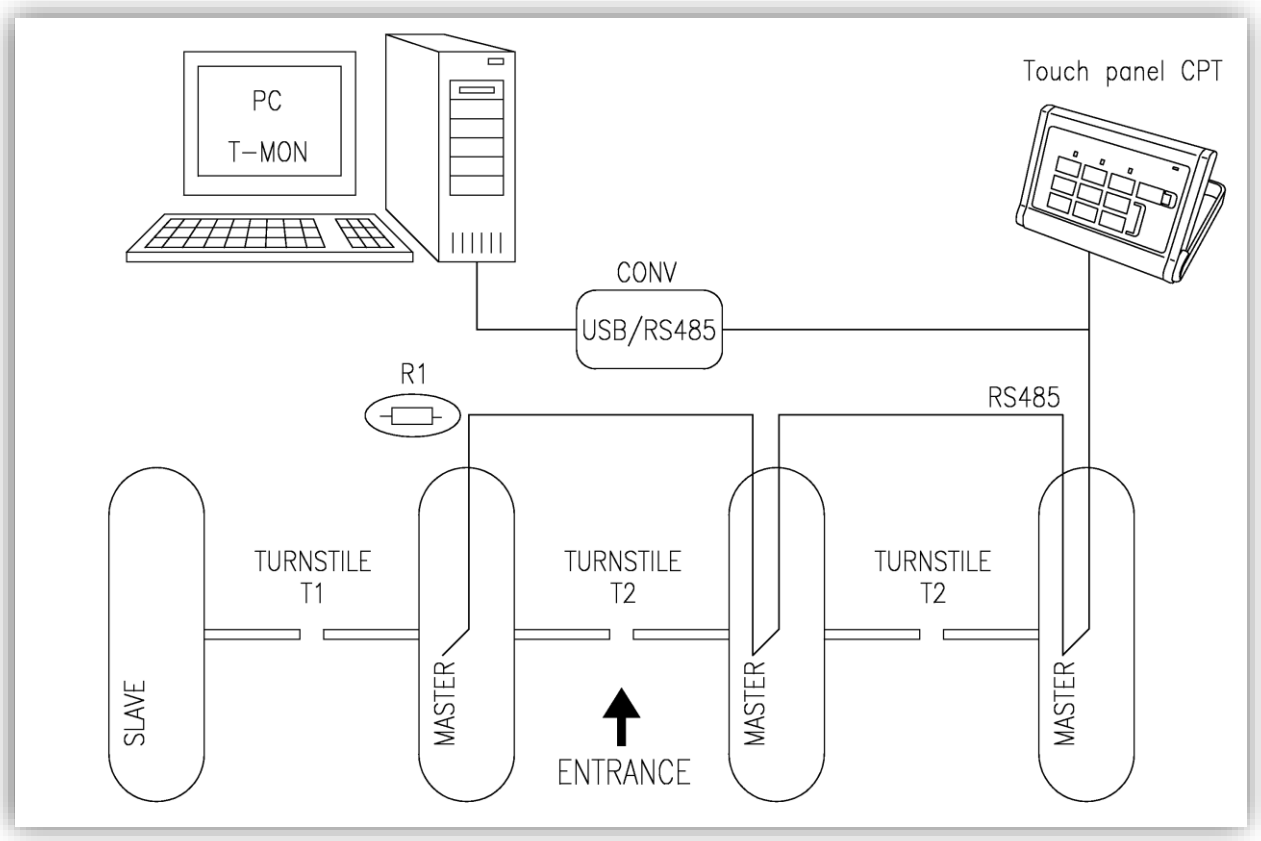
To ensure a reliable PC connection via RS485-USB converter or RS485 Ethernet, it is necessary to use the converter supplied by the COMINFO company. Correct functioning is not guaranteed if different converter is used.



- **DATA EXT.** serves for PC connection via RS485-USB or RS485 Ethernet and also for connection of control panel (Touch Panel / Easy Touch).

For easy change of configuration, the firmware upgrade and control via PC it is advisable to lead the external RS485 communication line to an accessible place outside the turnstile.

Connection of terminating resistor of external communication line RS485:



The connection of PC, Touch panel and turnstiles via the RS485 line is shown of the figure.

- Typically, only R1 terminating resistor is connected to the T1 turnstile at the end of the line.
- At the beginning of the line, the terminating resistor is connected to the CONV converter.
- Resistors that ensure idle state of the line are also placed in the CONV converter.
- If the CONV converter is disconnected, the resistors for defining the idle state and the terminating resistor must be set by means of the DIP-Switch in the Touch panel.
- When replacing the MLU5 control electronics in the T1 turnstile, it is necessary to set the terminating resistor also on the MLU5 electronics.

For more detailed information, request a separate manual: *RS485 Connection Principles*.

Shielding connection of external devices of the DATA EXT. channel:

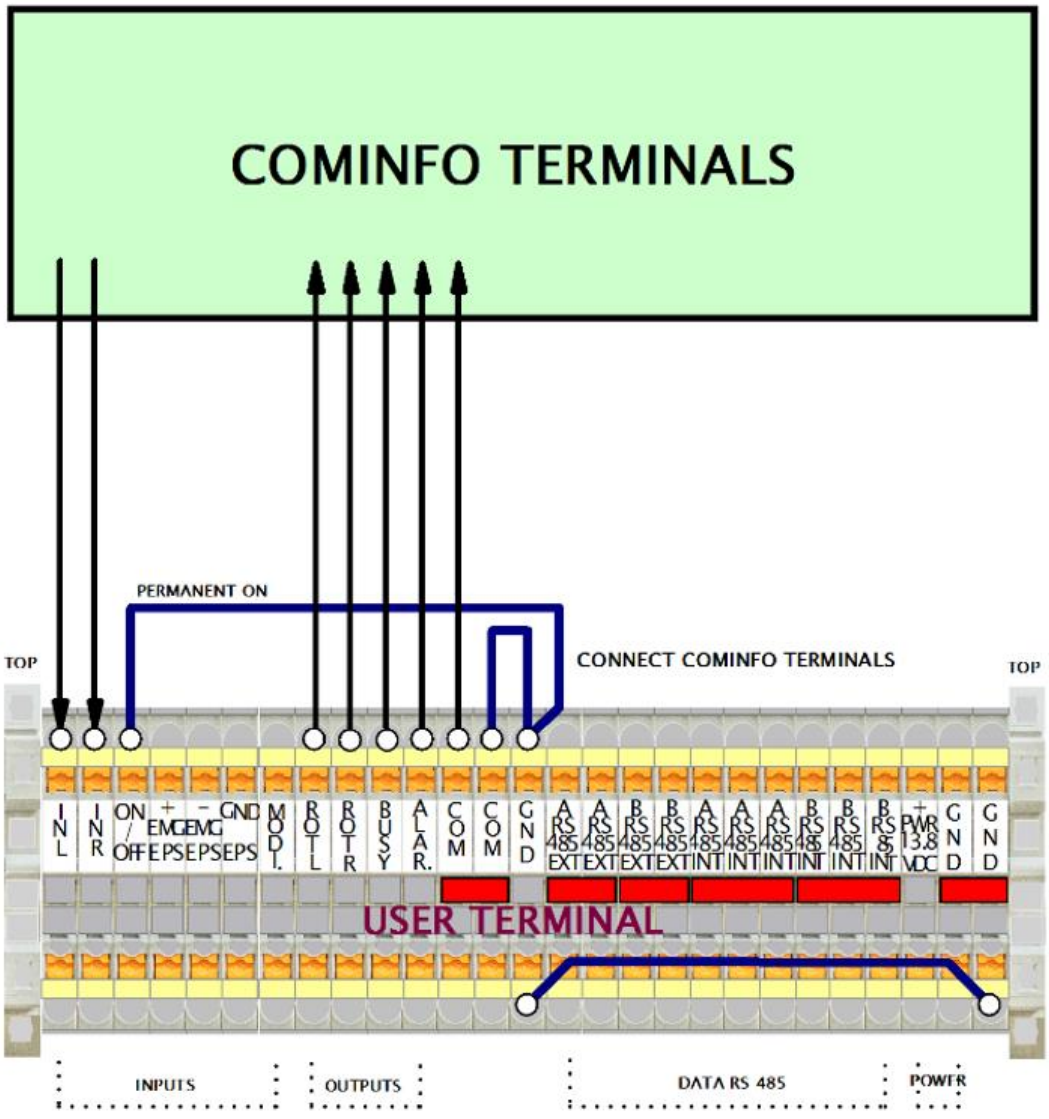
In case of the external Touch Panel device, always connect the shielding to the MLU5 electronics in the turnstile that powers the Touch panel. In case of external 485/USB converter device, do not connect the shielding for PC control. In case of major interference of the cable leading to the 485/USB converter, connect the shielding only to the MLU5 electronics.

8. TURNSTILE CONTROL BY SUPERIOR SYSTEM

8.1. CONNECTION FOR CONTROLING WITH SUPERIOR SYSTEM FROM COMINFO

The superior systems from COMINFO are powered by the turnstile power supply SM12 (the turnstile and superior system have common potential).

- **The potential of input control signals GND is connected with the common potential of output control signals COM. The connection is done through a connecting wire on the XU terminal.**
- **The COM terminal is used to control the input and output control signals.**
- **The input control signal ON/OFF is permanently activated through an interconnecting wire.**



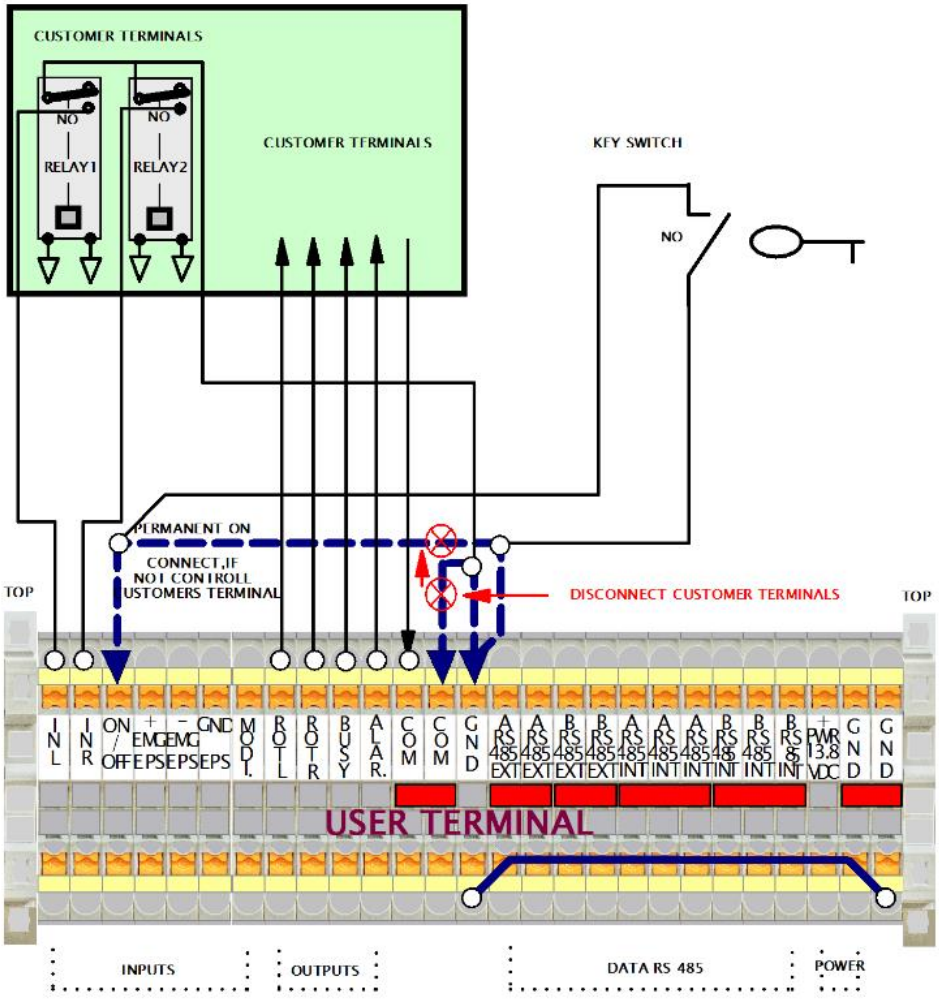
MLU INT. CONNECTION

8.2. CONNECTION FOR CONTROLING WITH SUPERIOR SYSTEM FROM THIRD-PARTY MANUFACTURERS

The superior system from a different manufacturer must not be powered by the turnstile power supply SM12 **(the turnstile and superior system have different potential).**

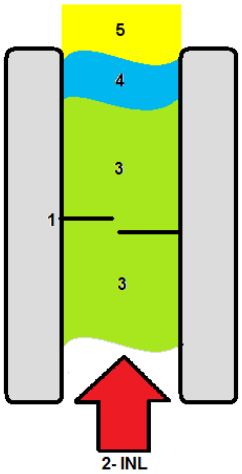
- **The potential of input control signals GND and output control signals COM must be disconnected by removing the interconnecting wire on the XU terminal.**
- **Input control signals with own potential must be connected through a relay.**
- **To control input signals through a relay you must use the GND terminal.**
- **If the turnstile shutdown function with KEY SWITCH controller will be used, remove the connecting wire between GND and ON/OFF.**
- **The COM terminal must be used to control output signals with own potential.**

CUSTOMERS



MLU INT. CONNECTION

8.3. DURATION OF INPUT AND OUTPUT SIGNALS



1. Home position – device is waiting for passage permission (INL, INR input activation)
2. Input activation - passage permitted
3. Phase of the passage - person in the corridor
4. Counting of passing person
5. Phase of finishing to the home position

Input signals duration:

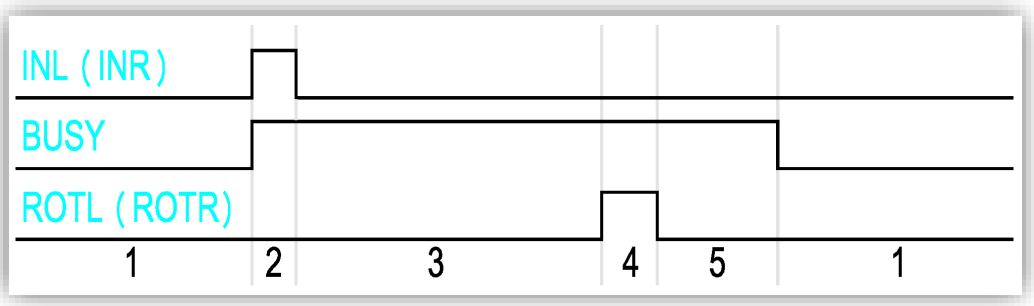
Name of the Input Signal	Single Passage	Permanent Passage
INL	>100ms <2000ms)[1]	>2000ms
INR	>100ms <2000ms)[1]	>2000ms
ON/OFF	FOR THE DURATION OF THE INPUT ACTIVATION	
EMERGENCY (emergency state)	FOR THE DURATION OF THE INPUT ACTIVATION	

)[1] - **Recommended length of the input signal is 1000ms**

Output signals duration:

Name of the Output Signal	Signal Duration
ROTL	>200ms
ROTR	>200ms
BUSY	FOR THE DURATION OF PASSAGE

Progress chart of passage through the turnstile:



9. DESRIPTION OF REMOTE CONTROLING OF THE TURNSTILE

It is possible to control the turnstile simultaneously by all available control systems.

- **The turnstile controlled by status signals through a superior system can be simultaneously controlled by COMINFO products from any location through external communication line RS 485.**
- **Apart from the superior system, also TOUCH PANEL, EASYTOUCH and computers with the T-MONITOR application can be simultaneously connected.**
- **All these control systems display statuses independently triggered by any of them.**
- **Information on statuses triggered by any of these devices are sent to the superior system by the MLU5 electronics by status signals.**

9.1. CONTROLLING THE TURNSTILE BY THE TOUCH PANEL

- It is a simple control panel with capacitive buttons and LED signalization.
- You can control 3 turnstiles with the EMERGENCY function or 4 turnstiles without this function with one TOUCH PANEL.
- In case you need to control more turnstiles from one location, it is possible to use more TOUCH PANELS.
- Setting the TOUCH PANEL is done through the T-CONF application.
- Connection and setting of the TOUCH PANEL is described in a separate manual.

9.2. CONTROLLING THE TURNSTILE BY THE EASY TOUCH PANEL

- It is a comfortable control panel with a touch screen and plenty of functions.
- You can control up to 30 turnstiles with one EASY TOUCH.
- Computer is not needed for setting the EASY TOUCH - it is done directly on the touch screen.
- Connection and setting of the EASY TOUCH is described in a separate manual.

9.3. CONTROLLING THE TURNSTILE BY T-MONITOR APPLICATION

- It is a highest level of controlling the COMINFO turnstiles, it allows not only controlling but also monitoring of statuses and automatic control of the turnstiles with the PASSAGE SCHEDULER.
- You can control unlimited number of turnstiles with the T-MONITOR application.
- The T-MONITOR application is described in a separate manual.

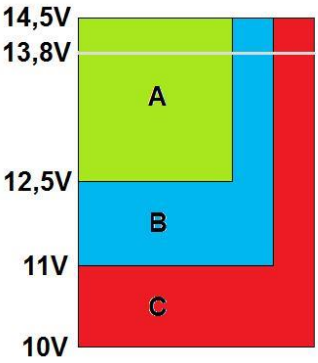
10. TURNSTILE POWER SUPPLY

Internal power supply of the turnstiles is not intended for external devices (third party devices), unless it is specified in the project documentation and this device is installed directly by the manufacturer.

10.1. CONNECTION OF EXTERNAL 13.8VDC POWER SUPPLY

THE POWER SUPPLY UNIT MUST COMPLY WITH THE REQUIREMENTS OF THE SELV POWER NETWORK.

THE POWER SUPPLY MUST BE DIMENSIONED ACCORDING TO THE CHAPTER *POWER INPUT OF THE TURNSTILE***.**



14.5VDC	Absolute maximum of power supply voltage - normal device functioning without limitations (this limit must not be exceeded).
13.8VDC	**Standard power supply voltage** - normal device functioning without limitations.
12.5VDC	Lower limit of standard power supply voltage - normal device functioning without limitations (the manufacturer does not recommend device operation with lower power voltage).
11VDC	Low power supply voltage - normal device functioning (except for starting-up of initialization, which, with this level of power voltage, ends up with an error message and device non-functionality).
10VDC	Minimum power supply voltage - device may show signs of a very low level of power supply (incoherent operation, very slow reactions, stopping, inability to perform the emergency function etc.).

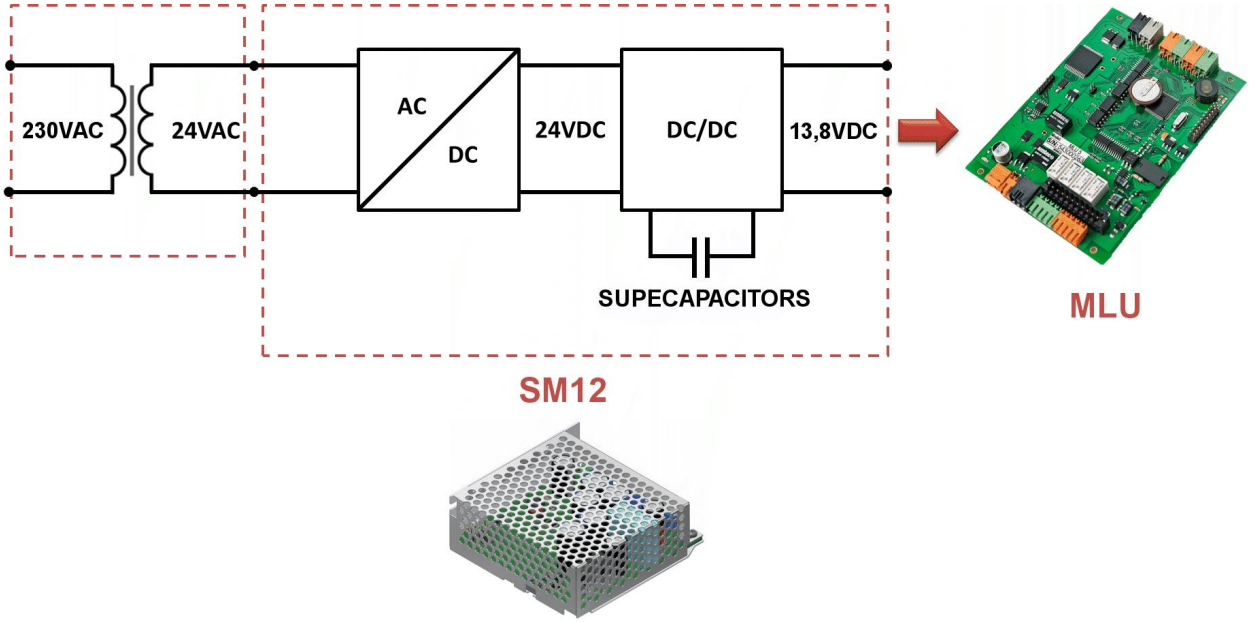
EASYGATE SG / SR turnstiles fall into the **A** area of permitted range of power supply voltage.

10.2. CONNECTION OF THE EXTERNAL POWER SUPPLY 24VAC/50-60Hz

The turnstile may be delivered also in a version for 24VAC power supply from external transformer located in the distributor. In this case, the main 230VAC/24VAC transformer is supplied in compliance with the type and number of connected turnstiles in different performance-related versions. The output from the SM12 source is voltage of 13.8VDC. Supercapacitors may be connected to this source. 24VAC voltage is connected to the main terminal block **X1**.

THE TRANSFORMER MUST COMPLY WITH THE REQUIREMENTS OF THE SELV POWER NETWORK

Block diagram:



Each turnstile must have its separate circuit breakers, described in the following chapters

10.2.1. Protection of the SM12 power supplies for two and more turnstiles

CONNECTION WITHOUT COMMON GND POTENTIAL

This connection may be used in case of installation of more turnstiles if the superior system does not require setting the turnstiles under a common GND potential for control purposes.

In case of a failure, unipolar disconnection from the SM12 power supply takes place.

In case of unipolar protection, power sources may not be set under the same GND potential.

The superior system must control turnstile by means of a relay with independent contacts in a way so that each turnstile is controlled by a GND system from its own SM12 power supply.

Circuit diagram:

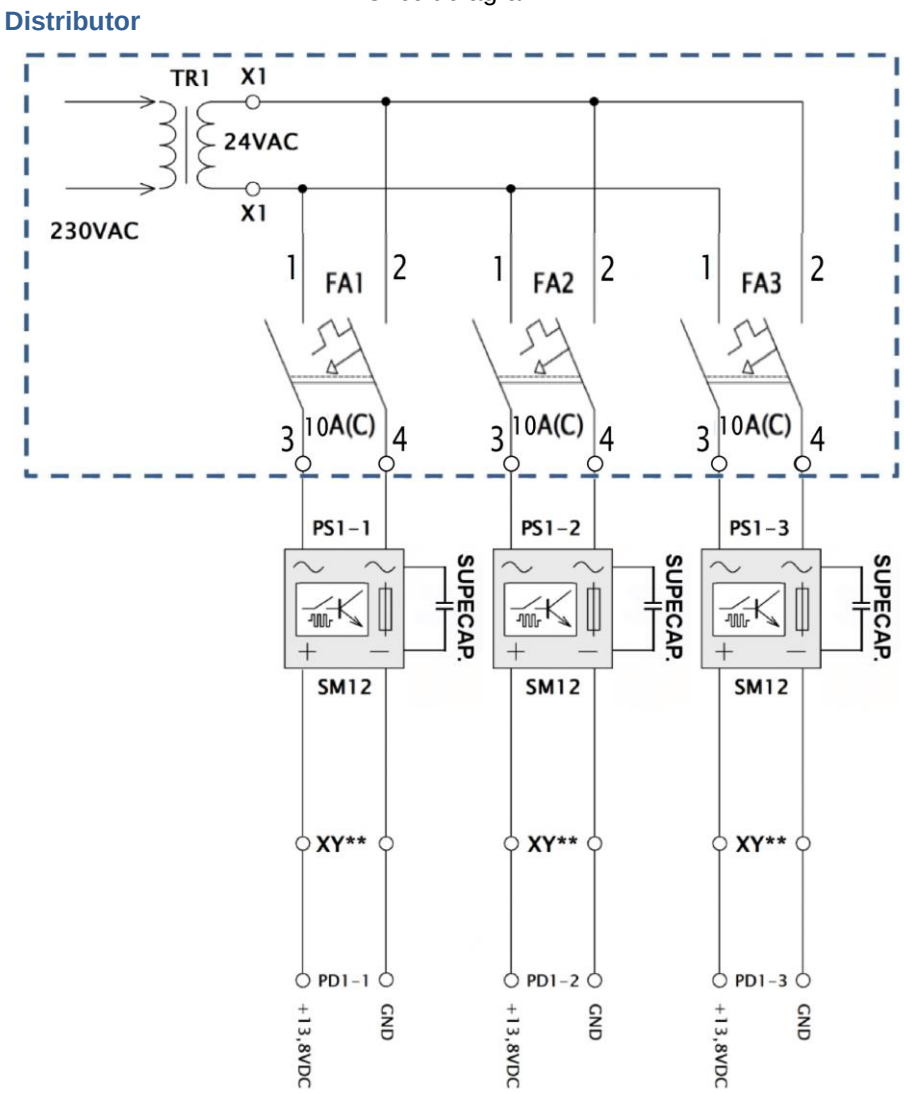
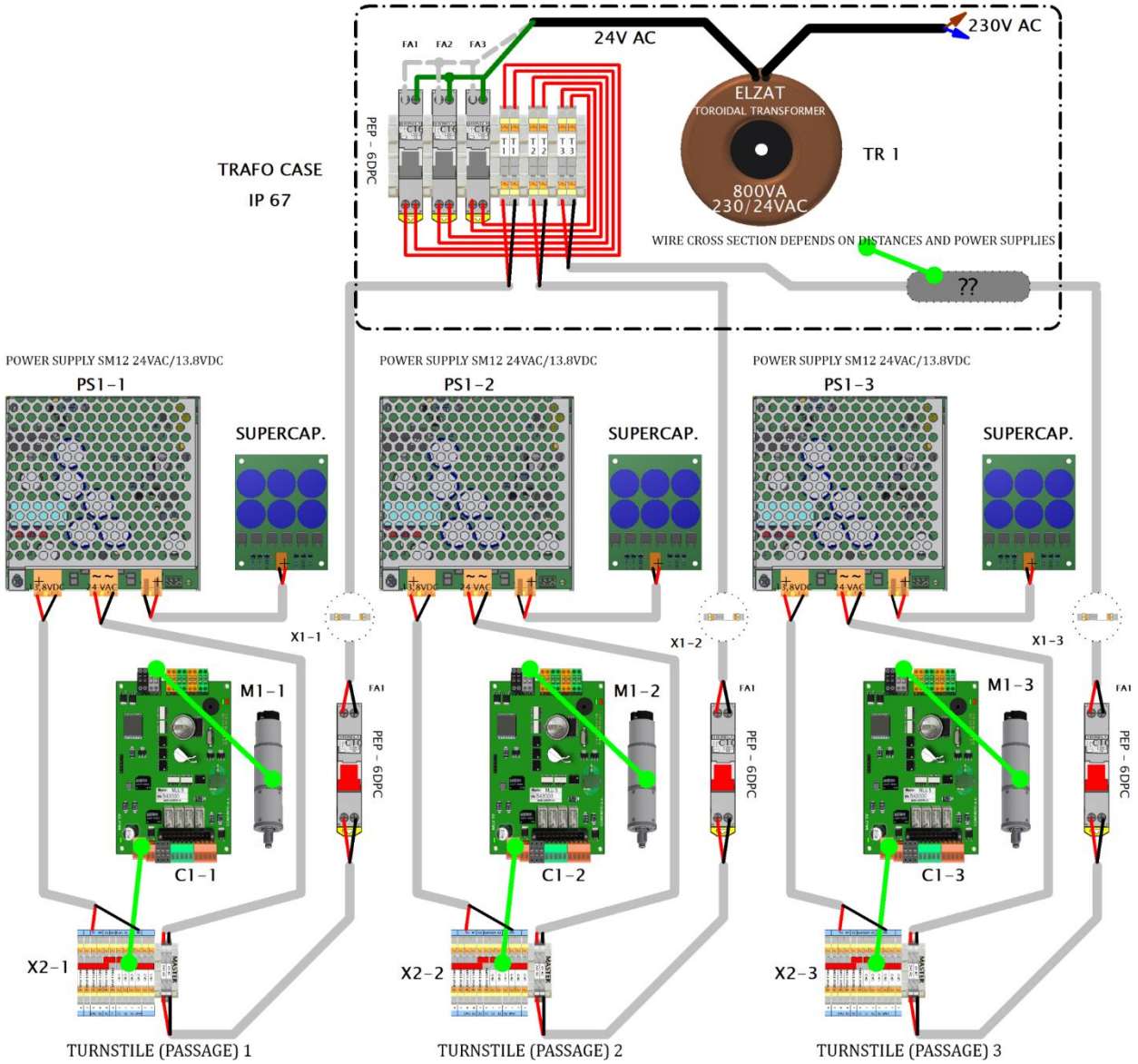
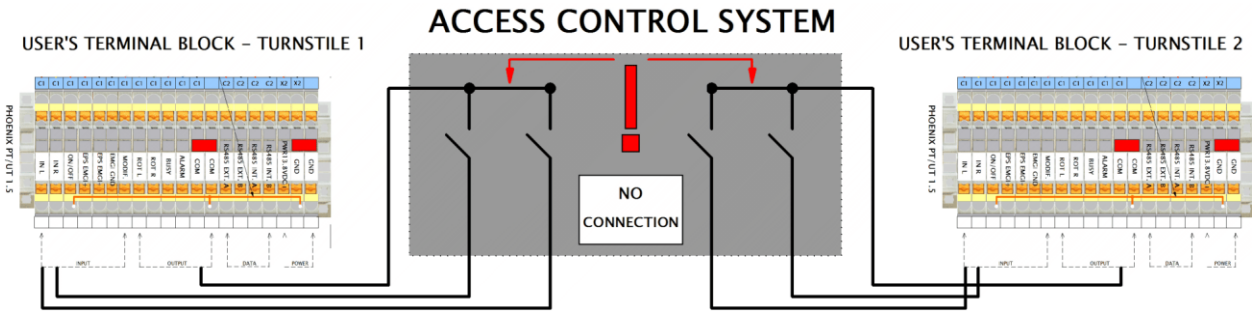


Diagram:



Example of connection of superior system without common GND potential:



CONNECTION WITH COMMON GND POTENTIAL

This connection must be used in case of installation of more turnstiles if the superior system requires setting the turnstiles under a common GND potential for control purposes.

In case of a failure, both poles of SM12 power supply will disconnect and the turnstile will be completely disconnected from the common supply transformer.

In case of double-pole protection, power sources can be set under the same GND potential.

Only special DPC circuit breakers supplied by the manufacturer must be used for double-pole protection.

Superior system can control the turnstiles by common GND relay.

Circuit diagram:

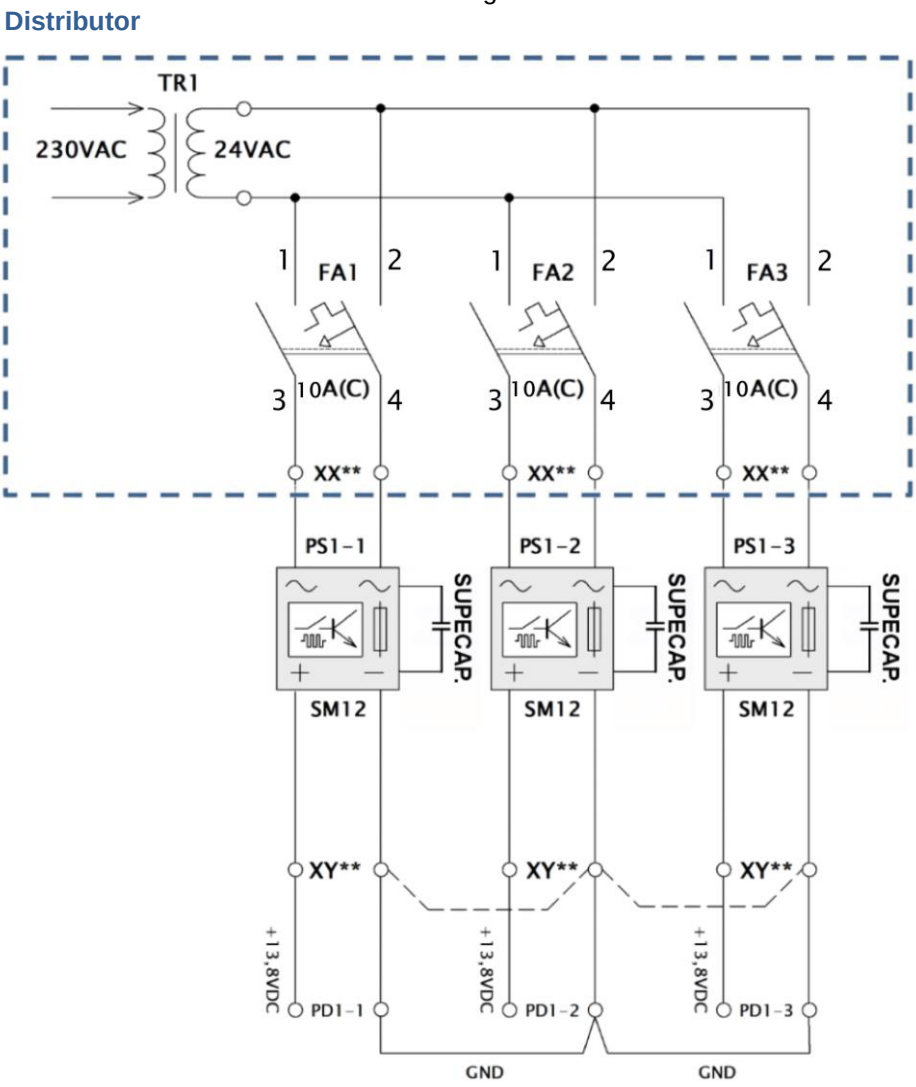
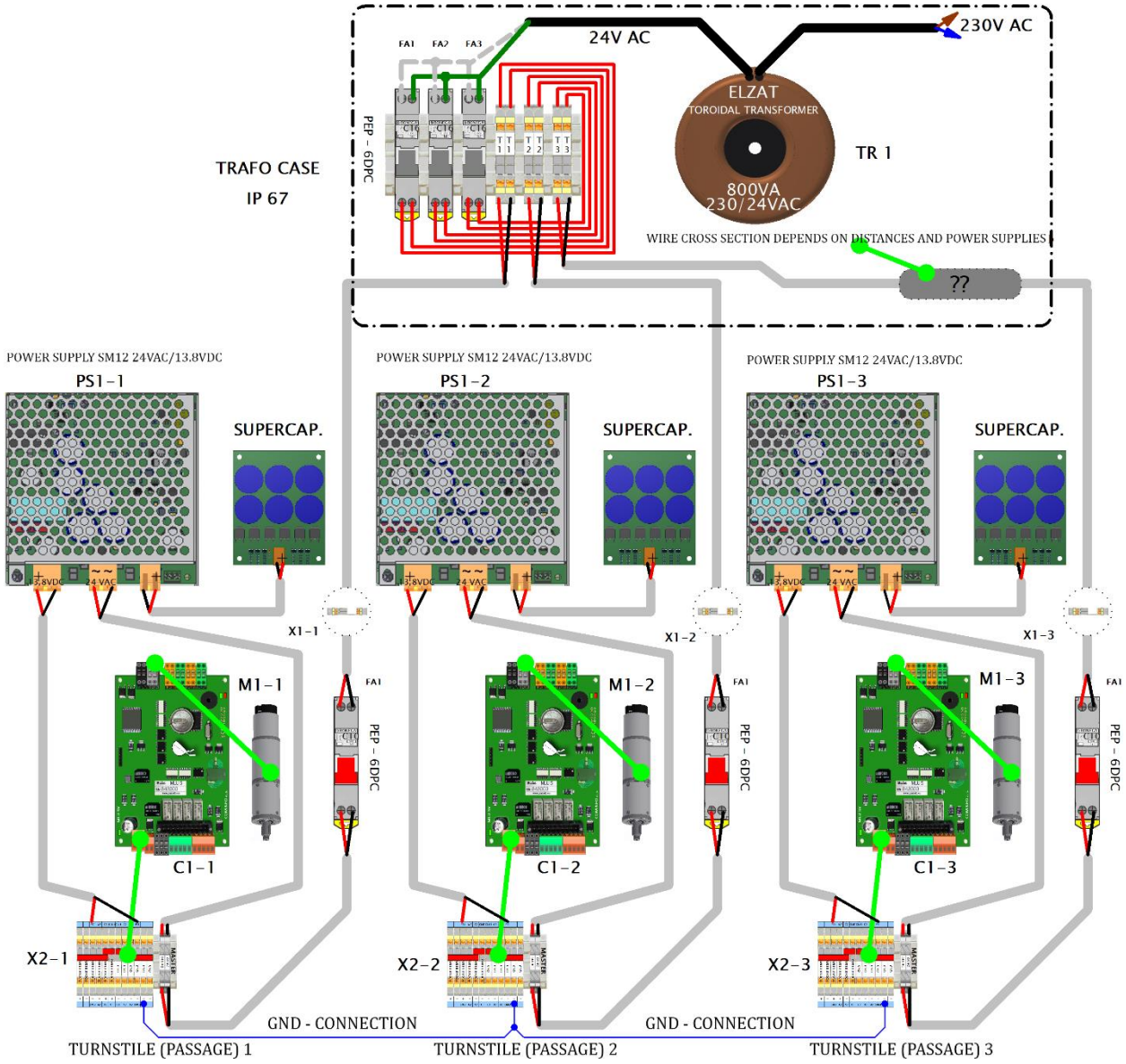
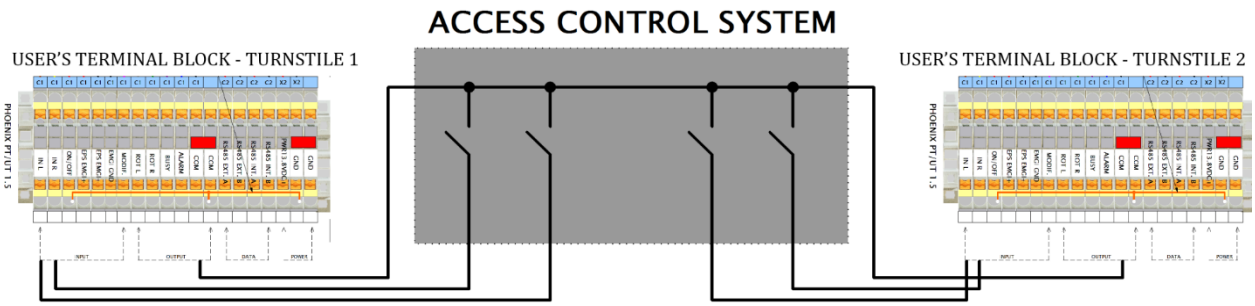


Diagram:



Example of connection of superior system with common GND potential:



10.3. POWER INPUT OF THE TURNSTILE

Table of maximum power input values during the operation of EASYGATE-SG/SR turnstile without optional accessories:

Process	Power input [VA]	Note
Maximum consumption during a passage through the turnstile [1])	**160**	For one passage (2x drive units)
Idle state of the turnstile (turnstile OFF)	**20**	Locked in home position
Idle state of the turnstile (turnstile ON)	**3**	Unlocked in home position

Table of power input increase with optional accessories:

Optional accessories	Power input [VA]	Note
Back Light [2])	**+2**	Permanently (for 1x Back Light)
Lane Light [3])	**+6**	For one passage (2x Lane Light)
Wing Light [4])	**+45**	For one passage (2x wing)

[1]) Input power depends on dimensions of the turnstile glass wing and the set opening speed. The table states input power for maximum opening speed with the standard passage width of 650.

[2]) Back Light is an optional accessory.
It may be installed either only for one passage direction (1 piece) or for both passage directions (2 pieces).

[3]) Lane Light (Direction) is an optional accessory for **EASYGATE-SR** turnstiles.
It may be installed either only for one passage direction (1 piece) or for both passage directions (2 pieces).

[4]) Wing Light is an optional accessory.
For a single-wing version, the power input is half.

11. COMPLETE WIRING DIAGRAM

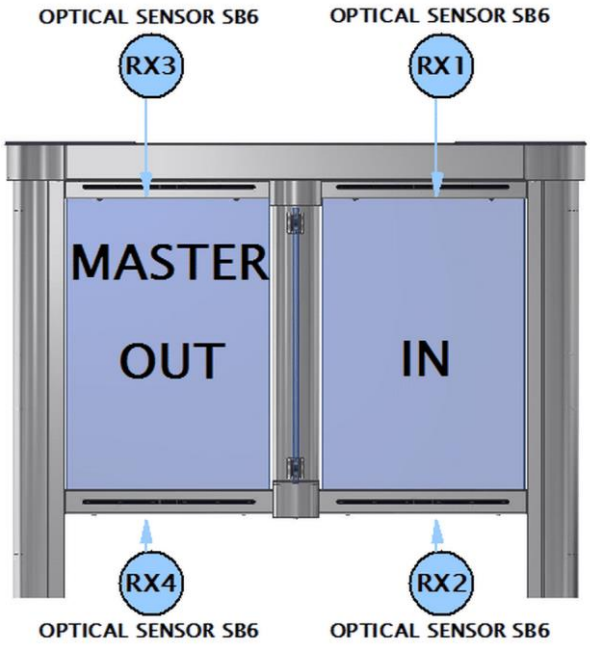
You can get detailed cable diagram after logging-in on our website www.extranet.cominfo.cz.

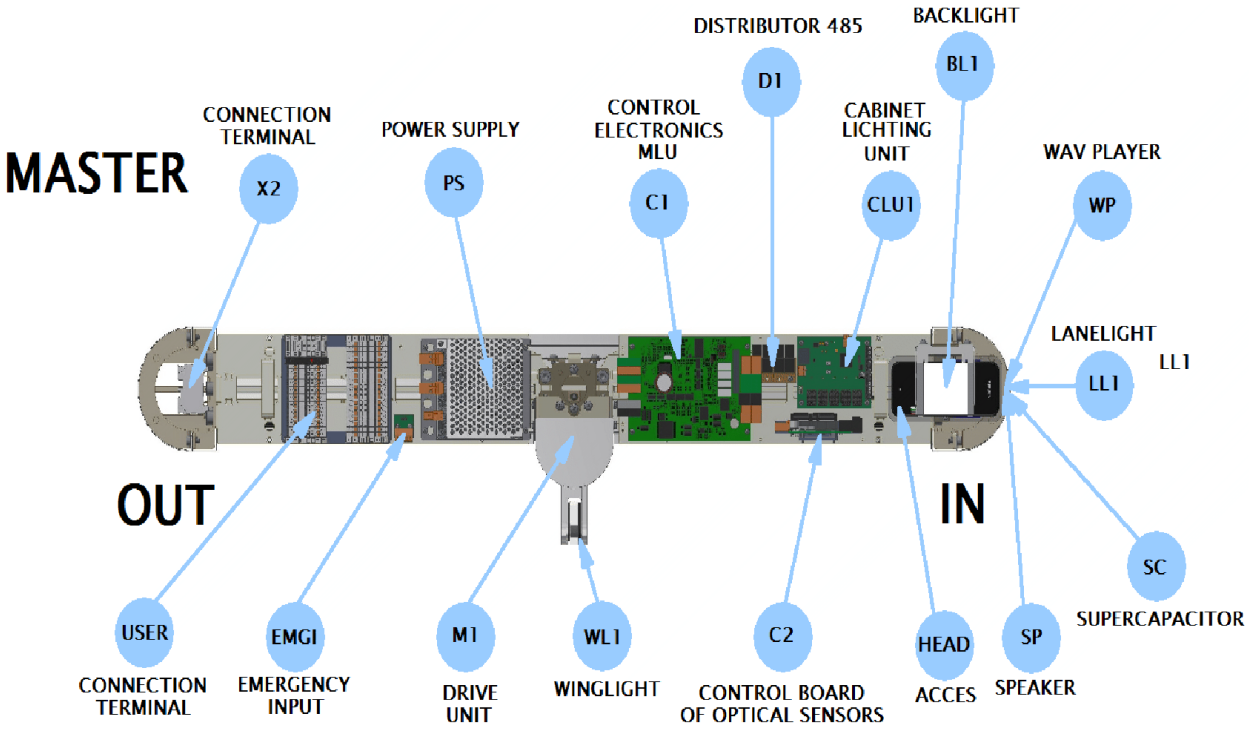
11.1. CAPTIONS TO THE DIAGRAMS:

C1 - MLU5 control electronics
C2 - Control electronics of sensors (SBCB) with integrated RS485 distributor
D1 - Distributor RS485
CLU1 - Control electronics of MASTER optical signalization (Cabinet Lighting unit)
CLU2 - Control electronics of SLAVE optical signalization (Cabinet Lighting unit)
EMGI - Electronics for the EMERGENCY signal evaluation (Emergency Input)
M1 - MASTER drive unit
M2 - SLAVE drive unit (not available in a single-wing version)
X1 - **13.8VDC** or **24VAC** main power terminal block
X2 - MASTER turnstile terminal block
X3 - SLAVE turnstile terminal block
USER - User terminal block
INT - Internal connection terminal
X - RFID sensor terminals
FU - 10A fuse
PS1 - SM12 (24VAC/13.8VDC) power supply
SC1 - Supercapacitors for PS1
B2 - Buzzer - acoustic alarm signalization
WP - WAV Player Module
SP - Speaker for a WAV Player
LL1 - MASTER turnstile Lane Light (only for EasyGate-SR type turnstiles)
LL2 - SLAVE turnstile Lane Light (only for EasyGate-SR type turnstiles)
BL1 - MASTER turnstile Back Light
BL2 - SLAVE turnstile Back Light
WL1 - MASTER turnstile Wing Light
WL2 - SLAVE turnstile Wing Light
RX* - Receiving sensors in the MASTER turnstile (RX1 – RX4)
TX* - Transmitting sensors in the SLAVE turnstile (TX1 – TX4)

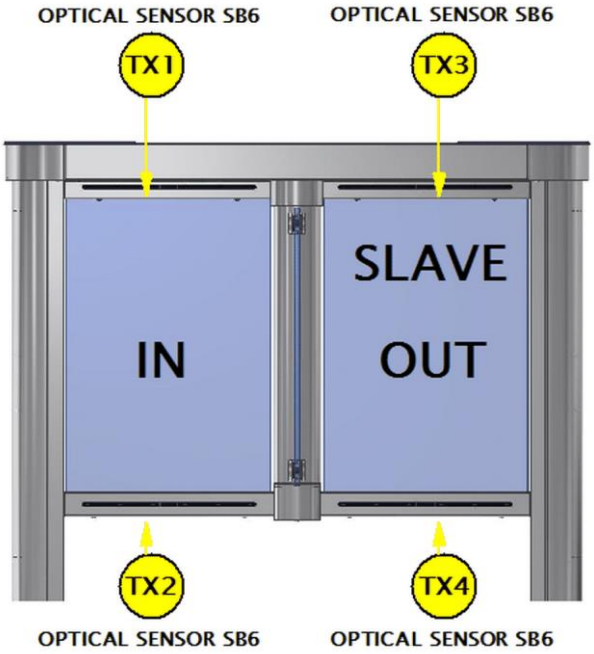
11.2. LAYOUT OF THE DEVICES IN THE TURNSTILE

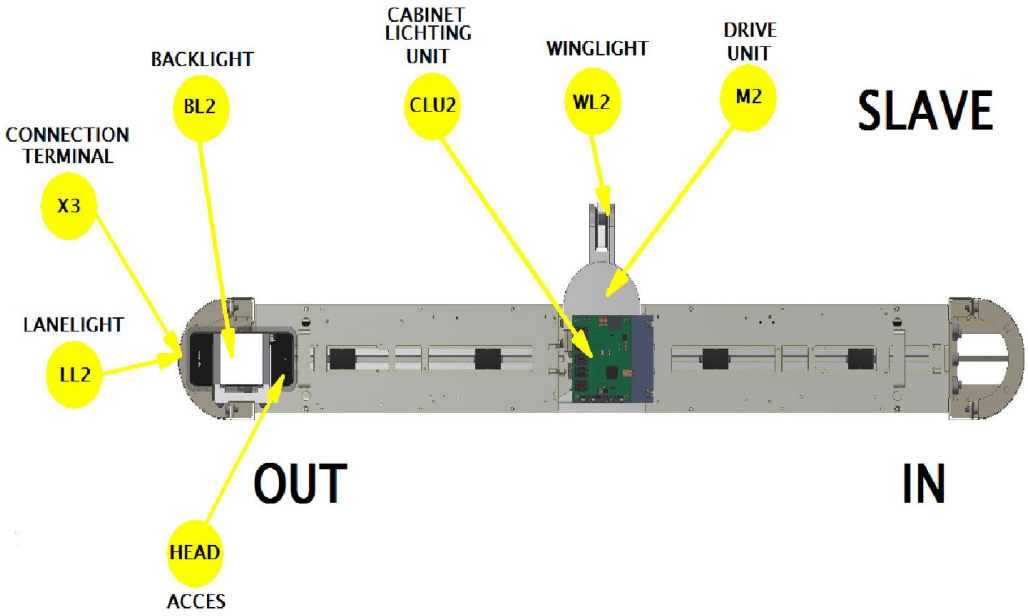
11.2.1. MASTER turnstile



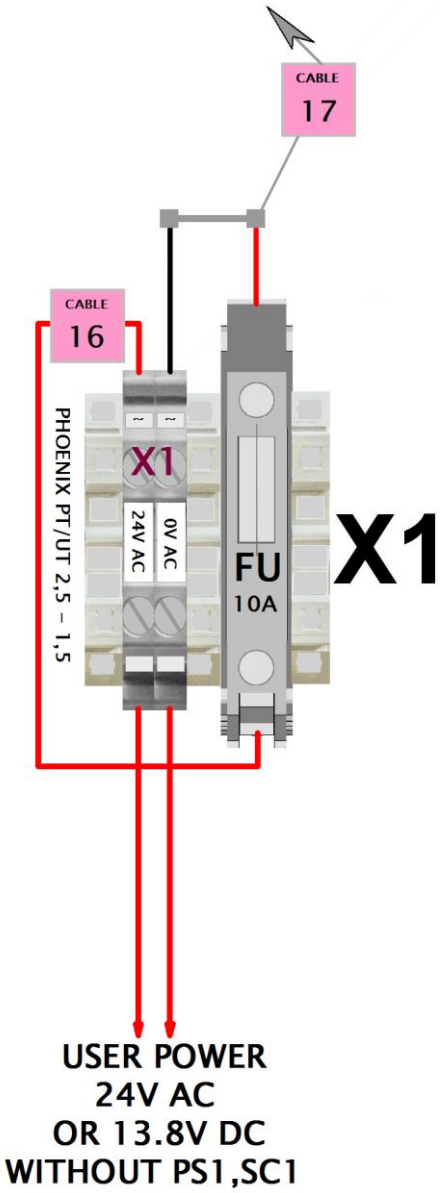


11.2.2. SLAVE turnstile



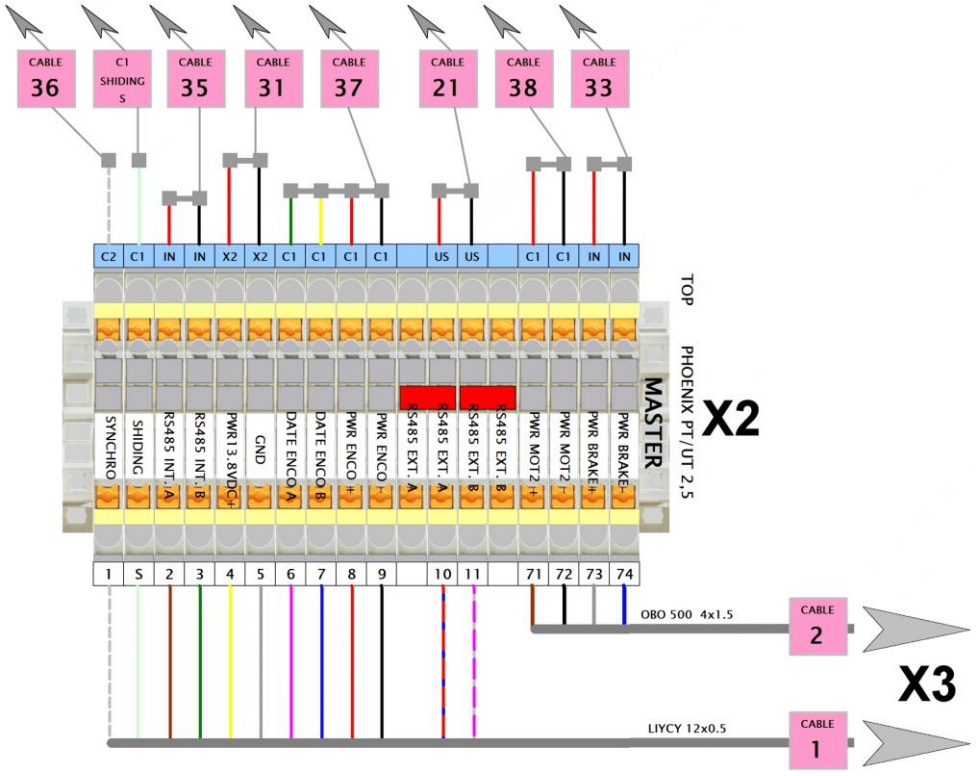


11.3. 24VAC OR 13.8VDC TURNSTILE POWER SUPPLY

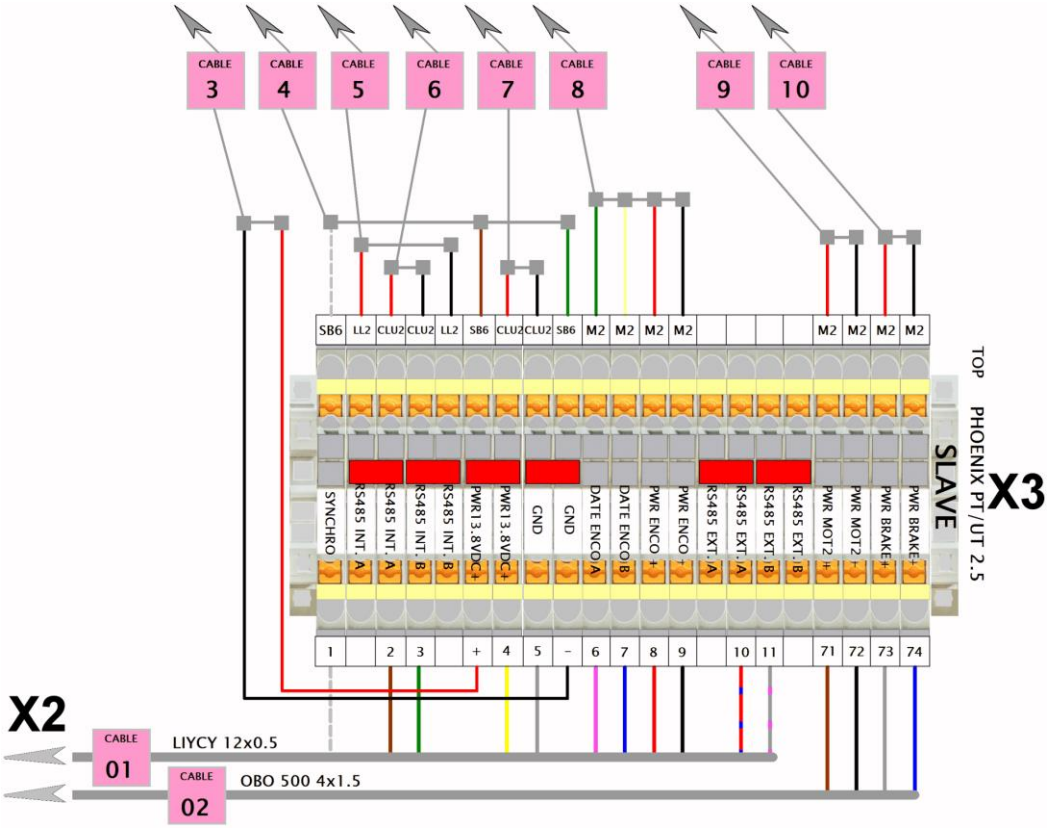


11.4. THE MASTER / SLAVE INTERCONNECTING TERMINAL BLOCK

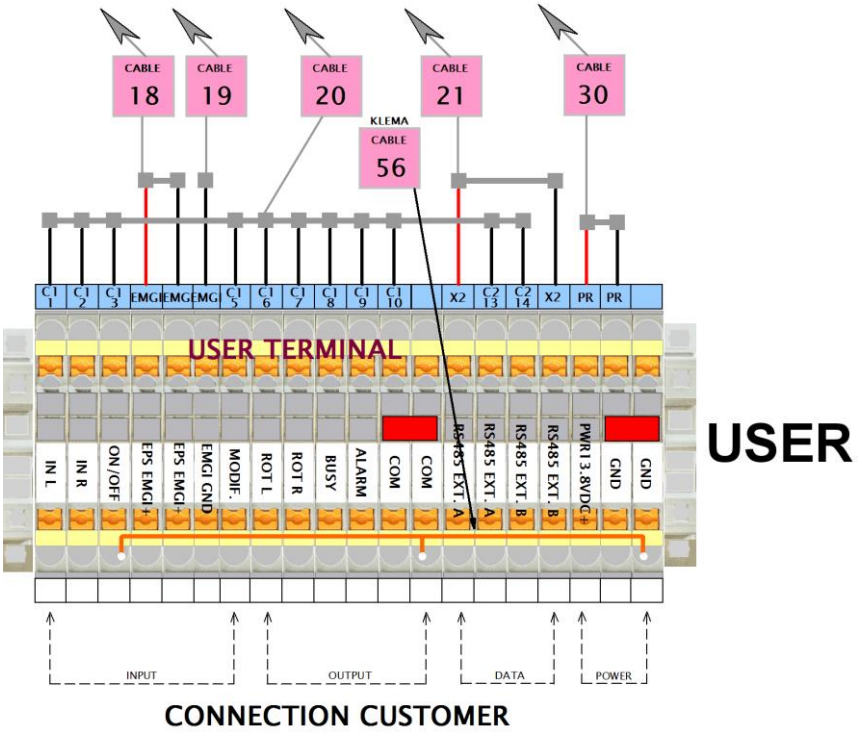
11.4.1. MASTER terminal block (X2)



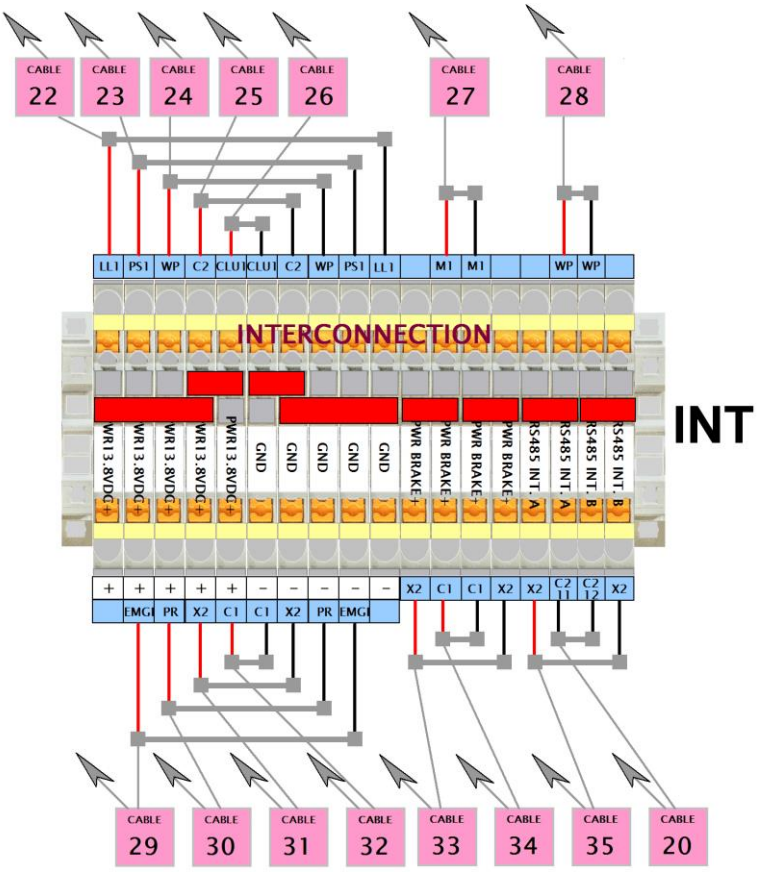
11.4.2. SLAVE terminal block (X3)



11.5. USER TERMINAL BLOCK

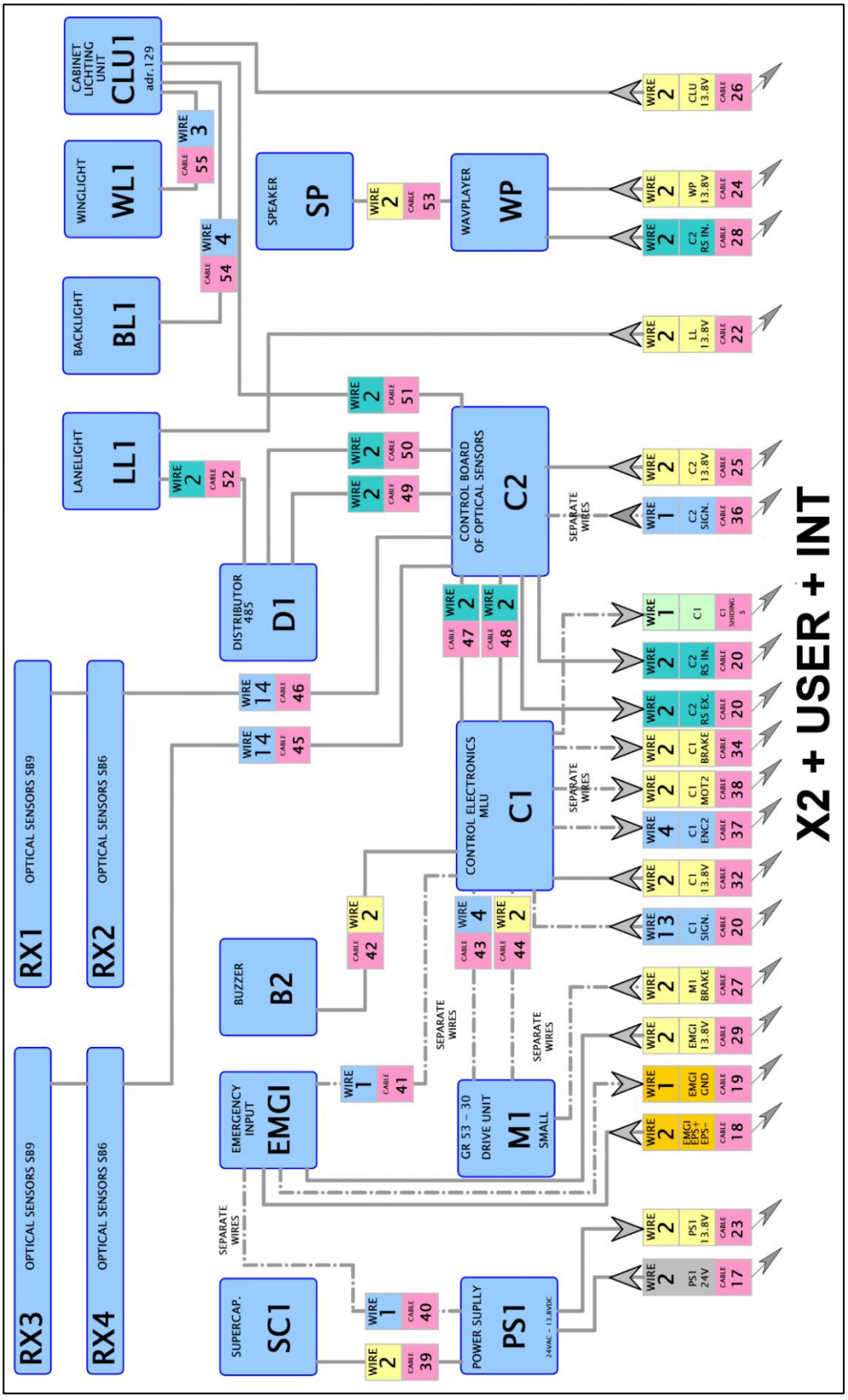


11.6. INTERNAL CONNECTION TERMINAL BLOCK

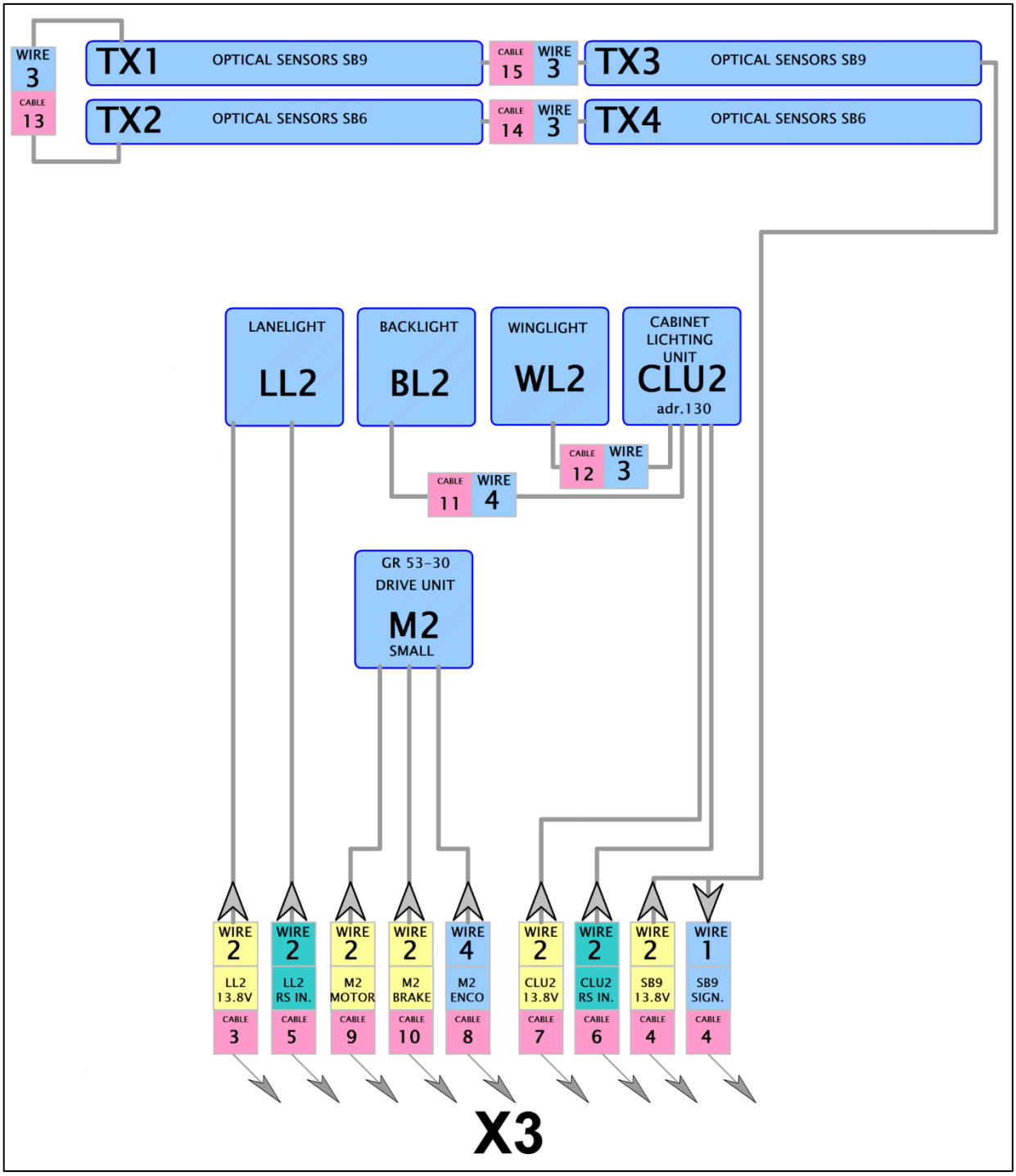


11.7. CABLE DIAGRAM

11.7.1. MASTER cable diagram



11.7.2. SLAVE cable diagram



11.8. SPECIFICATIONS AND MARKINGS OF CABLES

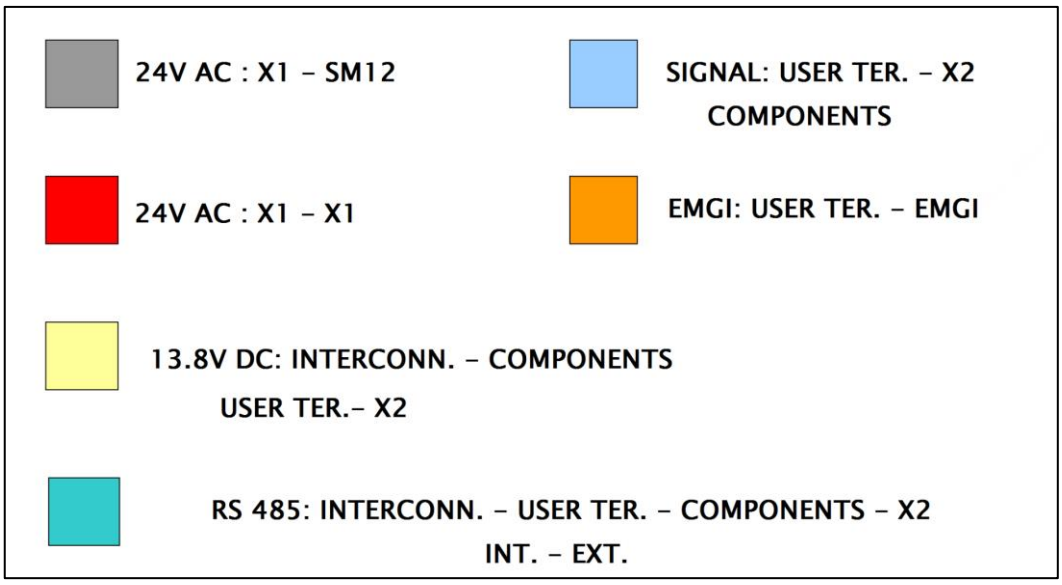
11.8.1. MASTER cables specification card

CABLE 01	LIYCY 12x0.5	CABLE 31	CYH 2x0.5	CABLE 48	CYH 2x0.35
CABLE 02	OBO 500 4x1.5	CABLE 32	CYH 2x1	CABLE 49	CYH 2x0.35
CABLE 16	H07V – K 2x1x2.5	CABLE 33	CYH 2x1	CABLE 50	CYH 2x0.35
CABLE 17	CYH 2x1.5	CABLE 34	CYH 2x1	CABLE 51	CYH 2x0.35
CABLE 18	CYH 2x0.5	CABLE 35	CYH 2x0.35	CABLE 52	CYH 2x0.35
CABLE 19	LIYV 1x0.5	CABLE 36	LIYV 1x0.5	CABLE 53	CYH 2x0.35
CABLE 20	JZ – 500 18G 0,5	CABLE 37	LIYCY 4x0.5	CABLE 54	LIYY 4x0.25
CABLE 21	CYH 2x0.35	CABLE 38	CYH 2x1	CABLE 55	LIYY 4x0.25
CABLE 22	CYH 2x0.5	CABLE 39	CYH 2x1	CABLE 56	LIYV 1x0.5
CABLE 23	CYH 2x1.5	CABLE 40	LIYV 1x0.5		
CABLE 24	CYH 2x0.5	CABLE 41	LIYV 1x0.5		
CABLE 25	CYH 2x0,5	CABLE 42	CYH 2x0.35		
CABLE 26	CYH 2x1	CABLE 43	LIYCY 4x0.5		
CABLE 27	ORIGINAL WIRES	CABLE 44	ORIGINAL WIRES		
CABLE 28	CYH 2x0.35	CABLE 45	AWG 28 – 14 WIRE		
CABLE 29	CYH 2x0,5	CABLE 46	AWG 28 – 14 WIRE		
CABLE 30	CYH 2x0,5	CABLE 47	CYH 2x0.35		

11.8.2. SLAVE cables specification card

CABLE 01	LIYCY 12x0.5	CABLE 10	ORIGINAL WIRES
CABLE 02	OBO 500 4x1.5	CABLE 11	LIYY 4x0.25
CABLE 03	CYH 2x0.5	CABLE 12	LIYY 3x0.5
CABLE 4	LIYY 3x0.5	CABLE 13	LIYY 3x0.5
CABLE 5	CYH 2x0.35	CABLE 14	LIYY 3x0.5
CABLE 6	CYH 2x0.35	CABLE 15	LIYY 3x0.5
CABLE 7	CYH 2x1		
CABLE 8	ORIGINAL WIRES		
CABLE 9	ORIGINAL WIRES		

11.8.3. Cable markings



12. TROUBLESHOOTING

Possible causes of malfunctions are described in the *Troubleshooting* section of the operating instructions.

12.1. CHECKING ERROR STATES AFTER TURNING ON THE POWER SUPPLY

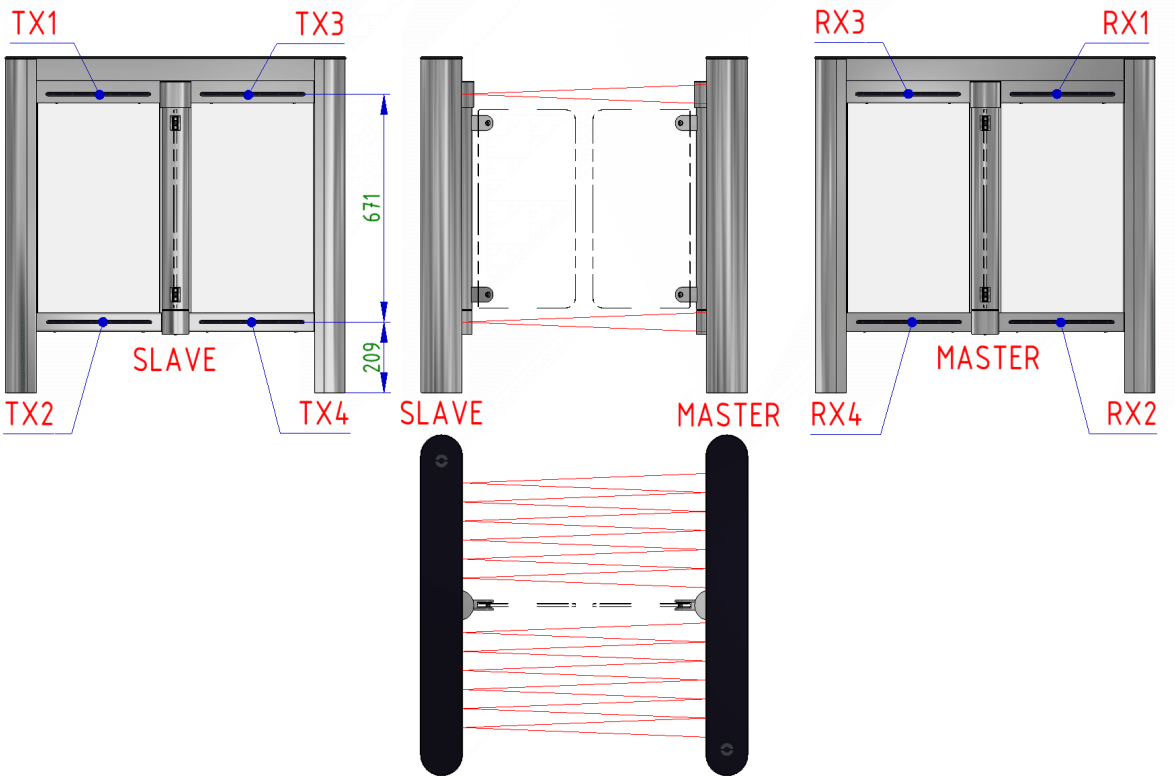
- Remove the upper lid of the Master turnstile according to chapter *Description of access to the control electronics and terminal blocks*. Check the electronics LED signalization.
- The electronics is fitted with three LED diodes which signal its status.
- Their placement is described in chapter *Description of the control electronics*.

LED (state)			MALFUNCTION	REMOVING THE MALFUNCTION
1	2	3		
			Power failure of the turnstile (green LED1 does not emit light)	Measure the power supply. Check or replace the circuit breaker of the power supply unit. Check and tighten all clamps.
			Timeout for automatic turnstile blocking is activated (red LED3 permanently emits light)	Request a code for unblocking from the manufacturer and unblock the turnstile using the TCONF application.
		0.25Hz	Discharged backup accumulator of the electronics (red LED3 flashes at 0.25Hz)	Check the accumulator according to the following chapter. Send the electronics to the manufacturer for accumulator replacement.
		4Hz	Firmware is not uploaded (red LED3 flashes at 4Hz)	Upload current version of the firmware after consulting the manufacturer.
		4x flash	Malfunction in some part of the motor drive unit (red LED3 4x flashes + pause)	Check the motor drive unit according the chapter Checking the motor drive unit.

12.2. CHECKING THE OPTICAL SENSORS

The set of bars with optical sensors serves for detection of passage of persons through the turnstile. It is composed of transmitter bars **T** located on the SLAVE turnstile and receiver bars **R** located on the MASTER turnstile. Receiver bars are connected to the **C2** sensors control electronics. Transmitter bars **T** are connected to power supply voltage in the **X3** terminal block. The MIDDLE turnstile has transmitters on one side, and receivers on the other side.

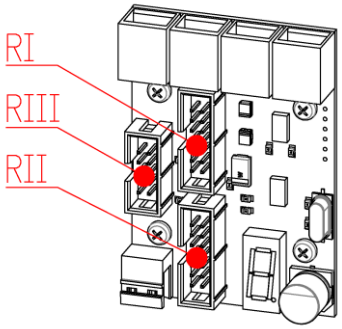
12.2.1. Layout of the optical sensors



12.2.2. Inspection - SBCB sensors (C2) control electronics

After connecting the power supply voltage, the firmware number is displayed on the control electronics screen of **C2** sensors for **1s**. Then, the state of connection of individual receiver bars is displayed on the screen for the entire time. If all receiver bars are connected correctly, **0** is displayed on the screen. If any of the bars is connected incorrectly due to damaged cabling or connector, the respective bar number is displayed on the screen. Numeral assignment to individual receiver bars and assignment of connectors to individual bars of receivers can be found in the following table.

C2 sensors control electronics



Receiver bars markings	Number of sensors		Connector number	Displayed on the screen
	SG-1000	SG-1320		
RX1	6	9	RI	1
RX2	6	9	RI	2
RX3	6	9	RII	3
RX4	6	9	RII	4

12.2.3. Checking the signalization of sensor bars electronics

- Check if green LEDs are blinking on all four transmitting sensor bars **T**, which signals connection of power supply voltage. The blinking signals the synchronization is correct. If LED is lit up, it means the signaling cable is interrupted or the oscillator is malfunctioning.
- Check if green LEDs are lit up on all four receiver sensor bars **R**, which signals connection of power supply voltage.

12.2.4. Checking via the TCONF application

While checking, all covers with clean apertures must be installed on the turnstile.

Carry out the inspection using the **TCONF** application and the *Diagnostics – Sensor test* tool. The computer must be connected to the internal communication line 485.

- Disconnect one of two 485 DATA INT connectors from the **C2** sensors electronics and connect the 485 connector from the computer with converter.
- Stop the communication server using the **CmfMng** application, by pressing the  button.
- Run the **Sensor Test** program, set the correct COM. Leave the pre-set transfer speed of 50ms and start the communication of sensors with the program using the **Open** button.
- All squares must stay white after starting the communication.
- Gradually, one by one, cover each of 40 receiving sensors of the upper and lower bars with your finger and observe the squares on the screen, which signal change by blue colour.
- If you find out that some transmitting or receiving sensors are malfunctioning, always replace the whole sensor bar.
- Finally, disconnect the laptop and reconnect the original connector.
- In the **CmfMng** application, start the communication server using the green button  .

The turnstile is capable of operation even when individual transmitting and receiving sensors fail. If you find out that some sensor is not working, it is absolutely necessary to replace the whole sensor bar. Two types of identical replaceable sensor bars are used:

sensor bar - transmitters (TX1 – TX4)
sensor bar - receivers (RX1 – RX4)

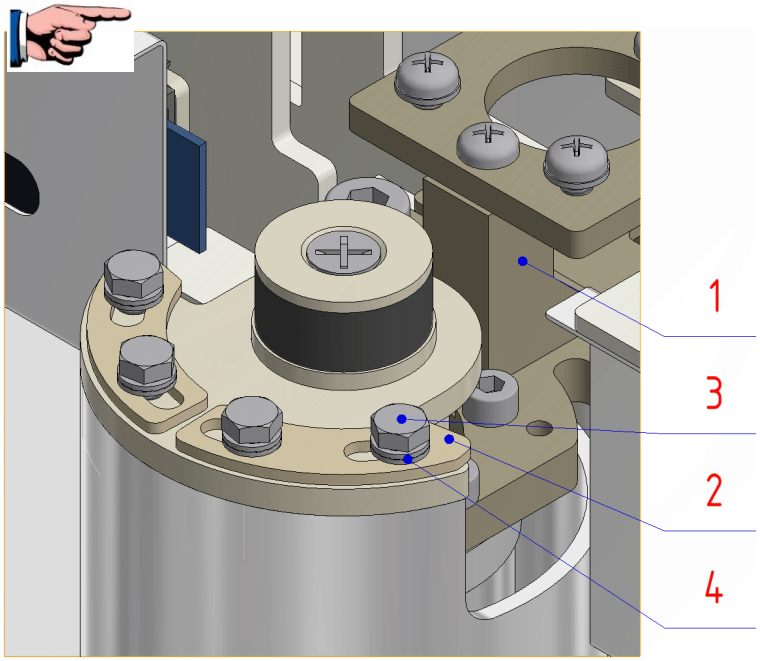
In case of a malfunction of an individual sensor, it is not possible to determine if it is a transmitting or receiving sensor.

First, replace the transmitting sensor bar. If the malfunction prevails, replace the receiving sensor bar.

Replacement of sensor bars is described in detail in the Instructions for preventive maintenance.

12.3. CHECKING AND ADJUSTING THE WING END STOPPERS

Check the correct position of the end stoppers by manually turning the wings to both end positions. The wing must not touch the turnstile cabinet in these end positions and the distance of the wing from the turnstile cabinet must be identical in both end positions. If these distances are different, adjust the end stoppers. Perform the check and adjustment of the end positions with the power supply switched off.



1. Stopper block
2. Stopper shim
3. Locking screw
4. HEICO-LOCK washer

Never loosen all four M5x16 bolts at once (pos.3).
Adjust every stopper shim separately.
The HEICO-LOCK - HLS-5 locking washer (pos.4) must be under every bolt.

Adjustment procedure:

1. Remove the covers according to the chapter *Description* of access *to the wing stoppers*.
2. Loosen the two M5x16 bolts (pos.3) and adjust the stopper shim (pos.2) related to the stopper block (pos.1) so that when the wings are turned to their end positions, they are at the same distance from the turnstile cabinet at both end positions. These distances must be identical for both wings of given gate in case a two-wing design is used.
3. Tighten all the M5x16 bolts (pos.2) and check both end positions of the wing again.
4. Perform initialization according to chapter *Electronics reset function*, and check if the turnstile wings stop vertically to the turnstile axis in the home position and in one line against each other.

Inaccuracy during turnstile anchoring may cause that the glasses of the two-wing version do not stop against each other in the home position. In this case, we must choose compromise setting of the end stoppers.

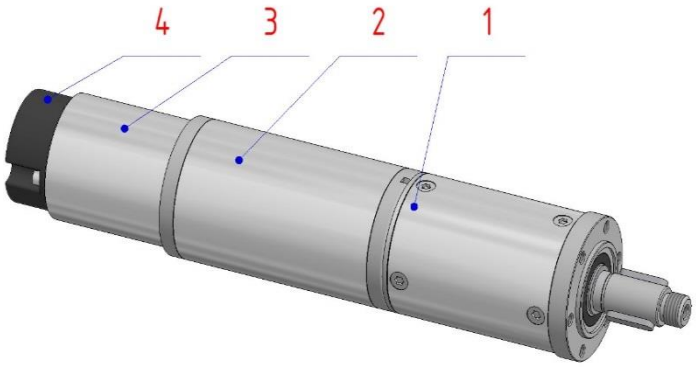
5. In case the turnstile is anchored inaccurately, we must follow the principle that the glass always stops in the middle of the path between both end stoppers. If we change only one end stopper, the wing stops in the home position by half the path of the changed stopper. If we change both stoppers in one direction, the wing stops in the home position by the shifted path of both stoppers.

Sometimes it is sufficient to adjust the stoppers of only one wing. However, if one wing is deflected too much from the perpendicular position to the turnstile, it is more suitable to adjust stoppers of both wings so that the deflection from the perpendicular position of both wings is symmetrical.

12.4. CHECKING THE MOTOR DRIVE UNIT

We check the motor drive unit in case that after switching on the supply voltage a malfunction of the drive unit is detected by flashing red LED (red LED3 4x blinks + pauses).

12.4.1. Description of the drive unit

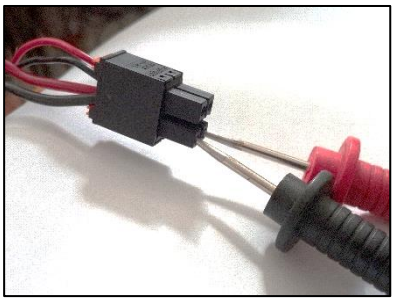


1. Planetary gearbox
2. Electromotor
3. Electromechanical brake
4. Speed sensor (magnetic encoder)

12.4.2. Checking the electromotors

- Disconnect the power supply.
- Pull out the black MASTER motor drive connector from MLU5 control electronics.
- Set the multimeter to measure resistance.

- Connect the multimeter to the bottom pins of the connector as shown on the figure below. The value should be between **2 - 20 Ohms** (depending on the wear and position of the brushes and commutator).



- If the measured value is higher, move the wing several times with disconnected multimeter and repeat the measurement.
- Measure the SLAVE motor drive unit the same way on the grey connector.
- If you do not measure any resistance, look for the fault according to the wiring diagram.

12.4.3. Checking the brakes

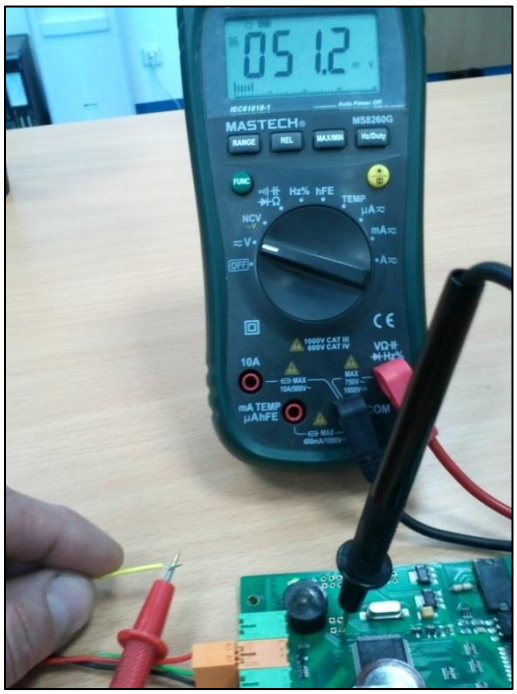
- After switching off the supply voltage, check the free rotation of the turnstile wings.
- After switching on the supply voltage by pushing the wing in the home position with a force of approx. **50-100N**, we check the function of the brake, which must not slip. If the turnstile is unlocked in the home position configuration, the wings lock only after they are pushed.
- Open the turnstile several times using the EMERGENCY signal. Check for audible clicking of both brakes when braking and releasing when reaching the open position.

12.4.4. Checking the encoders

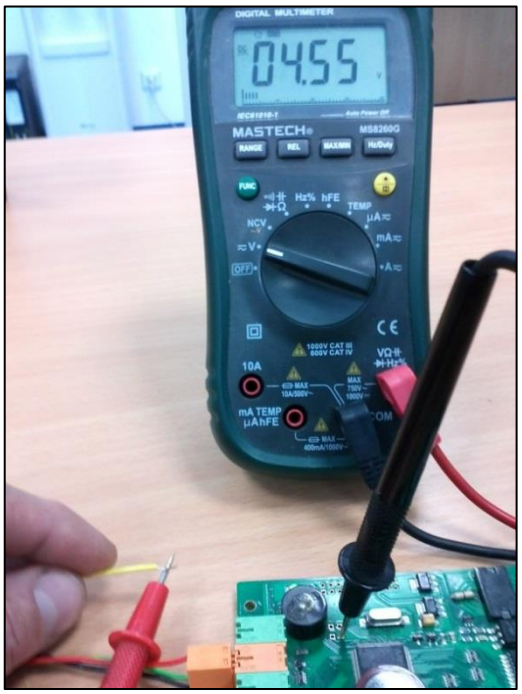
- Turn off the power supply.
- Pull out the black and gray motor connectors and both orange encoder connectors from the MLU5 control electronics.
- Connect the power supply.
- Set the multimeter to measure VDC voltage.
- Measure both channels of the **SLAVE** encoder (yellow and green wire) against the measuring point on the electronics according to the following figures.
- During very slow **SLAVE** wing rotation (1cm), the voltage must change the two levels on both channels as seen in the figures.

- Measure both channels of the **MASTER** encoder the same way, while turning the **MASTER** wing.

LOG 0
Approx. 50-60mV



LOG 2
Approx. 4.5-4.6V



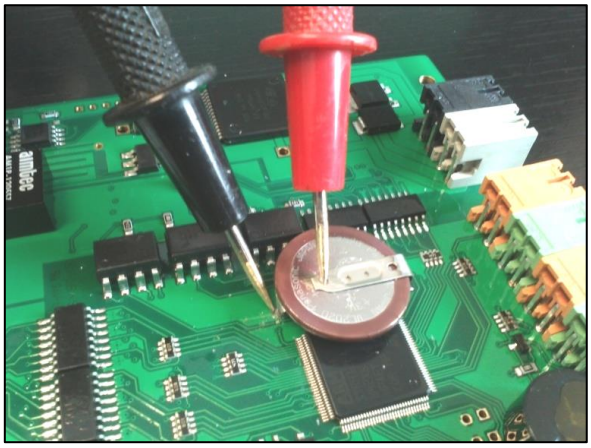
12.5. CHECKING THE BACKUP ACCUMULATOR OF THE ELECTRONICS

The accumulator serves to back up RAM memory in the event of a power failure.

CHECKING THE ACCUMULATOR STATE

- Before measuring, clean the measuring points of the accumulator (the electronics is equipped with protective insulating varnish including the accumulator surface).
- With disconnected supply voltage, measure the accumulator 3V voltage as shown on the figure.
- If you measure voltage level lower than 2.5V, it is necessary to replace the accumulator.

Measuring points and measurement of the 3V backup accumulator of the electronics:



CHECKING THE ACCUMULATOR FUNCTIONALITY

Functional accumulator:

- after connecting the power supply, the turnstile is initialized
- you can download the logs using the TCONF application

Non-functional accumulator:

- after connecting the power supply, the turnstile is not initialized and turnstile is not operational
- all logs are lost from the memory

Only the manufacturer COMINFO can replace the accumulator.

EMERGENCY OPERATINAL STATE OF THE TURNSTILE WITH NON-OPERATIONAL ACCUMULATOR

- The turnstile may be put into emergency operational state after turning on the power supply by the electronics reset function (per chapter *Electronics reset function*).
- The turnstile is operational until the power supply is lost.

12.6. ANALYSIS OF MALFUNCTIONS AFTER RESET OF CONTROL ELECTRONICS

- The malfunctions are detected only after previous electronics reset per chapter *Electronics reset function*.
- The malfunctions are detected by the number of red LED3 flashes according to the following table (frequency 2Hz + pause).

LED (state) 1	LED (state) 2	LED (state) 3	MALFUNCTION	REMOVING THE MALFUNCTION
		1x flash	Motor drive unit malfunction or mechanical failure.	Inspect the mechanical state of the motor drive unit. Replace the drive unit.
		3x flash	Low supply voltage at the electronics terminals.	Measure the power supply voltage during turnstile initialization, it must not drop below 12.5 VDC. Check the lead-in mains. Check the cross-section dimensioning of power supply cables.
		4x flash	Correct initialization was not completed.	Repeat initialization process.

12.6.1. Electronics reset function

This is a controlled function that must be triggered during malfunction analysis after replacing the MLU5 control electronics or the motor drive unit.

- The start of the electronics reset is confirmed by a single flash of red LED3 followed by malfunction detection and initialization.

During the electronics reset, the following occurs:

- malfunction detection
- start of the device initialization
- configuration of the device remains intact after the electronics reset
- the event register LOG is not overwritten

After starting the electronics reset the operator must ensure safety (see chapter *Initialization of the turnstile*). It must not be interfered in any way with the turnstile during the procedure.

Electronics cannot be reset when the turnstile is running on the backup accumulator or if the voltage of the turnstile terminal drops below 12.5VDC (due to the voltage drop on the power supply cables - see chapter *Dimensioning of Power Supply Cables*).

The electronics is reset in following cases:

1. After connecting the supply voltage - Activate and deactivate the ON/OFF input five times within 20 seconds after stabilization of the device in its home position.
2. After connecting the supply voltage - Activate and deactivate the ON/OFF button on the Touch Panel ten times within 20 seconds after stabilization of the device in its home position.
3. After connecting the supply voltage - Activate and deactivate the ON/OFF switch of the turnstile testing device five times within 20 seconds after stabilization of the device in its home position.
4. By pressing the RESET icon in the TCONF application - any time during the device operation.
5. By uploading a new configuration in the TCONF application - any time during the device operation.
6. By uploading a new firmware in the TCONF application - any time during the device operation.

The electronics does not detect malfunctions in the optical passage sensors. If the turnstile behaves incorrectly and the electronics do not indicate any malfunctions, it is necessary to verify their correct function according to the chapter *Control electronics of the SBCB (C2) sensors*.

12.6.2. Changing the electronics firmware

- Firmware can be changed using the TCONF application. The computer must be connected to the external communication line 485. Uploading the firmware takes approximately 1min and its progress can be observed on the barcode.

Firmware may only be changed after consulting the manufacturer.

After uploading the firmware, the following occurs:

- electronics reset
- malfunction detection
- start of the device initialization
- configuration of the device remains intact after changing the firmware
- the event register LOG is overwritten

The Logs are deleted from the electronics memory by uploading the firmware.

Before uploading the firmware to the control electronics, it is necessary to download the Logs into a computer using the TCONF application (list of errors and events), which must be sent to the service center.

12.7. PROTOCOL OF THE PRESCRIBED INSPECTION IN CASE OF TURNSTILE MALFUNCTION

The following table describes individual operations, which must be provably performed by the service technician of your dealer. By performing these operations and completing them by the required information, the manufacturer gains important information for the malfunction analysis. This protocol along with the confirmation of completion of the prescribed operations supplemented by the required information must be sent to the manufacturer as soon as possible including the claim report form and video recording of the malfunction.

Operation No.	Service technician operation	Operation description	Confirmation of operation completion
1	Fill in the claim report form and send it to the manufacturer	The claim report form is part of the Installation Instructions. Fill in the serial numbers and describe the malfunction in detail and its frequency.	☐
2	Send information regarding the turnstile power supply	Indicate the type of the used power supply and serial numbers of all turnstiles that are powered by it, length and cross section of the power supply cables.	☐
3	Send a video recording of the malfunction manifestation	In the AVI format.	☐
4	Update the TCONF application	Automatically after running the application while connected to the Internet, before the service intervention.	☐
5	Download Logs and configuration from the MLU5 electronics and send both to the manufacturer	Using the TCONF application.	☐
6	Check correct connection	Perform inspection of the inner connection and connection of control input and output signals of the superior system according to the Installation Instructions.	☐
7	Check the control signal length	Control signal: Length =..... ms	☐
8	Check the wiring	Check the wiring connections for all connectors and terminals by pulling the wires. Check tightening of screw clamps.	☐
9	Check the free rotation and running of motor and mechanical parts	After switching off the supply voltage, check the free rotation of the turnstile wings.	☐
10	Check the wings home position, adjust end stoppers	After switching the supply voltage off and back on, check correct returning of both wings to the home position. In case the wings do not stop perpendicularly to the turnstile, adjust the stoppers according to chapter *Checking and adjusting the wing end stoppers*.	☐
11	Checking the correct brake clearance	Open the turnstile several times using the EMERGENCY signal. Check for audible clicking of both brakes when braking and releasing when reaching the open position.	☐
12	Functional check of the brakes and gearboxes	By pushing the wing in the home position with a force of approx. 50-100N, check the function of the brake, which must not slip. If the turnstile is unlocked in the home position configuration, the wings lock only after they are pushed.	☐
13	Measuring the power supply drop	Measure the voltage drop when opening the turnstile wings and if it is within the tolerance according to the installation instructions.	☐

Operation No.	Service technician operation	Operation description	Confirmation of operation completion
14	Cleaning the cover apertures and plastic sensor covers	Must be done in a way that does not scratch the surface.	☐
15	Degreasing and polishing the turnstile glass wings	Use glass cleaning detergents.	☐
16	Basic check of the optical system for detection of persons.	The C2 sensors control electronics must show 0. Green LED must be lit up on all receiver bars. Green LED must flash on all transmitter bars.	☐
17	Checking individual optical sensors	Check all sensors using the diagnostic tool in the TCONF application according to chapter *SBCB sensors control electronics*.	☐
18	Checking the internal 485 line communication	Check the communication of all devices on the internal line using the **TDIAG** diagnostic program.	☐
19	Installation of up-to-date firmware	**After consulting the manufacturer** install the firmware MLU5V_._ _	☐
20	Perform implicit configuration	The condition is updating of the TCONF application	☐
21	Checking the malfunction detection displayed by the red LED 3 after initialization	After initialization, check the red signaling LED 3 of malfunctions detection on the MLU5.	☐
22	Inspection of detection after initialization in the listing of logs – sending of logs.	If any detected malfunction appears in logs after initialization, send these updated logs to the manufacturer.	☐
23	Checking the function by the turnstile tester	Disconnect the superior system and verify the turnstile functions.	☐

For quick removal of your turnstile's malfunction, it is necessary to fill out the *Claim Report Form* **when contacting the Service Department of the COMINFO Company. The report should indicate serial number of the turnstile in compliance with the production label, and a description of the malfunction. Send a video together with the completed Claim report form, which will clearly show the occurring malfunction and LED signalization of the electronics state before and after the initialization.**

EXAMPLE - CLAIM REPORT FORM

Product label information:

Name – type:	EASYGATE-SG-1000
Serial number:	0 9 0 0 1 2 3 4 5 6

Information on the control electronics (MLU 5):

Serial number:	5 4 3 0 0 0 4 6 7

Your request:

1. *Turnstile sometimes remains open after passage of a person, and it may be freely passed through. It resets by loading another card. This malfunction occurs once a day (approximately 1000 passages).*
2. *Turnstile is independently powered by the supplied 400VA transformer. The supply cable with cross-section of 2.5 is 15m long.*
3. *The attached video shows a passage after which the turnstile remained open and then the following reset after loading a card.*
4. *Our TCONF version: 11. 4. 2017*
5. *Downloaded logs attached (no errors detected).*
6. *Connection check – OK.*
7. *Control signal from the superior system 500ms.*
8. *Wiring check – OK.*
9. *Both wings can be freely moved after switching off the power supply – OK.*
10. *Both wings stop in the home position after switching the power supply on and off – OK.*
11. *Checking the correct clearance - both brakes are audibly clicking*
12. *Checking the brake functionality – both brakes immediately stop when pushing the wings – OK.*
13. *During opening of wings, supply voltage drop to 22V was measured.*
14. *Apertures and covers of sensors cleaned from dust.*

15. *Turnstile wings cleaned using window cleaning detergent.*
16. *Optical system signalization – OK.*
17. *Checking individual optical sensors using the Sensor Test – OK.*
18. *Checking the communication in TDIAG application – OK.*
19. *Recommended firmware MLU5V6.3Z uploaded.*
20. *Implicit configuration performed.*
21. *Red LED does not signalize any error after initialization – OK.*
22. *Checking the logs report – logs did not register any error – OK.*
23. *All turnstile functions verified by the TURNSTILE TESTER and the malfunction did not occur – OK.*

All required steps were taken. The malfunction occurred again after two days of turnstile operation.

Customer:	*Company Ltd*		
Address:	*11 Business Park, London SW12 9RT, United Kingdom*		
Contact person:	*Jack Smith*	Telephone:	*4420 7777 7777*
E-mail:	*jack@company.com*	Date:	*19.11.2021*

CLAIM REPORT FORM

Product label information:

Name – type:

Serial number:

Information on the control electronics (MLU 5):

Serial number:

Your request:

Customer:

Address:

Contact person:

Telephone:

E-mail:

Date:

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