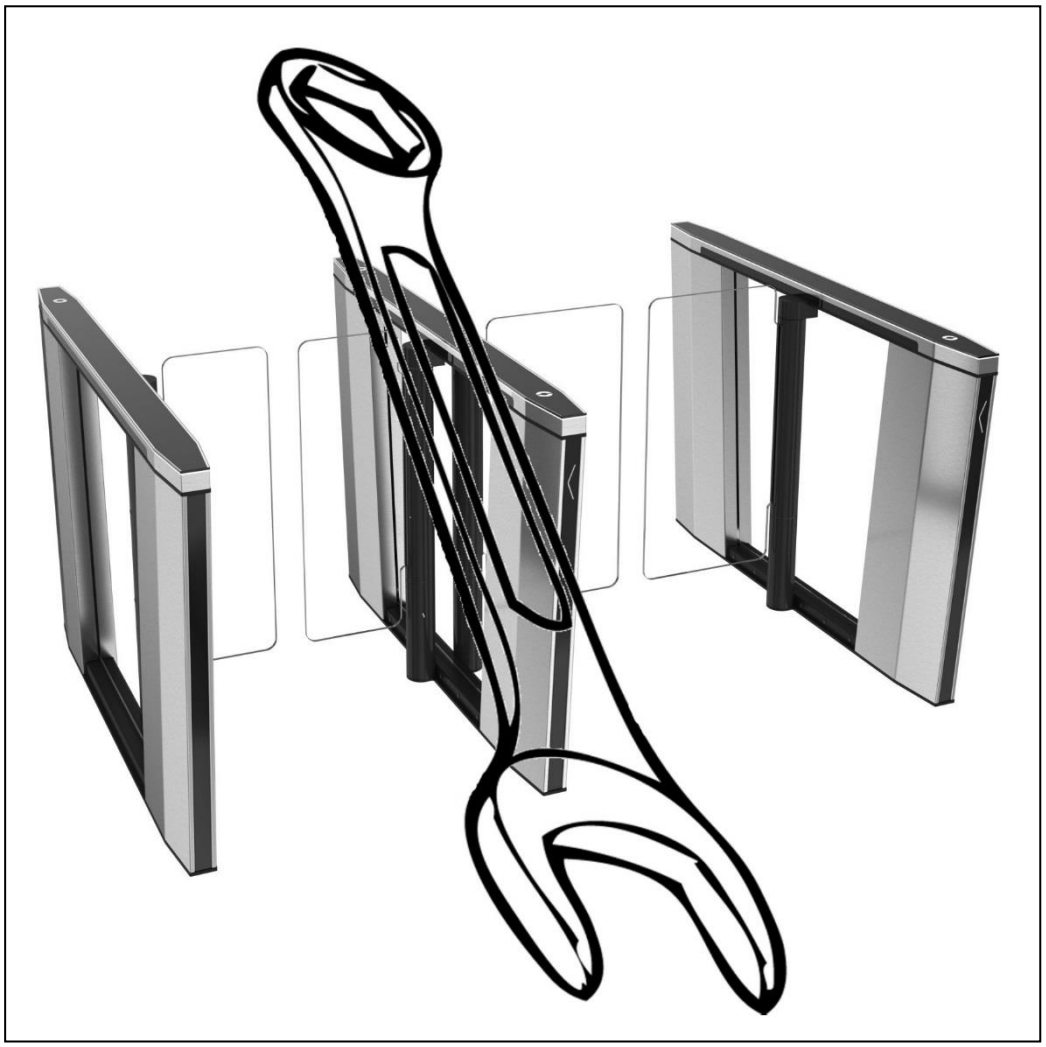

INSTALLATION INSTRUCTIONS FOR TURNSTILE TYPE:

EASYGATE-Superb

(with electronics MLU5)

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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-Superb type turnstile***, 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.

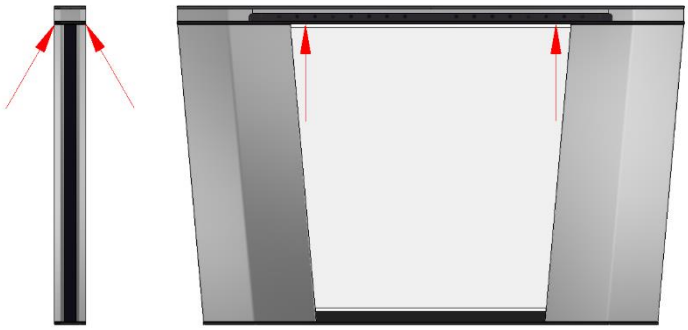
WARNING!
Important information or procedure.

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 four persons should cooperate when manipulating the turnstile. Carry the turnstile by the upper frame as per the arrows in the figure:



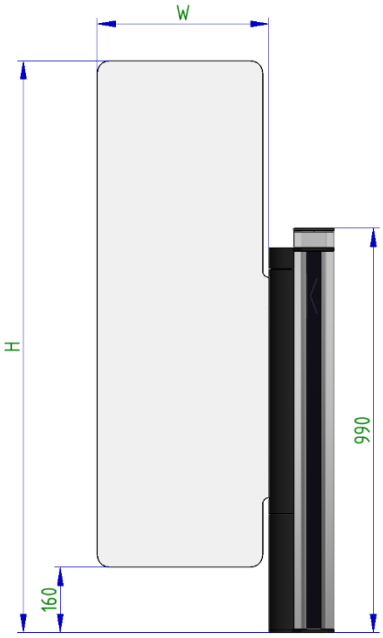
It is not allowed to carry the turnstile by its upper lid or its wings.

2.1. TURNSTILE WEIGHTS

Turnstile	Weight
EASYGATE-Superb-S-0W	**89 kg**
EASYGATE-Superb-S-1W	**109 kg**
EASYGATE-Superb-M-0W	**94 kg**
EASYGATE-Superb-M-1W,	**116 kg**
EASYGATE-Superb-M-2W	**132 kg**

- the weight is valid for turnstiles that include complete optional accessories
- the weight is without the glass wings of the turnstile. It is necessary to include weight of the glass wing depending on the width of the gate and height of the wing according to the following table.
- Add two glass wings to the turnstile type EASYGATE-Superb-M-2W. Both sides of these turnstiles can have glasses for different gate widths.

2.2. TURNSTILE WINGS WEIGHTS



W - width of the wing glass
H - height of the wing measured from the floor

Information on assignment of glass widths depending on the required gate width can be found in the chapter *Dimensions for Anchoring*.

Table of weights of standard wings [kg]

H [mm]	**W** [mm]								
	235	285	335	360	385	410	420	460	510
950	5.1	6.1	7.0	7.5	8.0	8.5	8.7	9.5	10.5
990	5.3	6.3	7.4	7.9	8.3	8.9	9.1	9.9	11.0
1100	5.9	7.1	8.2	8.8	9.3	10.0	10.2	11.2	12.3
1200	6.4	7.7	9.0	9.7	10.3	11.0	11.2	12.3	13.6
1300	7.0	8.4	9.8	10.5	11.2	12.0	12.2	13.4	14.8
1400	7.5	9.1	10.6	11.4	12.1	12.9	13.2	14.5	16.0
1500	8.1	9.7	11.4	12.3	13.0	13.9	14.3	15.6	✕
1600	8.6	10.4	12.2	13.1	14.0	14.9	15.3	16.7	✕
1700	9.2	11.1	13.0	14.0	14.9	15.9	16.3	17.8	✕
1800	9.7	11.8	13.8	14.8	15.8	16.9	17.3	18.9	✕

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.

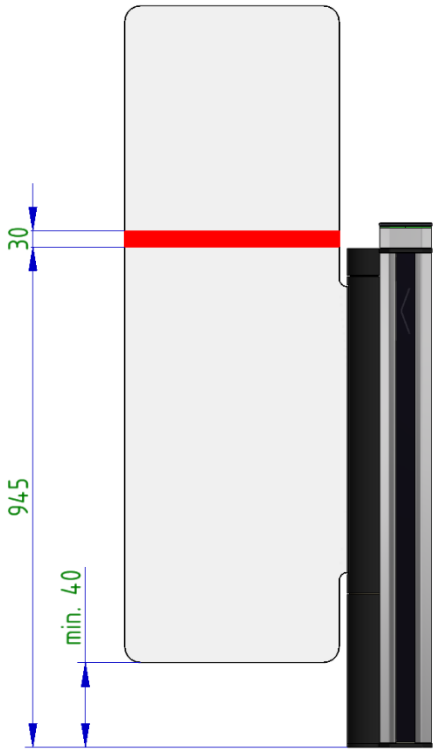
3.1. DIMENSIONS FOR ANCHORING

CAPTIONS FOR THE FIGURES AND THE TABLE:

1. Holes for 50x100mm supply leads (cross-hatched)
2. Holes for M8 anchoring bolts (8x for one turnstile)

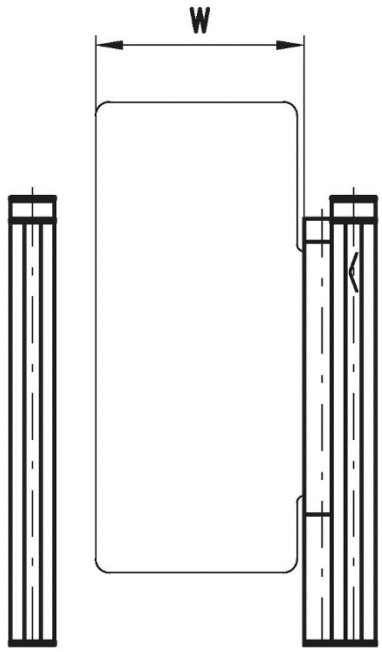
A1 Axial pitch of the turnstiles (one-wing version)
A2 Axial pitch of the turnstiles (two-wing version)
B1 Total dimension of two turnstiles forming one passage gate (one-wing version)
B2 Total dimension of two turnstiles forming one passage gate (two-wing version)
C1 Inner distance of the turnstiles (one-wing version)
C2 Inner distance of the turnstiles (two-wing version)
D1 Inner pitch of anchoring holes (one-wing version)
D2 Inner pitch of anchoring holes (two-wing version)
W Wing glass width
LW Passage gate width

	LW:	550	600	650	750	800	850	900	920	1000	1100
A1	One-wing version	**709**	**759**	×	×	×	×	×	×	×	×
A2	Two-wing version	**769**	×	**869**	**969**	**1019**	**1069**	**1119**	**1139**	**1219**	**1319**
W	One-wing version	**460**	**510**	×	×	×	×	×	×	×	×
	Two-wing version	**235**	×	**285**	**335**	**360**	**385**	**410**	**420**	**460**	**510**

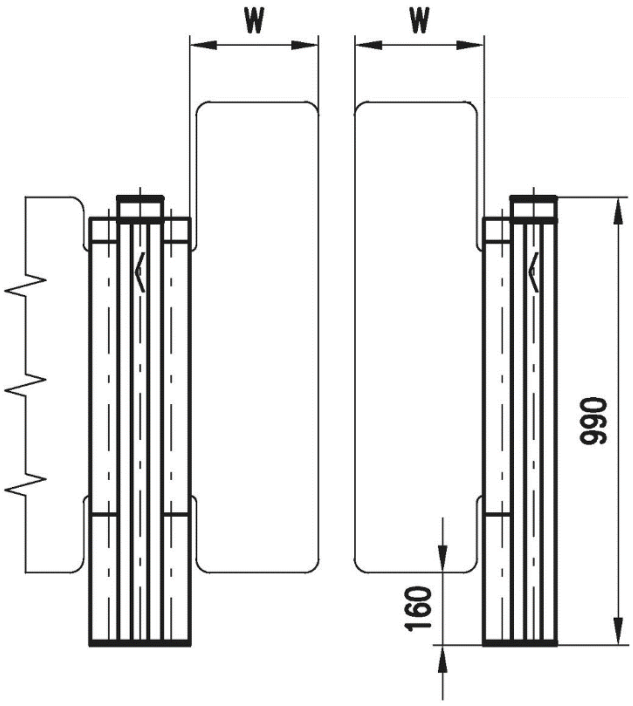


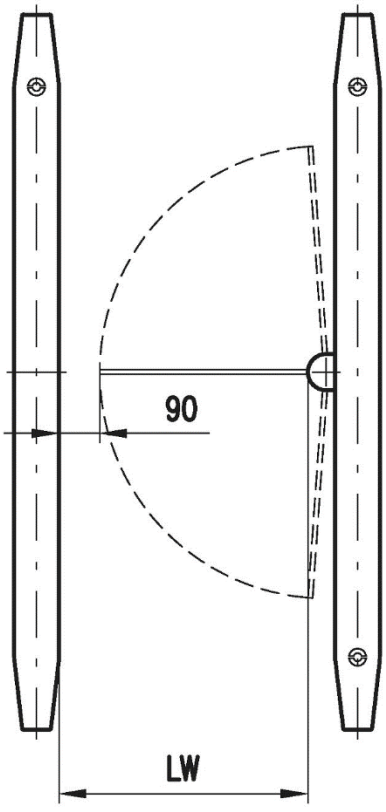
The width of glass wings is designed for each gate width so the edge of the glass wing in the open position does not interfere with the beam of any sensor. The glass must be clear without any labelling or other surface treatment in the area where the sensors are placed (red lines on the figure).

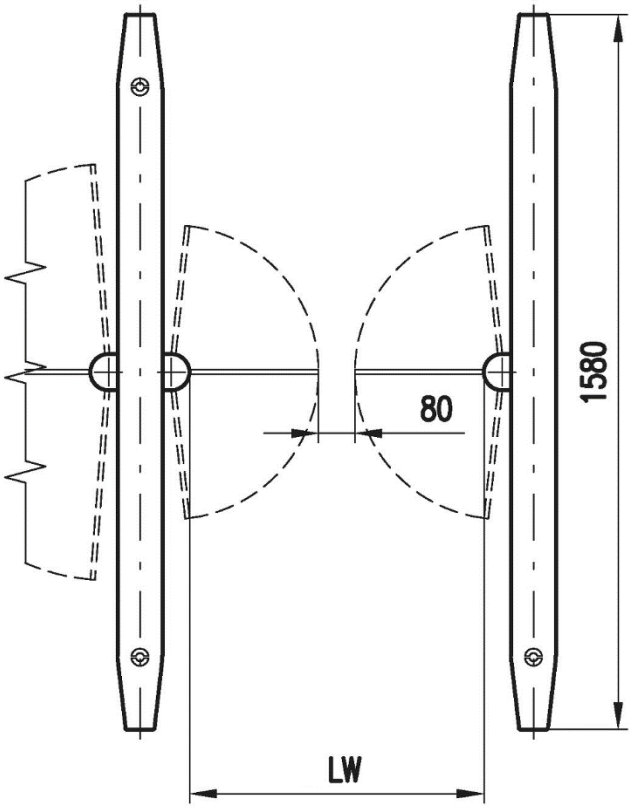
ONE-WING VERSION:

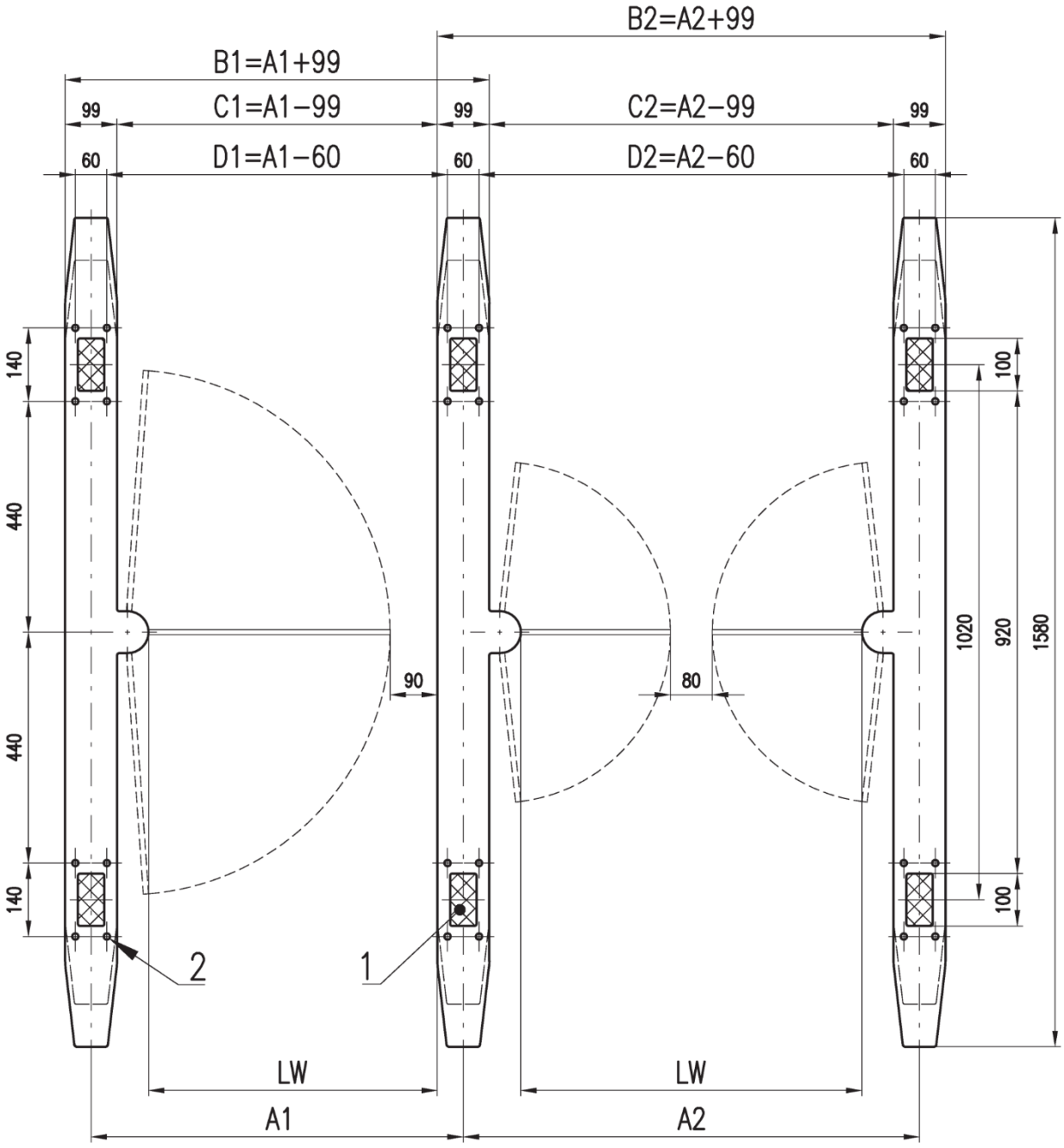


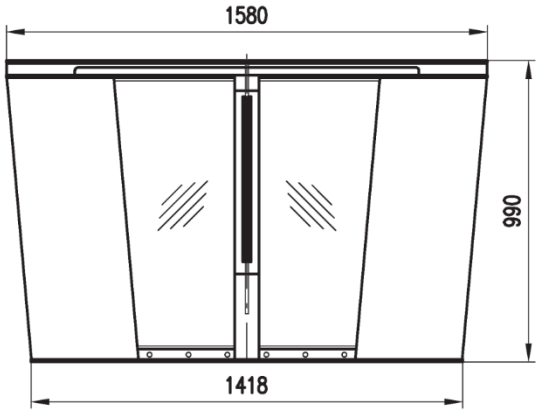
TWO-WING VERSION:








B2=A2+99
B1=A1+99
99
C1=A1−99
99
C2=A2−99
99
60
D1=A1−60
60
D2=A2−60
60
140
440
440
140
100
1020
920
1580
100
90
80
2
1
LW
LW
A1
A2


1580
990
1418

3.2. 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:

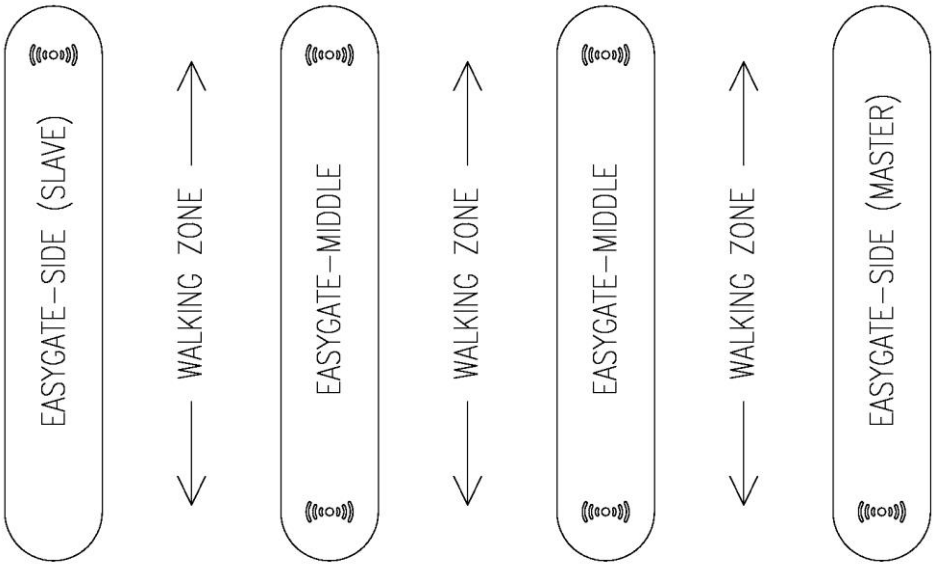
EASYGATE SIDE MASTER:

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

EASYGATE SIDE SLAVE:

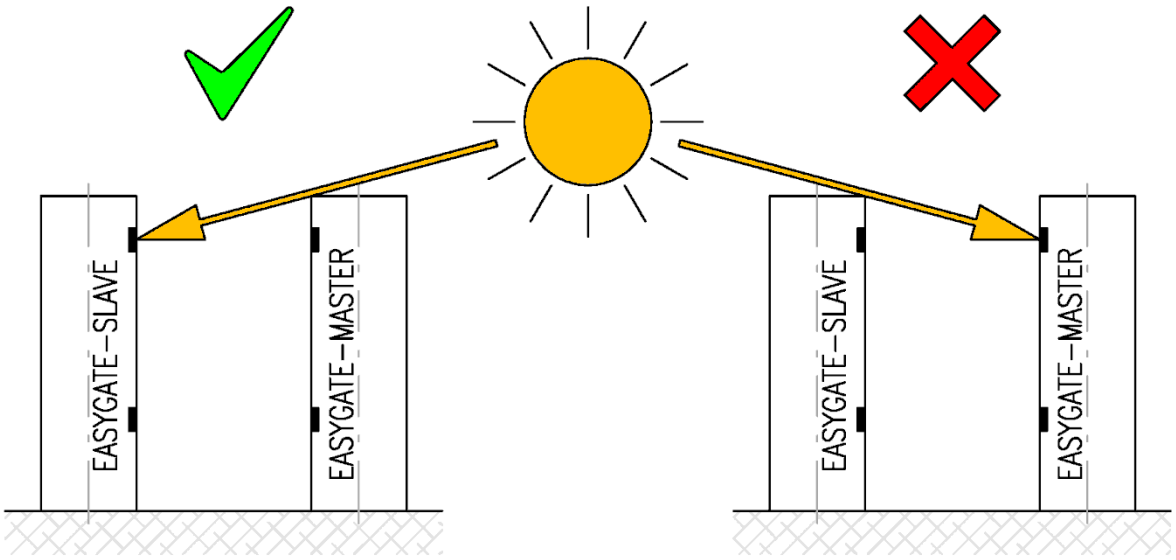
The turnstile has only a motor unit built-in, it is equipped with transmitters of optical sensors and is only able to operate in connection with the EASYGATE SIDE MASTER or EASYGATE MIDDLE turnstile.

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.



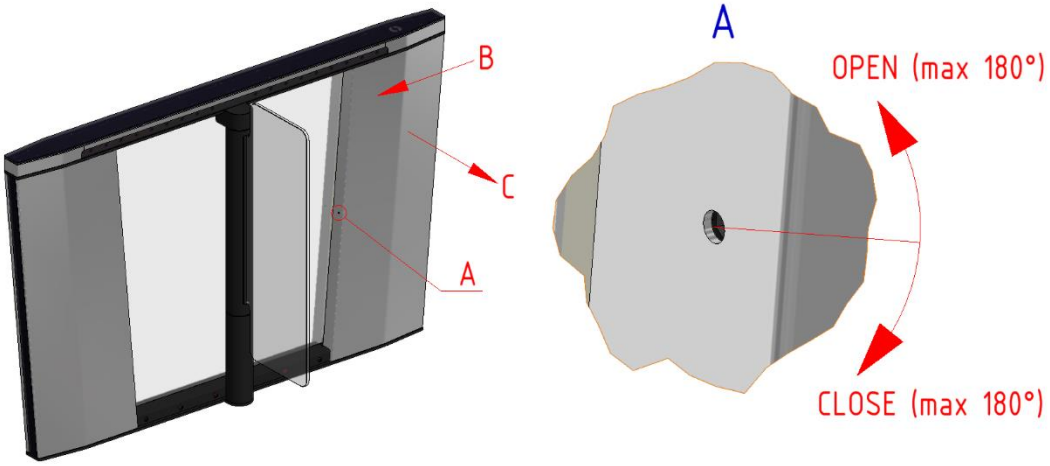
If it is not possible to carry out appropriate measures or turn the installation, we must substitute the transmitting and receiving optical sensors of the respective passage gate. In case such substitution is performed, it is necessary to expect that the turnstile will be put out of operation for about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

3.3. DESCRIPTION OF ACCESS TO THE ANCHORING HOLES

BEFORE REMOVING THE SIDE COVER, IT IS NECESSARY TO DISCONNECT THE TURNSTILE FROM POWER SUPPLY

3.3.1. Procedure for removing the side cover

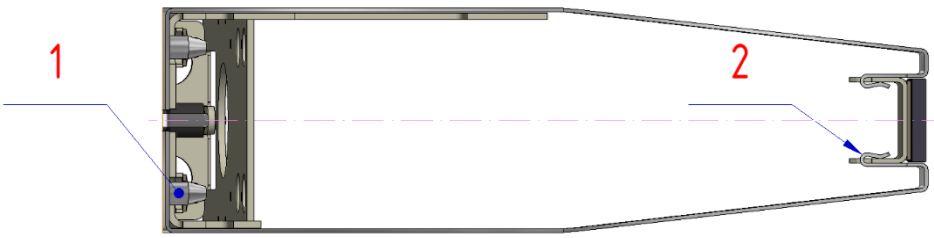
- Slide a 4mm hexagonal key to the opening in the side cover (detail **A**). Turn the key in the **OPEN** direction (always counter-clockwise) until the lock stop end (max. 180°).



- Carefully slide out the cover in the **B** direction by approximately 25mm, so that you prevent damaging the surface finish on the lower and upper frame of the turnstile.
- Slide out the cover in the **C** direction.
- Disconnect the earthing connector on the inner side of the cover.
- Put the dismounted cover on a predetermined place.

3.3.2. Procedure for putting the cover back on

- Connect the earthing connector on the inner side of the cover.
- Carefully slide the cover back to the turnstile using a reverse procedure. Again, pay attention not to damage the surface finish on the frame of the turnstile.
- Slide the cover so that both pins (pos.1) are inserted in their respective holes and all four clips (pos.2) are inserted in the turnstile frame.



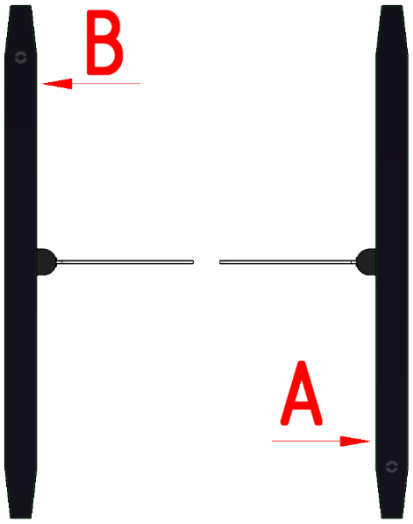
- Check that the side cover fits completely in its place.
- Slide a 4mm hexagonal key to the opening in the side cover (detail **A**). Turn the key in the **CLOSE** direction (always clockwise) until the lock stop end (max. 180°).

3.4. 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 side cover according to chapter *Description of Access to the Anchoring Holes*. The control electronics is always located in the MASTER turnstile.

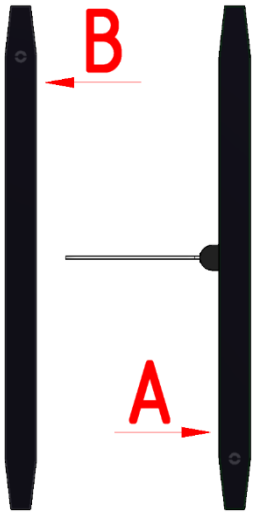
Cover A - Control electronics - **C1** / Control electronics of the sensors - **C2** / MASTER turnstile terminal block - **X2**
- Power supply - **PS1** / Main power supply terminal block - **X1**

Cover B - SLAVE turnstile terminal block - **X3**



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.

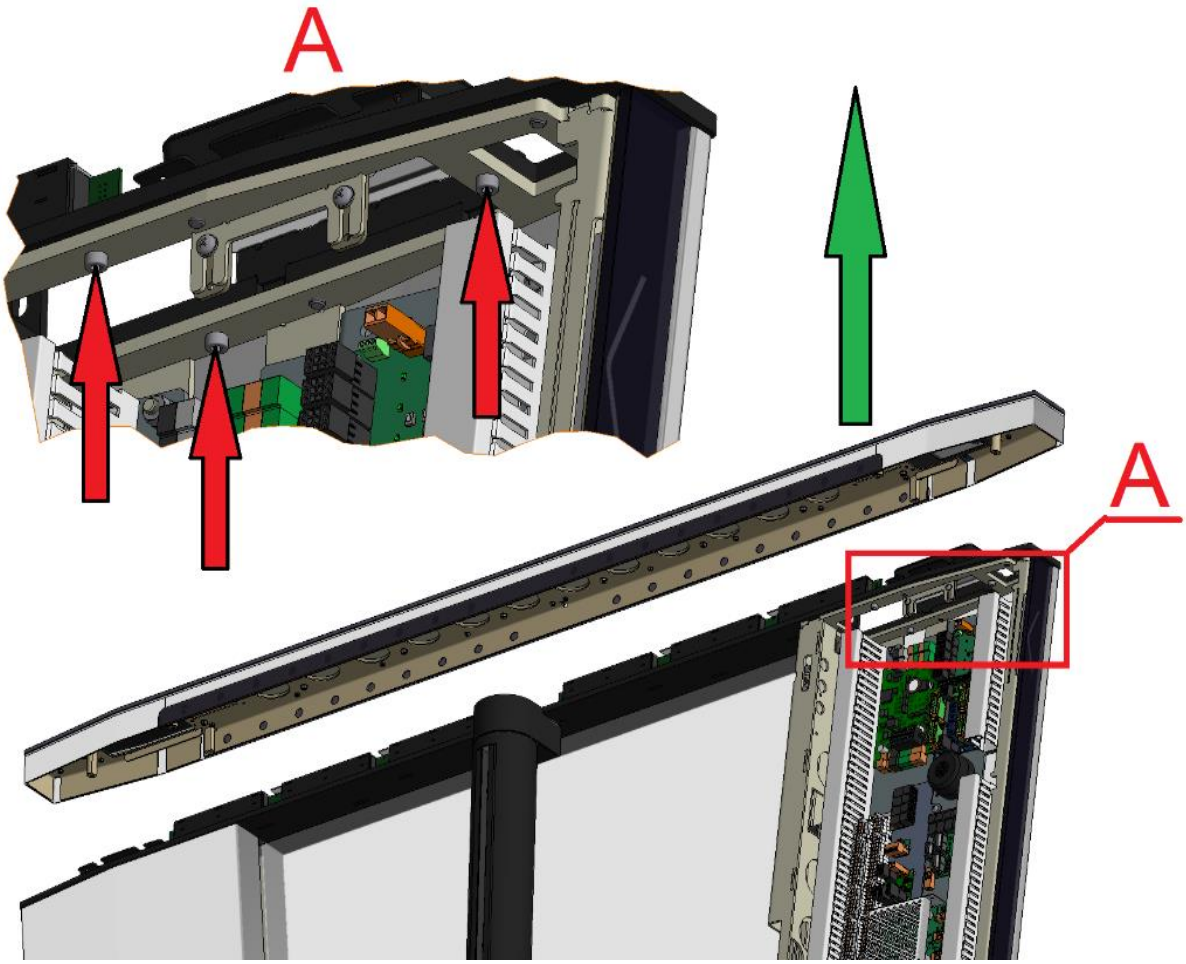


One-wing version:

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

3.5. REMOVING THE UPPER LID

1. Remove both side covers according to chapter *Description of Access to the Anchoring Holes*.
2. Unscrew six M5x20 bolts (red arrow) on both sides of the turnstile.
3. In cooperation of two persons, slide the cover upwards (green arrow).
4. If the optional accessory *Passage Light* is installed in the turnstile, it is necessary to disconnect the respective connector when removing the cover.

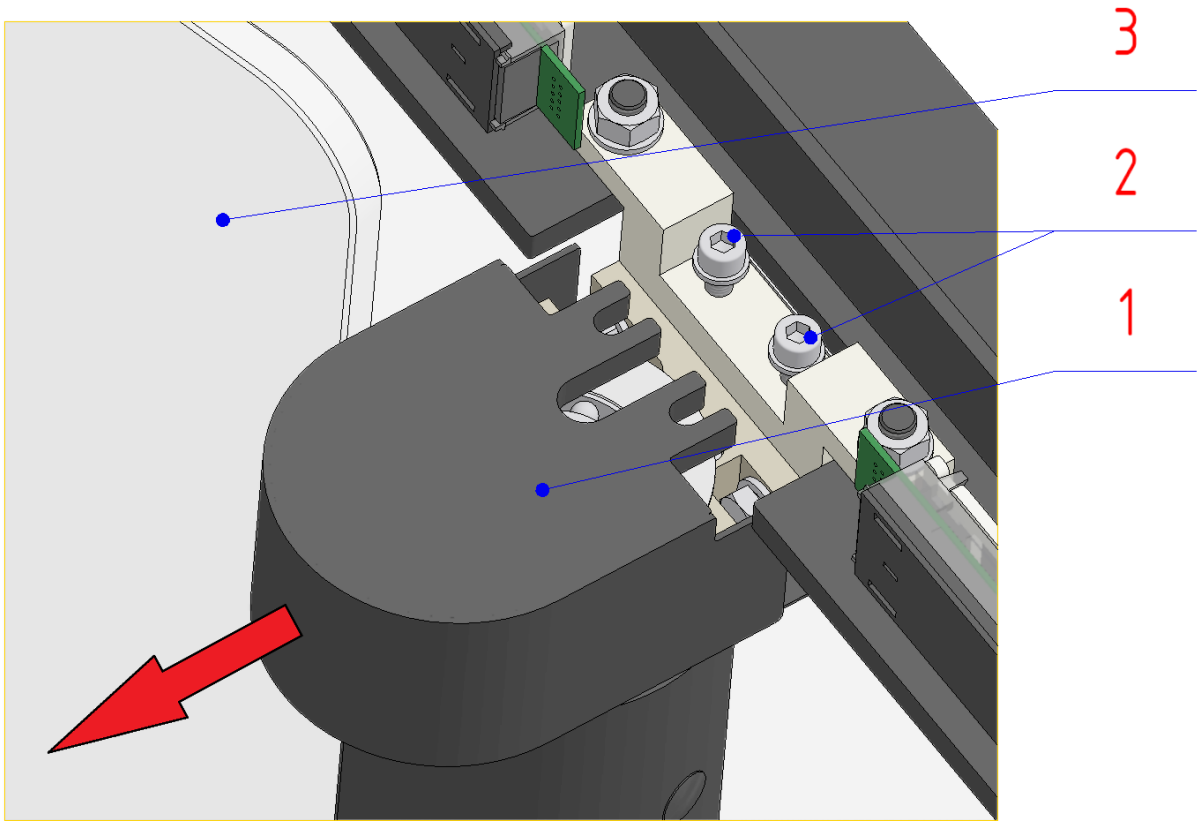


3.6. DESCRIPTION OF ACCESS TO THE OPTICAL SENSORS

- To access the upper optical sensors, remove the upper lid according to chapter *Removing the upper lid*.
- Bottom optical sensors are accessible without removing the covers and they are glued in the lower frame.

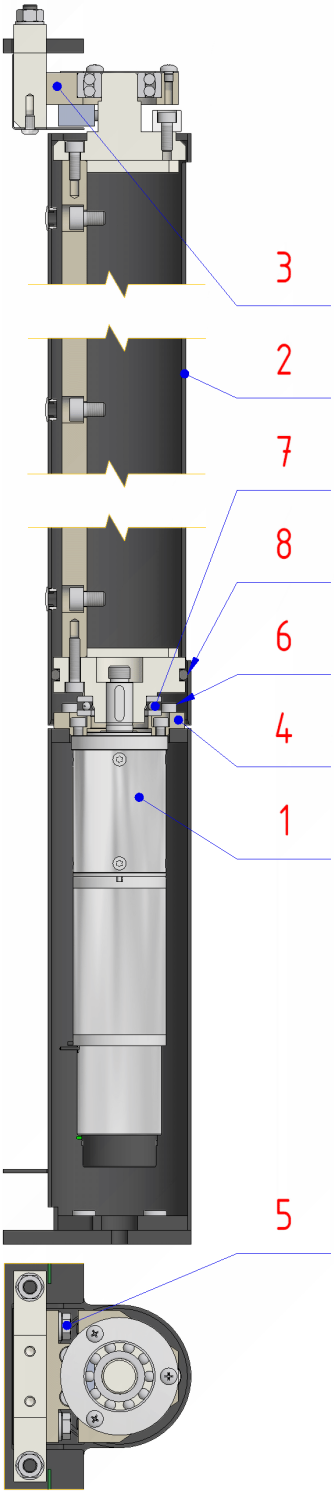
3.7. DESCRIPTION OF ACCESS TO THE WING STOPPERS

1. Remove the upper lid according to chapter *Removing the upper lid*.
2. Disconnect the turnstile from power supply, and turn the glass wing (pos.3) by approximately 75° from the home position.
3. Loosen the two M8x20 bolts (pos.2).
4. Slide out the complete stoppers cover (pos.1) in the direction of red arrow.



3.8. 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*.



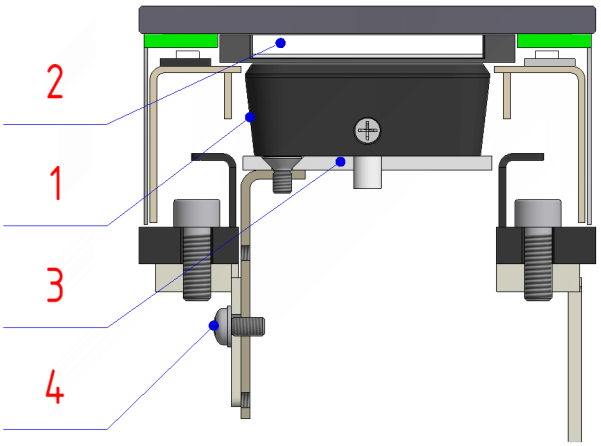
1. Remove the cover of the stoppers according to chapter *Description of Access to the Wing Stoppers*.
2. Loosen two M8x20 bolts (pos.5) and slide out the upper wing holder (pos.3) with its bearing upwards by approximately 20mm. When sliding out, stabilize the wing tube (pos.2) in vertical position.
3. Unscrew the two M8x20 bolts with washers (pos.5) and slide out the wing tube (pos.2) by approximately 35mm.
4. Unscrew the six M5x16 bolts (pos.6) and carefully slide out the flange (pos.4) with the drive unit (pos.1) upwards in order not to damage cables with the connector and bearings (pos.7).

Reassembly is carried out in reversed order. Pay attention not to damage cables with connectors. Check that the assembly is correct and the bearing is clean (pos.7).

The wing tube (pos.2) is freely rotatable on the O-ring (pos.8). When reassembling, check if the opening for inserting the wing is opposite the grooves in flanges.

3.9. INSTALLATION OF THE RFID SENSOR

Maximum dimensions of an RFID sensor are **55x130mm**. The maximum sensor height is 50mm.



1. Remove the side cover according to chapter *Description of Access to the Anchoring Holes*.
2. Loosen the two M4x8 bolts (pos.4) and slide out the RFID sensor plate (pos.3) out 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 M4x8 bolts (pos.4), adjust the vertical position so that the sensor touches the Back Light plate (pos.2) or the upper lid directly.
6. Install the side cover back.

3.10. DESCRIPTION OF THE INSTALLATION

3.10.1. 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

3.10.2. 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

3.10.3. 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*

- **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)

3.10.4. General description of the installation

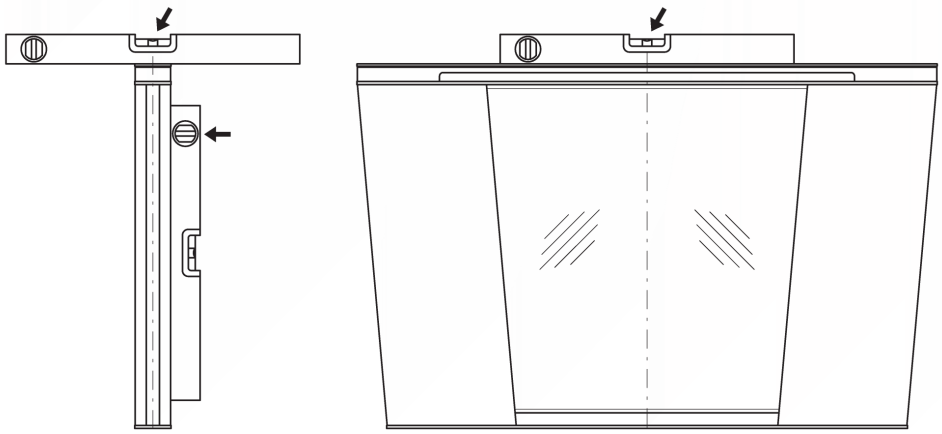
The area of installation must be free from clutter and perfectly even before you start installing. Base for anchoring has to be solid enough so that stability of the turnstile is ensured. In case of large unevenness of the ground, use special bolsters. These bolsters are made with regard to the actual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

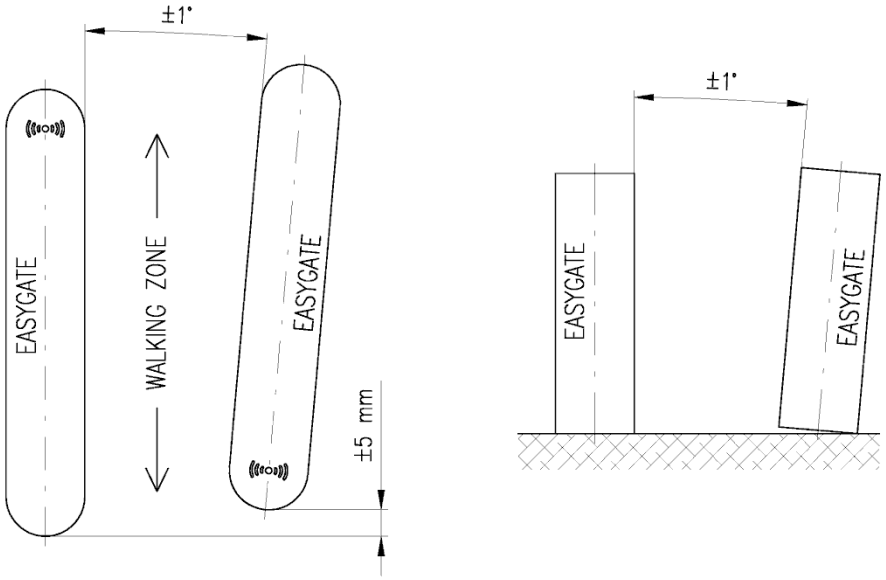
Description of the installation:

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 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*.

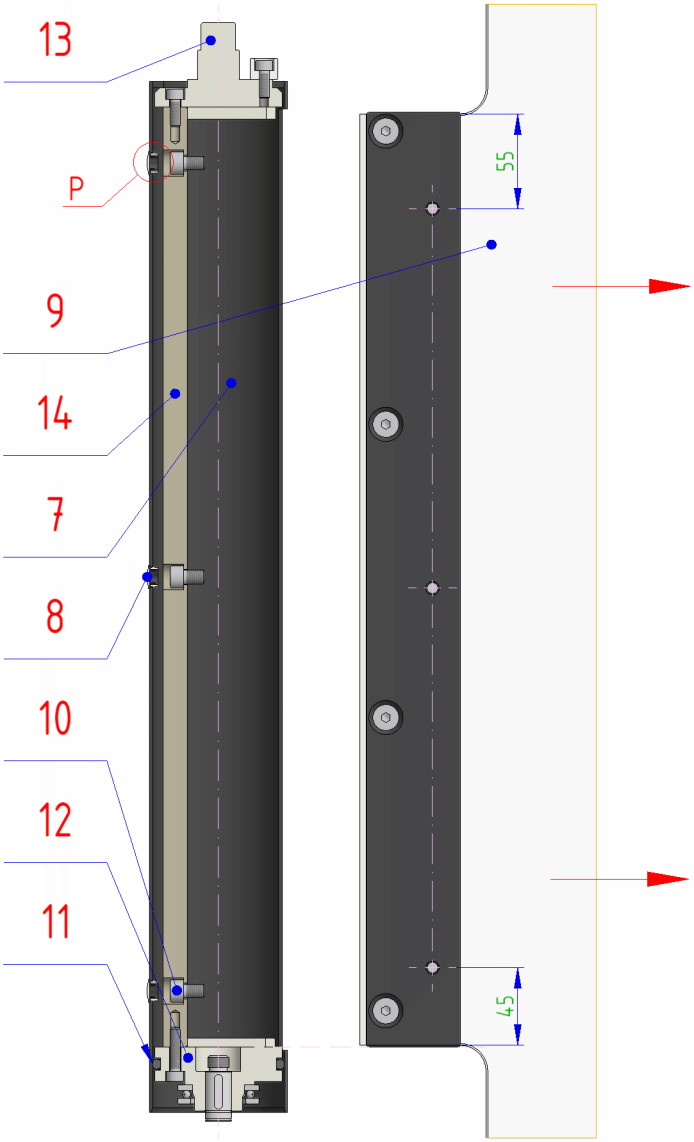
11. Install all the removed covers.

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

3.10.5. Attaching the wings

At least two persons should cooperate when mounting the glass wing. When performing the following operations, pay attention not to damage the exposed surface finish on the wing shims (pos.2 and 3) and wing tube (pos.7).

Glass wings with height up to 1500mm are supplied factory mounted to the turnstile.

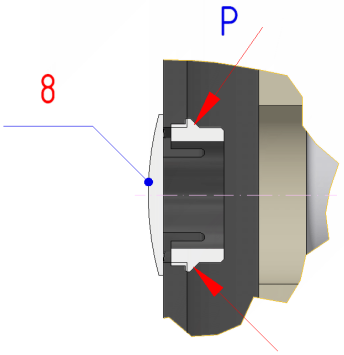


Removing the glass wing:

1. Disconnect the turnstile from power supply, and turn the wing tube (pos.7) by approximately 90° from the home position.
2. Remove the three caps (pos.8).
3. Insert the 6mm hexagonal key into the holes left after caps. The second person holds the wing (pos.9) to prevent its damage. Gradually loosen all three bolts M8x12 (pos.10), starting from the bottom bolt. After loosening them, it is necessary to turn the key approximately 8 times.
4. Slide out the complete glass wing assembly (pos.9) in the direction of the arrows.

Mounting the glass wing:

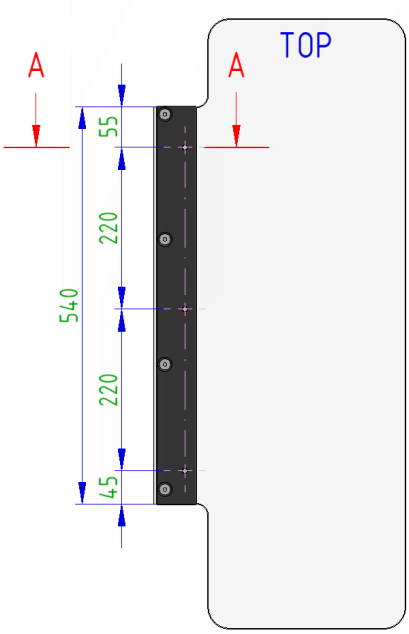
1. The wing tube is freely rotatable on the O-ring (pos.11). Check if the hole for the glass wing in the wing tube is opposite the grooves in the lower (pos.12) and upper (pos.13) flange.
2. Slide the complete glass wing assembly on the plate (pos.14).
3. The second person gradually tightens all three M8x12 bolts (pos.10) starting from the top bolt.
4. Insert three caps (pos.8) in the holes so that the two locks are in a vertical position:

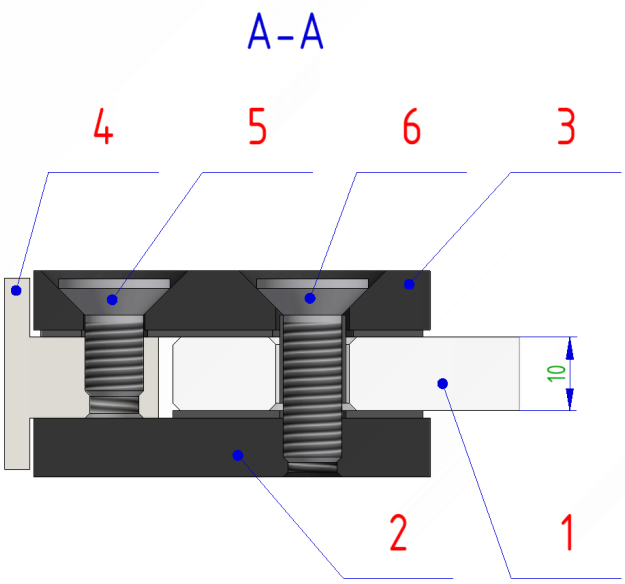


Replacing the glass wings:

The glass wing consists of:

Pos.1 – Wing glass
Pos.2 – Fixed shim with glued rubber (not removable when replacing the glass)
Pos.3 – Pressure shim with glued rubber
Pos.4 – Wing support rail
Pos.5 – M8x16 bolt (4x)
Pos.6 – M8x25 bolt fitted with rubber tube (3x)





1. Loosen the four bolts (pos.5).
2. Unscrew the three bolts (pos.6) and slide out the wing (pos.1) from the shims.
3. Slide a new wing to the shims and screw the three bolts (pos.6). Check if the rubber tubes are fitted on the bolts.
4. Tighten the four bolts (pos.5).

4. ELECTRICAL CONNECTION OF THE TURNSTILE

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

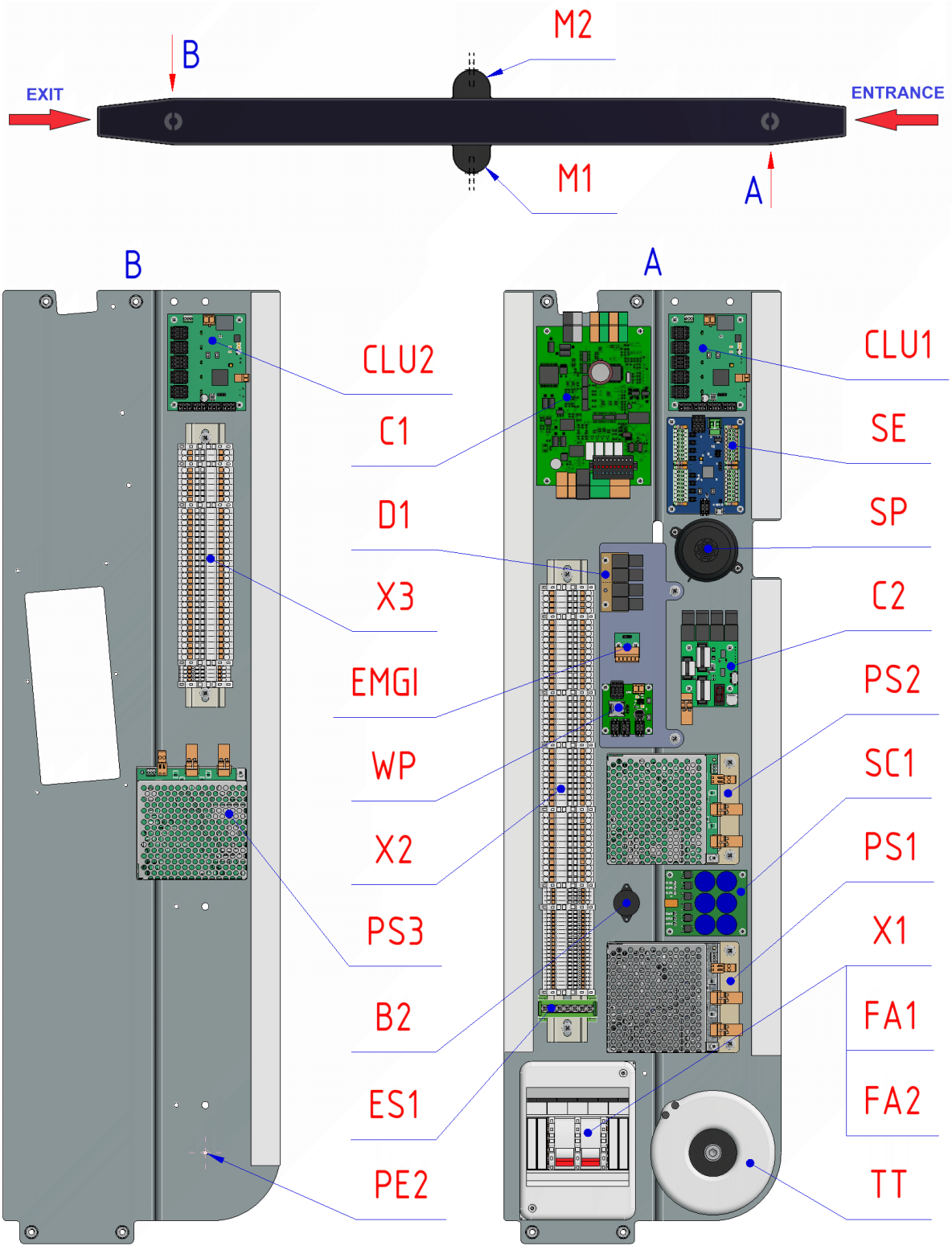
4.1. LAYOUT OF ELECTRONIC DEVICES AND INTERCONNECTING ELEMENTS

Standard accessories:

C1 - MLU5 control electronics
C2 - Control electronics of 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)
TT - 230V/24V – 200VA toroidal transformer TT
X1 - Main power terminal block
X2 - MASTER turnstile terminal block
X3 - SLAVE turnstile terminal block
ES1 - Earthing MASTER terminal block
PE2 - Earthing SLAVE terminal block (M5 thread)
FA1 - 230VAC circuit breaker
FA2 - 24VAC circuit breaker
PS1 - SM12 (24VAC/13.8VDC) power supply
B2 - Buzzer - acoustic alarm signalization

Optional accessories:

SC1 - Supercapacitors for PS1
PS2 - SM5 (24VAC/5VDC) power supply – only in SIDE turnstiles for Passage Light
PS3 - SM5 (24VAC/5VDC) power supply – only in SIDE turnstiles for Passage Light
WP - WAV Player Module
SP - Speaker for a WAV Player
SE - Signal Expander


M2
B
EXIT
ENTRANCE
M1
A
B
A
CLU2
C1
D1
X3
EMGI
WP
X2
PS3
B2
ES1
PE2
CLU1
SE
SP
C2
PS2
SC1
PS1
X1
FA1
FA2
TT

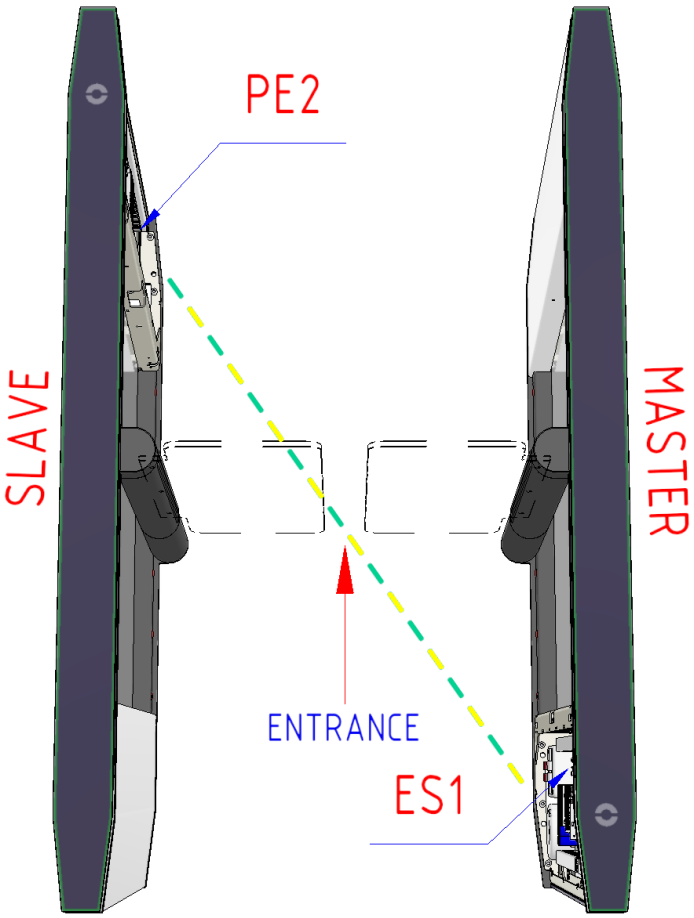
4.2. CONNECTION PROCEDURE

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.

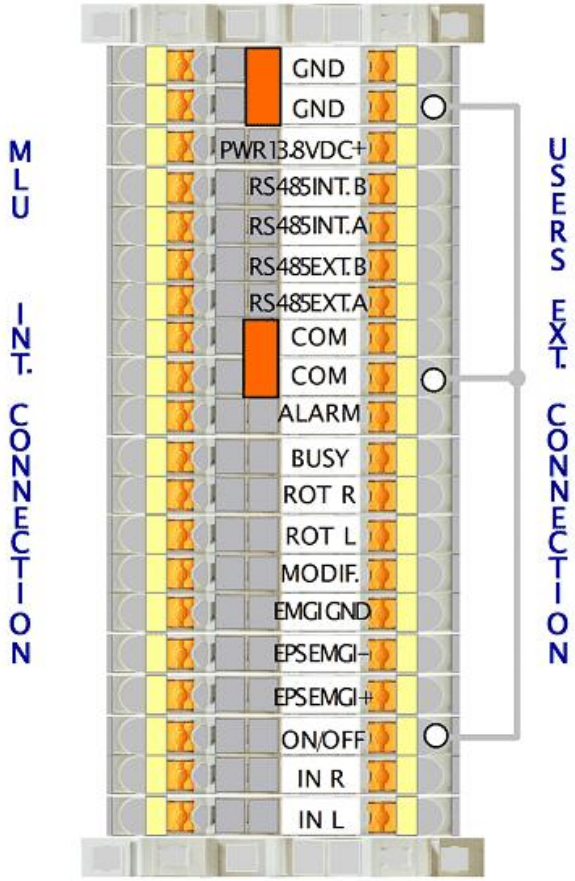
- Connect the supplied four-core Cable **nr. 1** to the **X2** terminal in the **MASTER** turnstile according to the wire colorings in the *Master X2 terminal block* diagram.
- Connect the second end of the cable **nr. 1** to the **X3** terminal in the **SLAVE** turnstile according to the wire colorings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

- The supplied green-yellow wire conductor on the **230V** turnstile is connected to the **ES1** earthing terminal of the **MASTER** turnstile.
- The second end of the conductor is connected to the **PE2** earthing terminal of the **SLAVE** turnstile.



4.2.2. Connecting the superior control system of the turnstile

- All the input and output control signals are routed to the **X2** 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.**

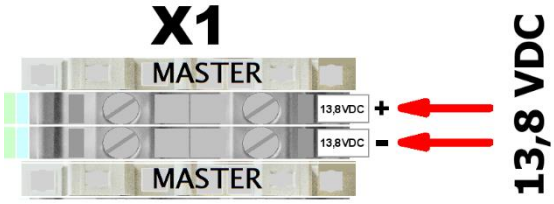
Connection to the mains power supply may only be performed by an authorized person with the appropriate qualifications.

The turnstile is made in three variants of power supply. 13.8VDC / 24VAC /230VAC

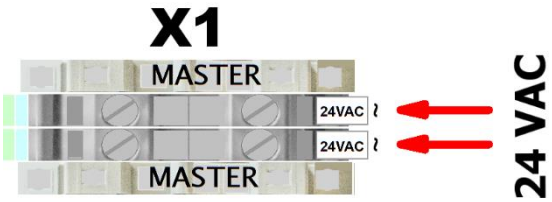
BEFORE CONNECTING THE POWER SUPPLY CABLE, IT IS NECESSARY TO CHECK IF THE SUPPLY VOLTAGE VALUE CORRESPONDS WITH THE VALUE OF THE NOMINAL VOLTAGE ON THE PRODUCTION LABEL AND ADHERE TO THE LISTED POLARITY.

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

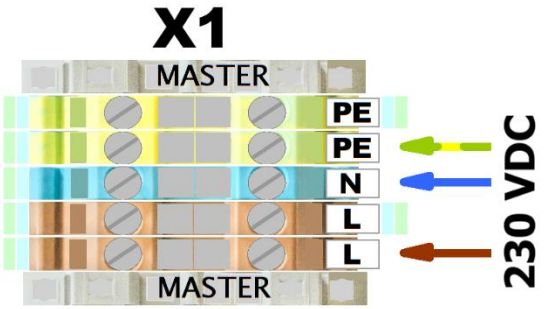
Connect the supply voltage to the **X1** terminal in the MASTER turnstile according to following figures.



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



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



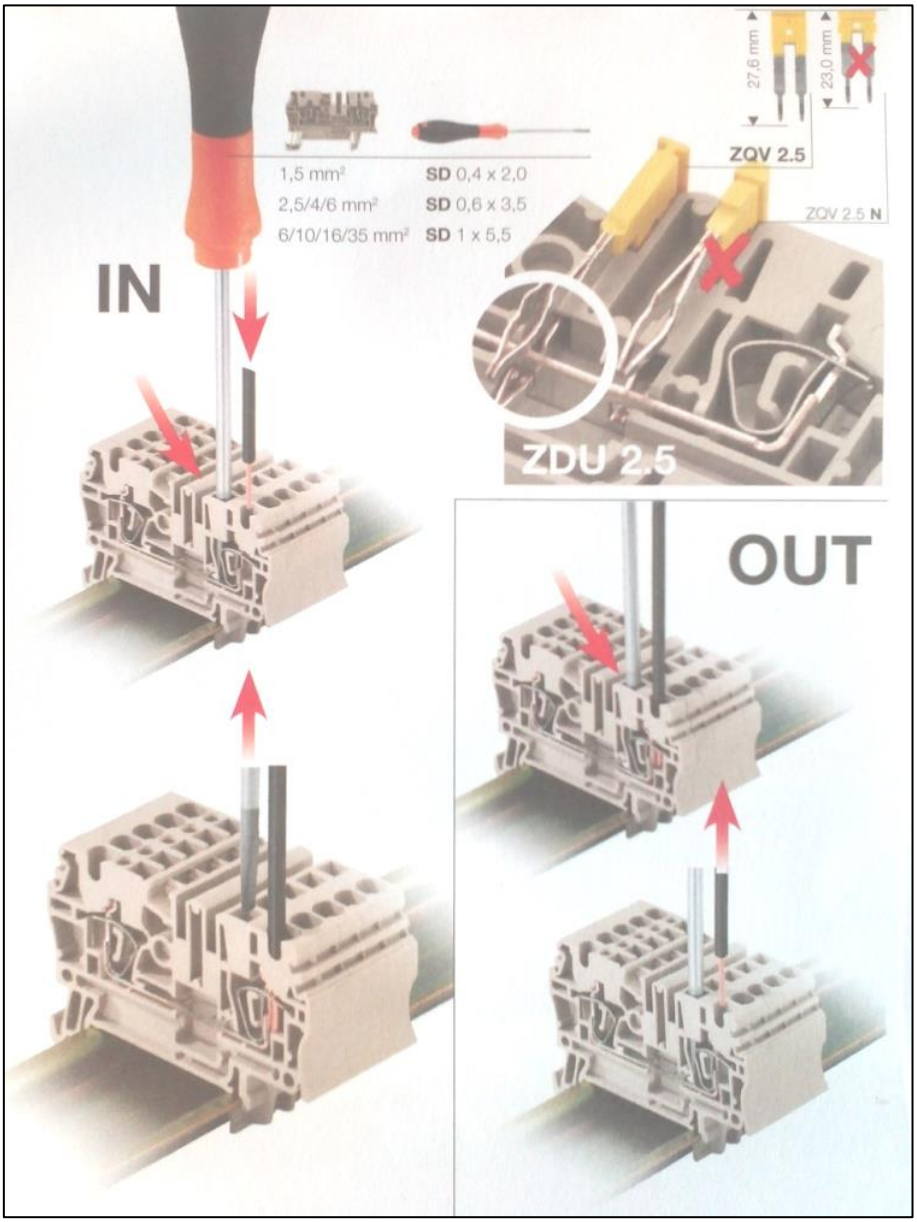
Connection of supply voltage in case of using the **230VAC** mains supply.

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.

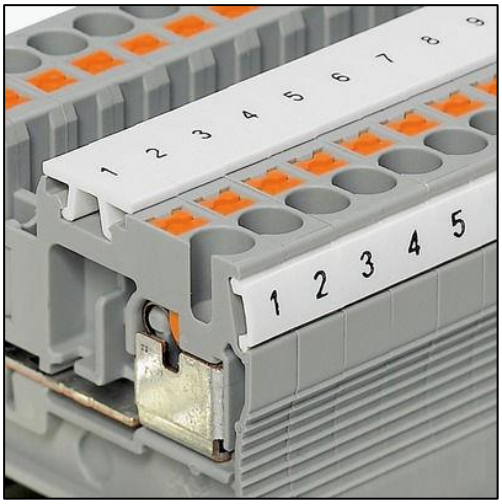
Serial <u>Weidmüller</u> terminal box with flexible clamps:

- 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.



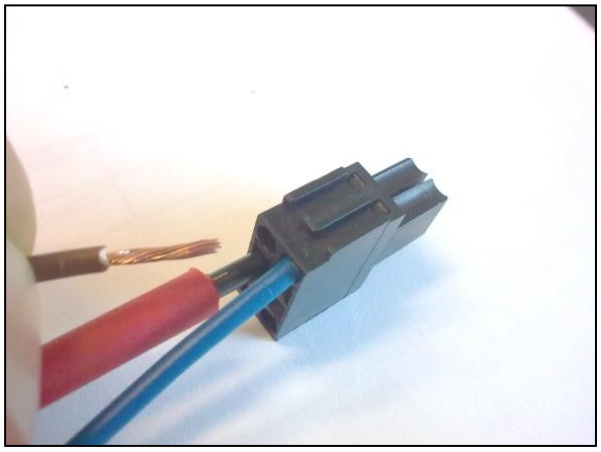
Serial <u>Phoenix</u> terminal box with flexible push-in clamps:

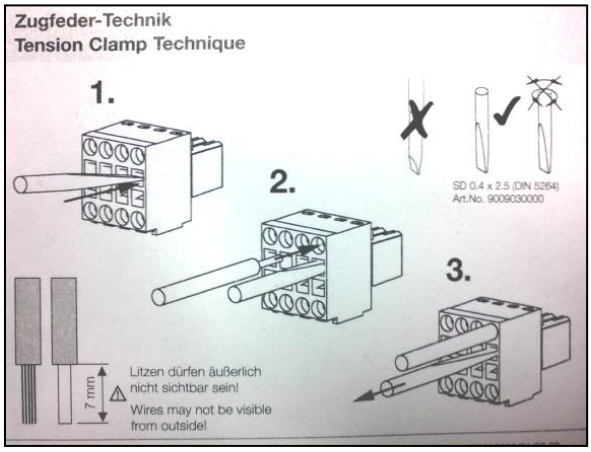
- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with any tool as shown on the figure.



<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.





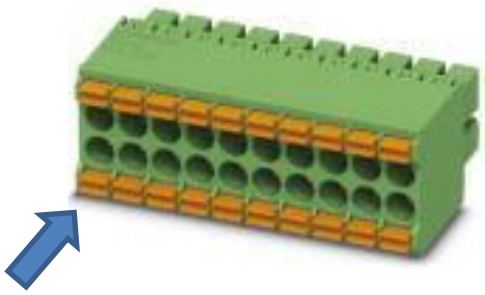
<u>Weidmüller</u> connector with flexible push-in clamps:

- 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.

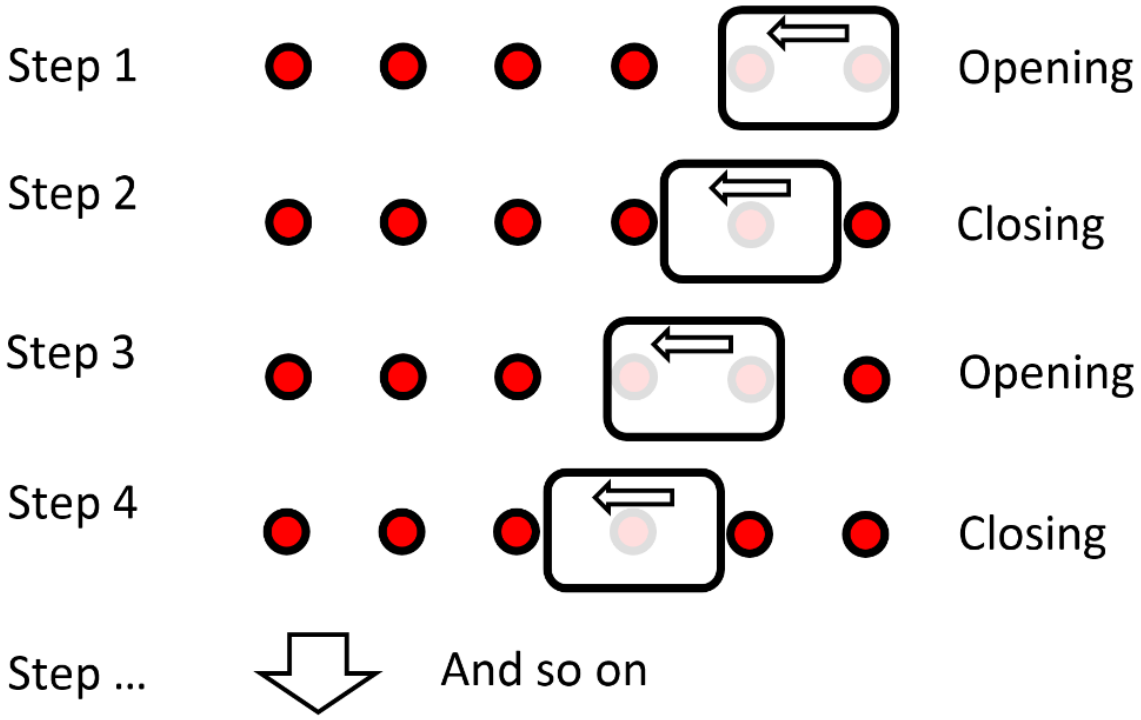
- SM12 power supply (PS1)
  - green power LED is on
- SM5 power supply (PS2 and PS3)
  - green power LED is on
- MLU5 control electronics (C1)
  - green power LED is on
- Supercapacitors (SC1)
  - green power LED is on
- SBCB sensors control electronics (C2)
  - the display alternates between digits 2 and 4
- 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

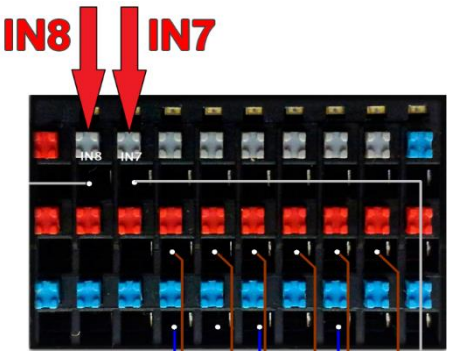
The turnstile is capable of emergency operation even when individual sensors fail. Therefore, it is necessary to check the correct function of **all** optical sensors according to the following procedure:

- We perform the check of the upper sensors after activating the EMERGENCY function based on the following principle.
  - When covering the two adjacent upper 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 both upper sensor bars.

- Check the correct function of bottom sensors as follows.
  - If no bottom sensor is covered, the LED diodes of inputs 7 and 8 must be lit on the MLU5 electronics expander.



  - When covering any sensor on the entry side of the turnstile, the LED of input 7 must turn off.
  - When covering any sensor on the exit side of the turnstile, the LED of input 8 must turn off.
- In case a sensor malfunction is discovered, proceed according to chapter *Troubleshooting - Checking the optical sensors*.

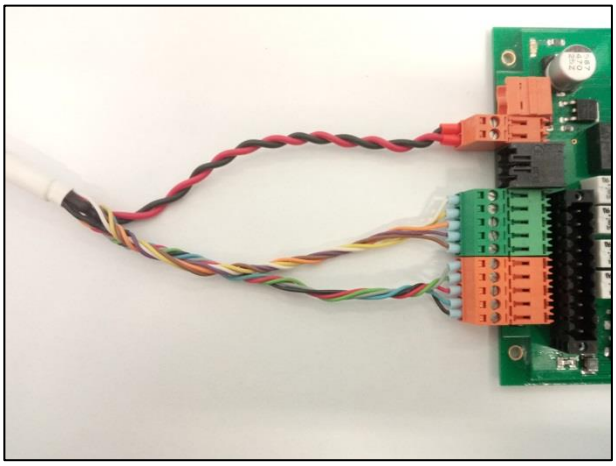
When checking, it is possible to cover transmitting or receiving sensors.

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.

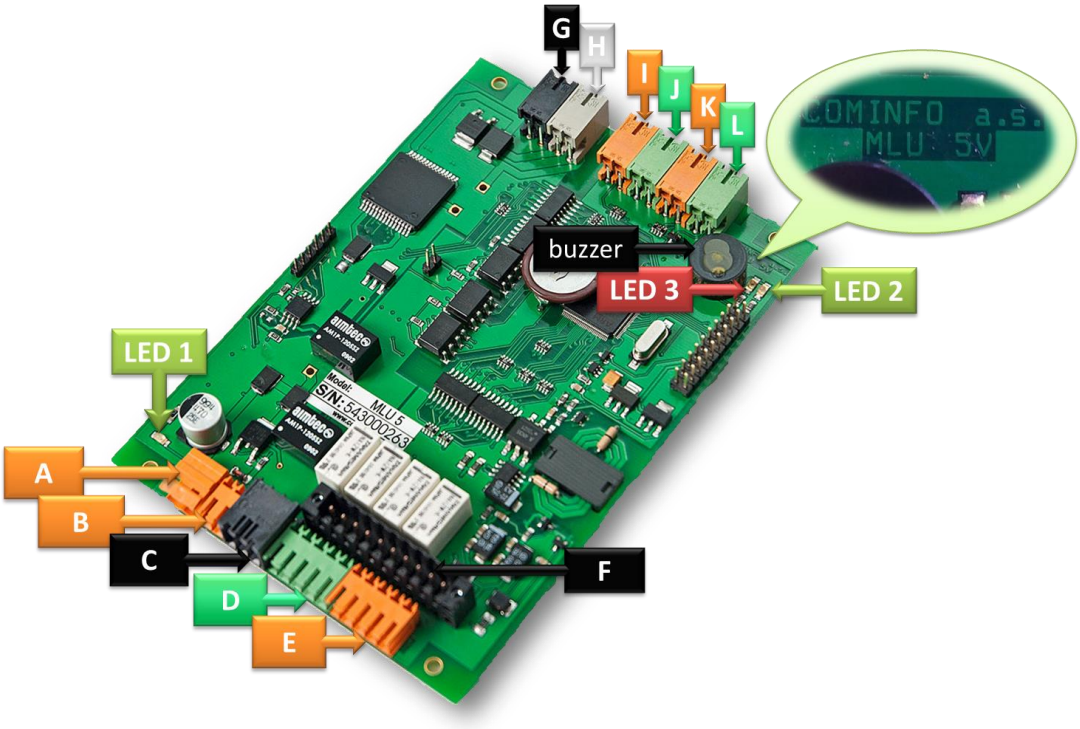
Adjustable parameters are described in detail in the *Instruction Manual***.**

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:

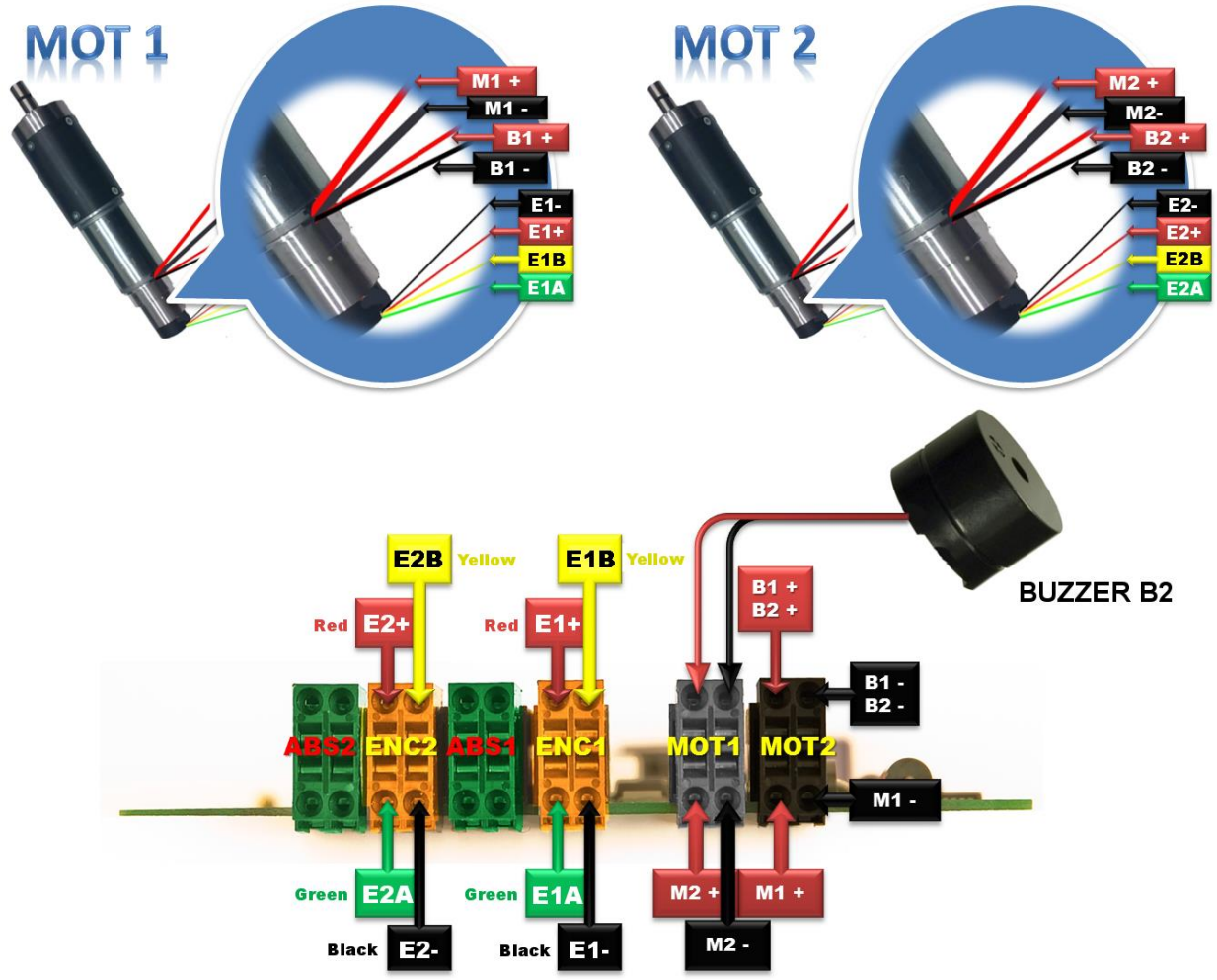
A - 13.8VDC power supply
B - GND for superior system + connection of back-up accumulator for service purposes
C - communication lines RS485 (internal + external)
D - input control signals
E - output information signals
F - Expander connector
G - MASTER motor and brakes of both motors
H - SLAVE motor 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 (green) - signaling of connection of power supply voltage
LED 2 (green) - signaling of statuses
LED 3 (red) - signaling of statuses

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-SUPERB** 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

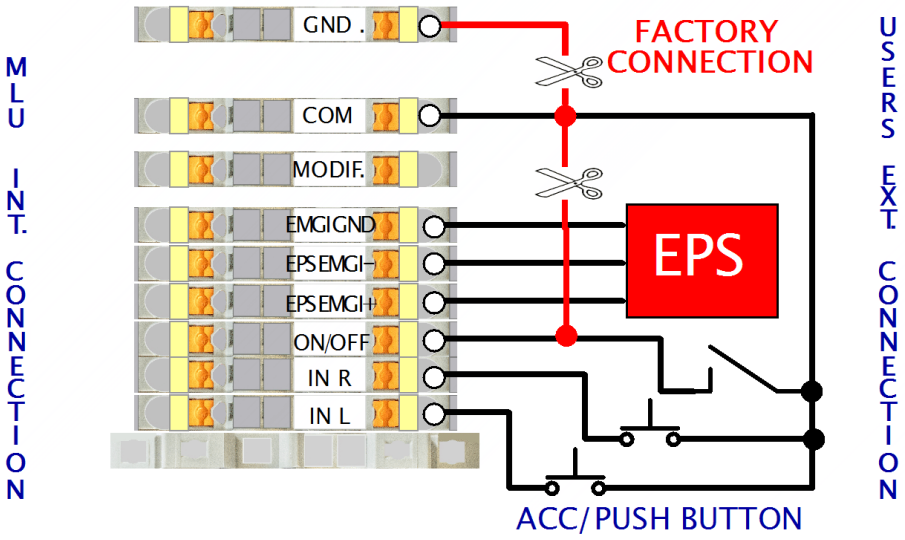
All input control signals are activated / deactivated by their connection to the GND pole of electronics power supply.

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



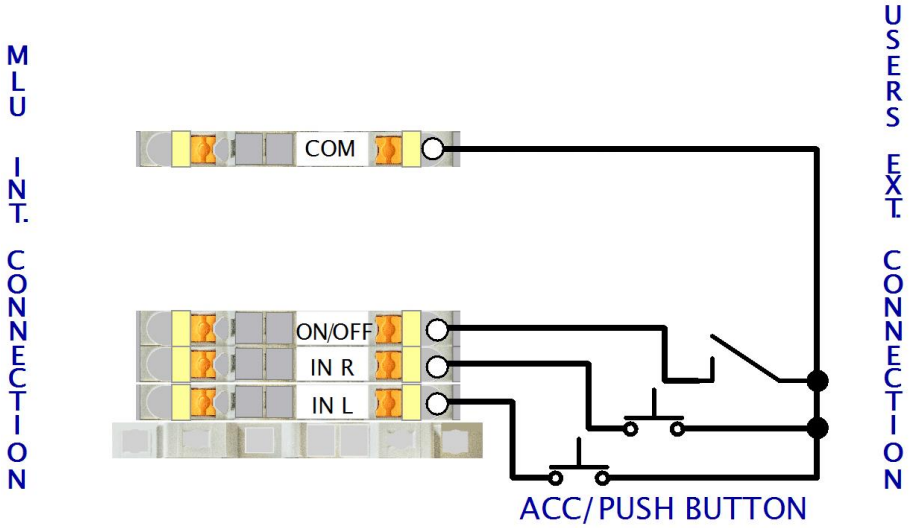
- **MODIF input** - adjustable input for the manufacturer's needs - **DO NOT CONNECT ANY CIRCUITS.**
- **EMGI inputs** - inputs for controlling the EMERGENCY function by the EPS system.
- **ON/OFF input** - input must be activated when controlling the signals connected to INL, INR inputs.

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

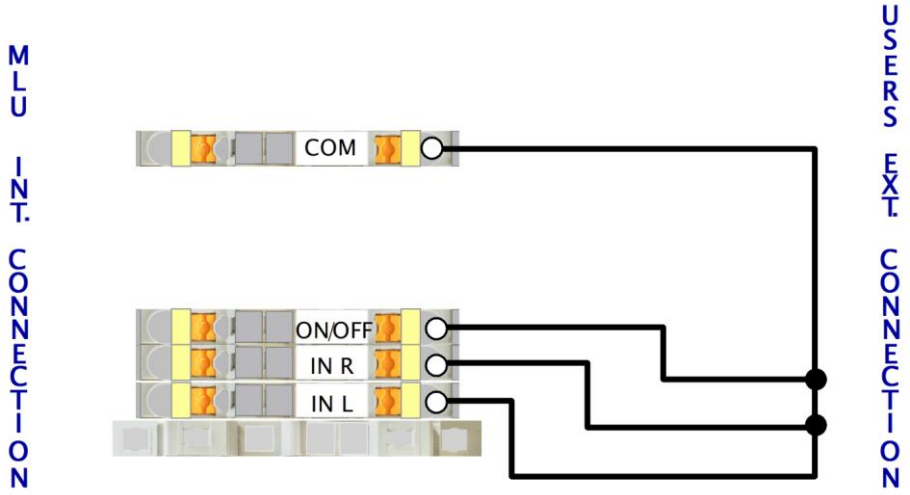


The control signals are connected to the **X2** terminal.
When controlling by the signals on the INL and INR inputs, the ON/OFF input must be activated.

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

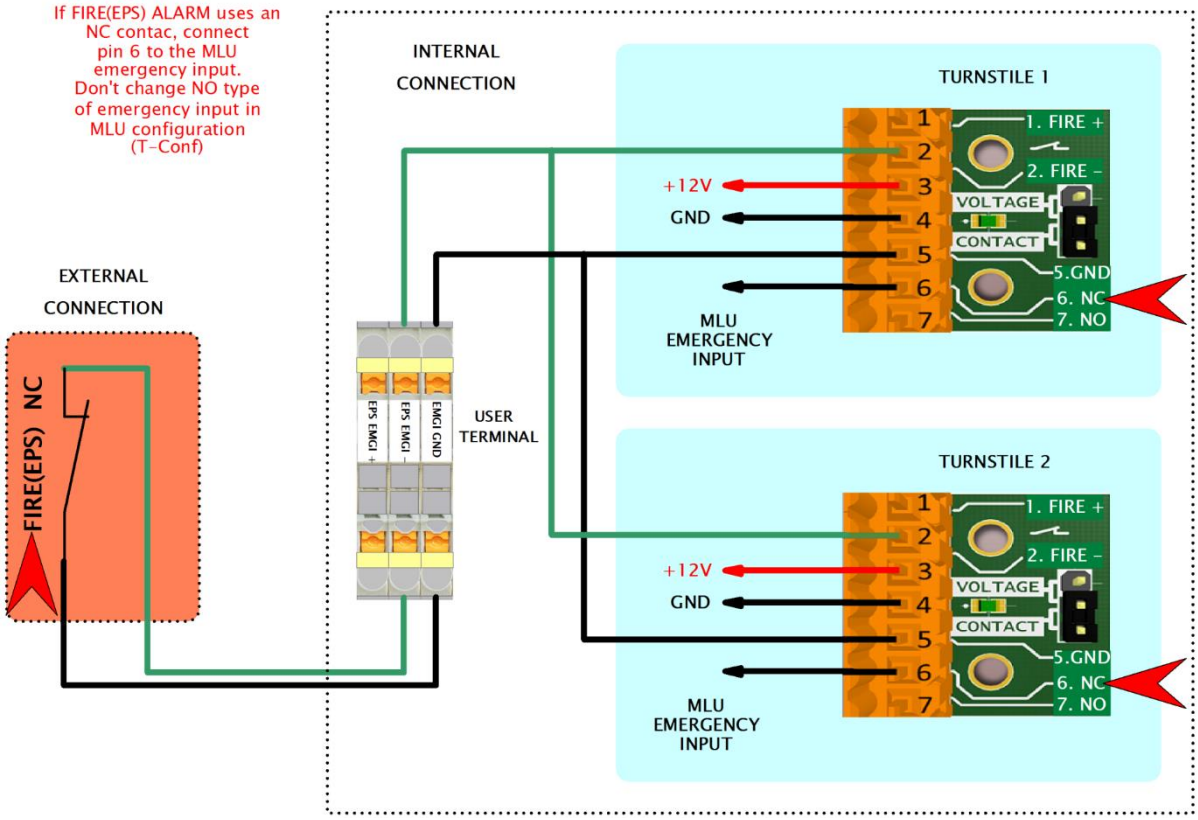
The EMGI module is used for connecting the superior EPS (electronic fire alarm) signal to the COMINFO turnstiles. Using the EMGI module it is possible to connect EPS signal from safety devices (fire detectors) disposing with NO, NC contacts or voltage output up to 24VDC also NO or NC to the turnstiles.

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

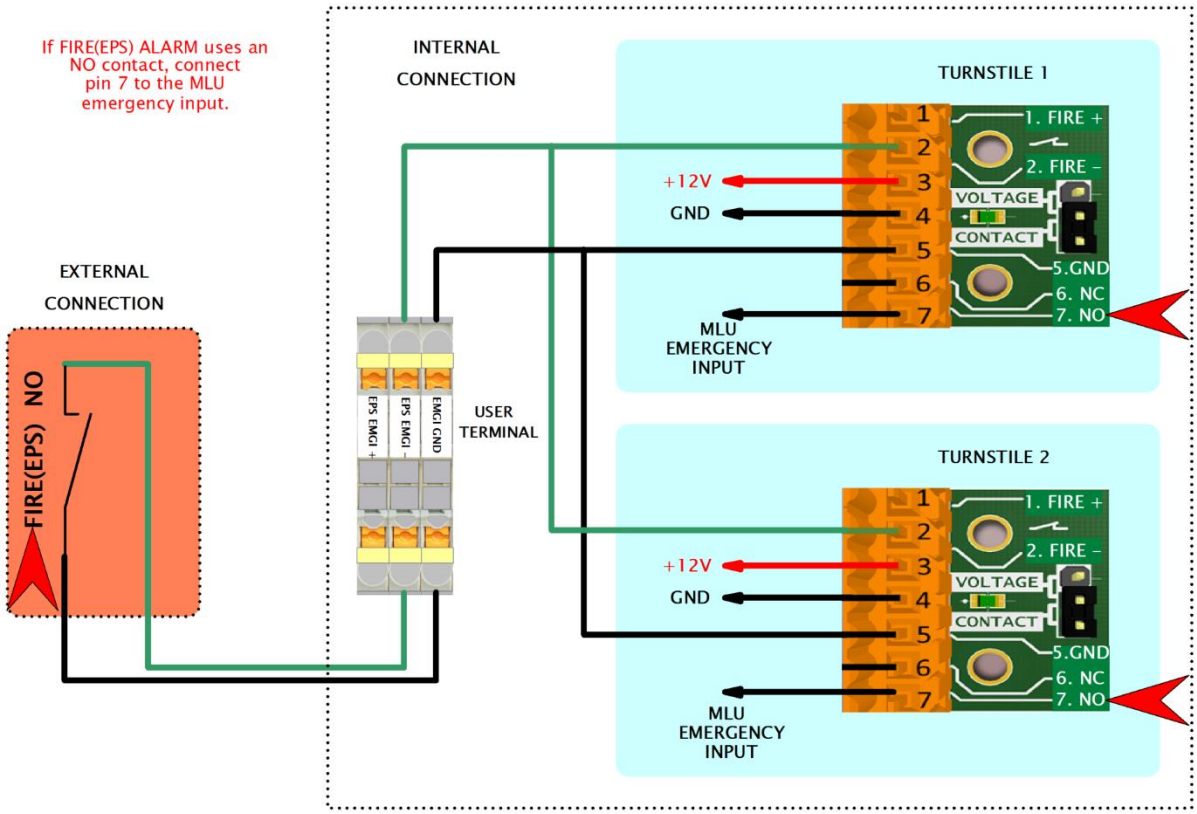
The diagram shows the wiring where the superior EPS system is equipped with a **potential-free NC** contact. The pin #6 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*CONTACT“.*



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

EPS - NO type contact, potential-free

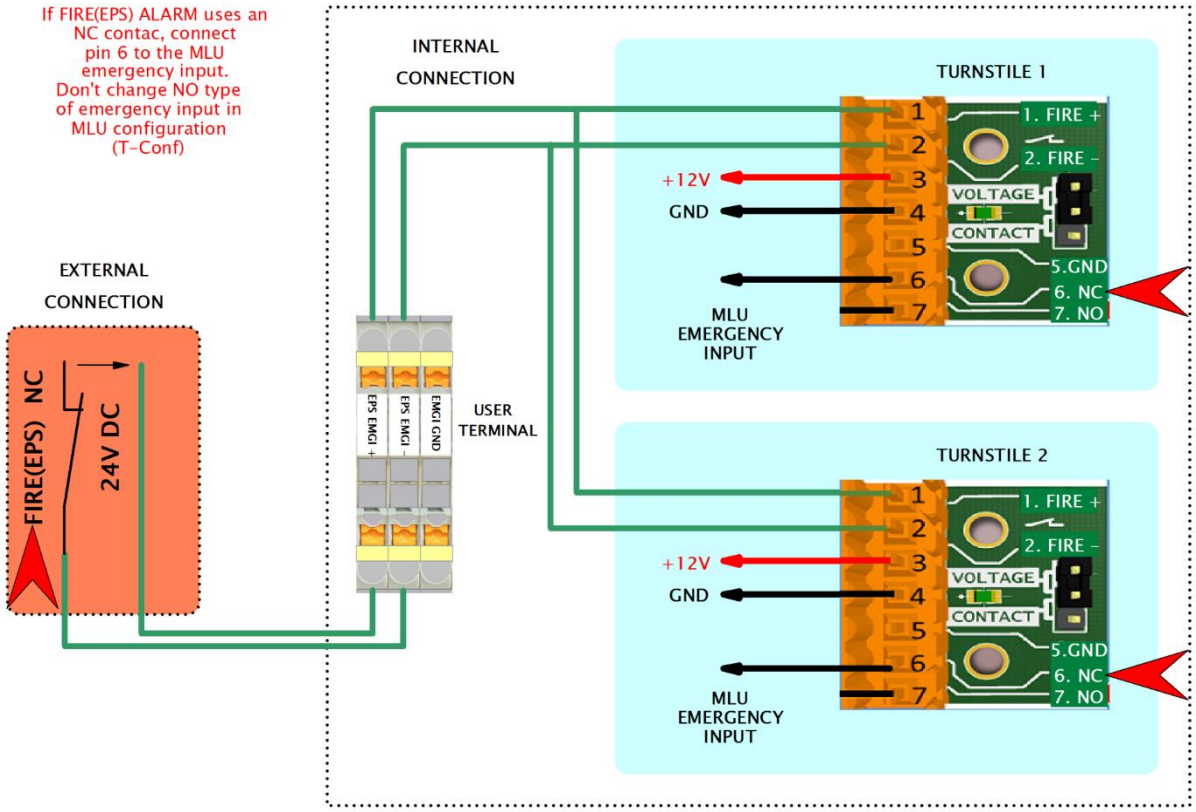
The diagram shows the wiring where the superior EPS system is equipped with a **potential-free NO** contact. The pin #7 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*CONTACT“.*



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

EPS - NC type contact, 24VDC

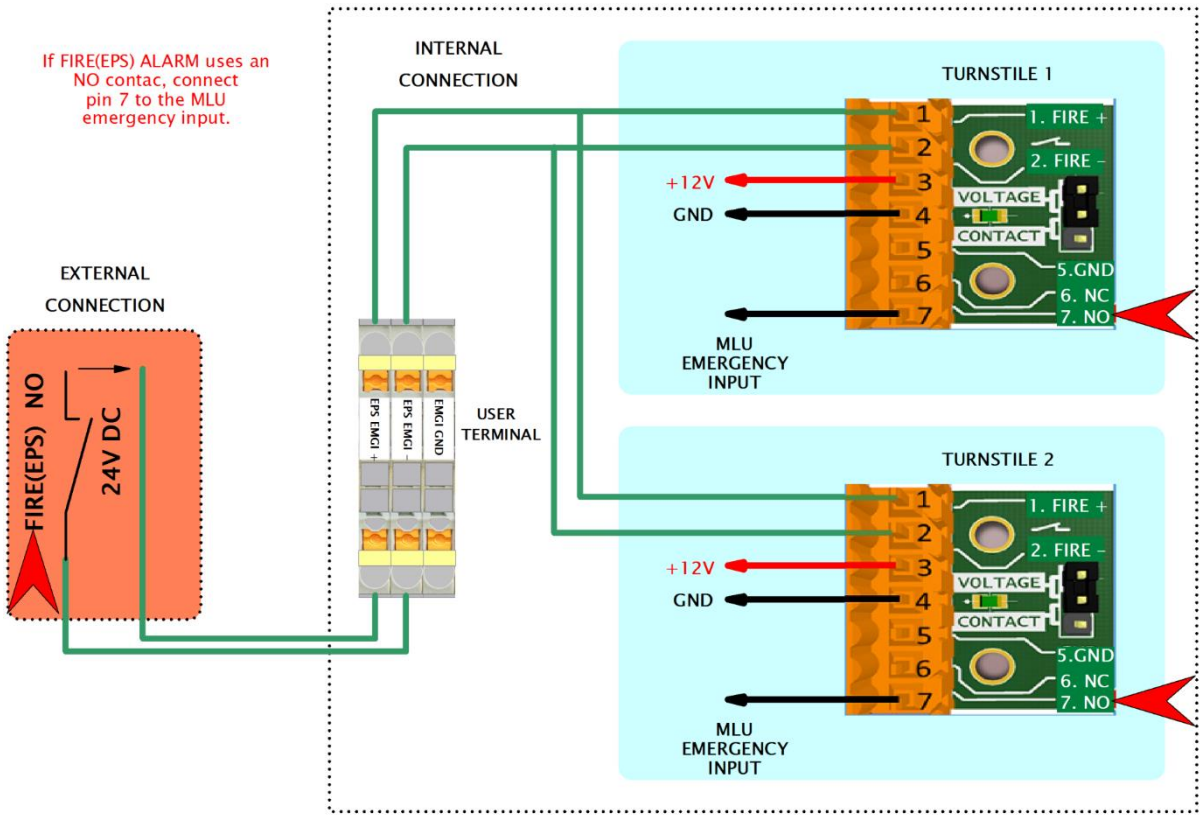
The diagram shows the wiring where the superior EPS system is equipped with a **24VDC NC** contact. The pin #6 on the EMGI module connector is connected with the MLU5 electronics EMERGENCY input. The jumper is set to the position labeled „*VOLTAGE“.*



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“.*



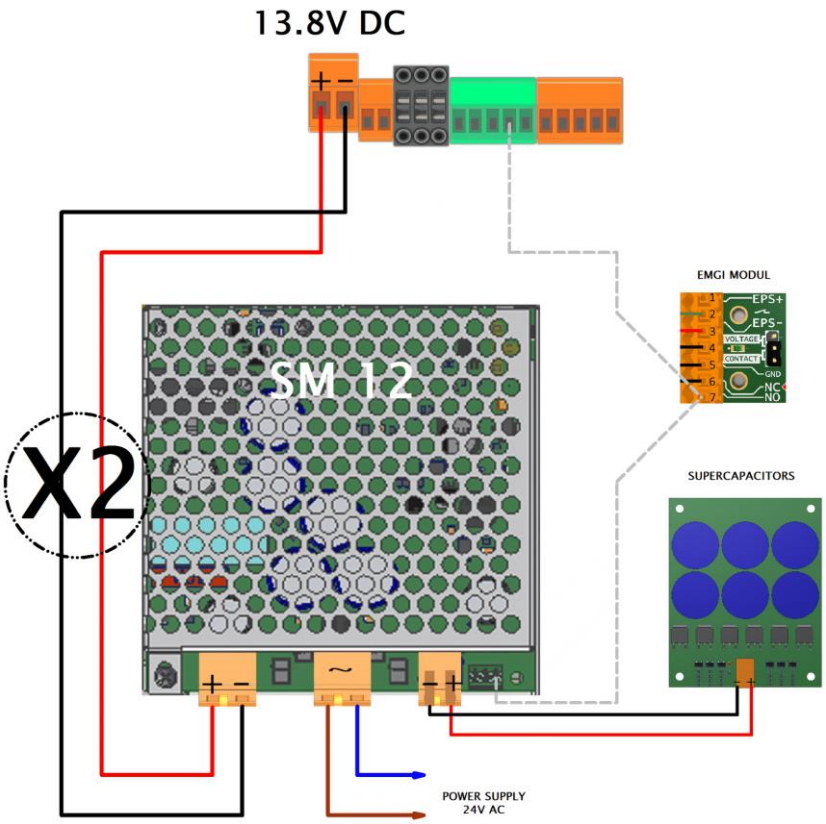
The EMERGENCY contact type setting on the MLU5 control unit must remain set to NO.

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

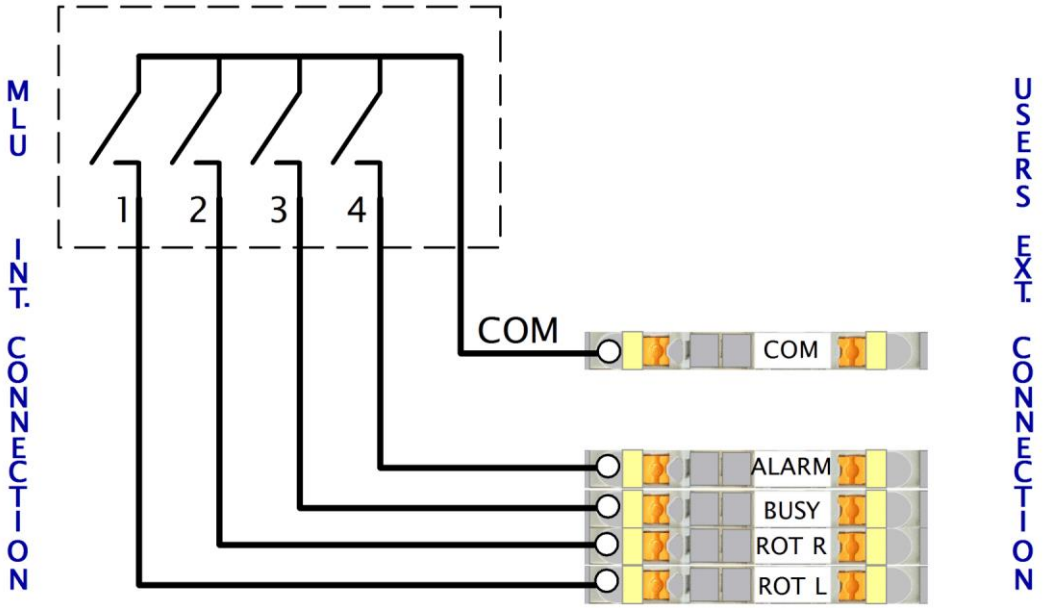
All relay outputs are put to the same COM potential.

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.

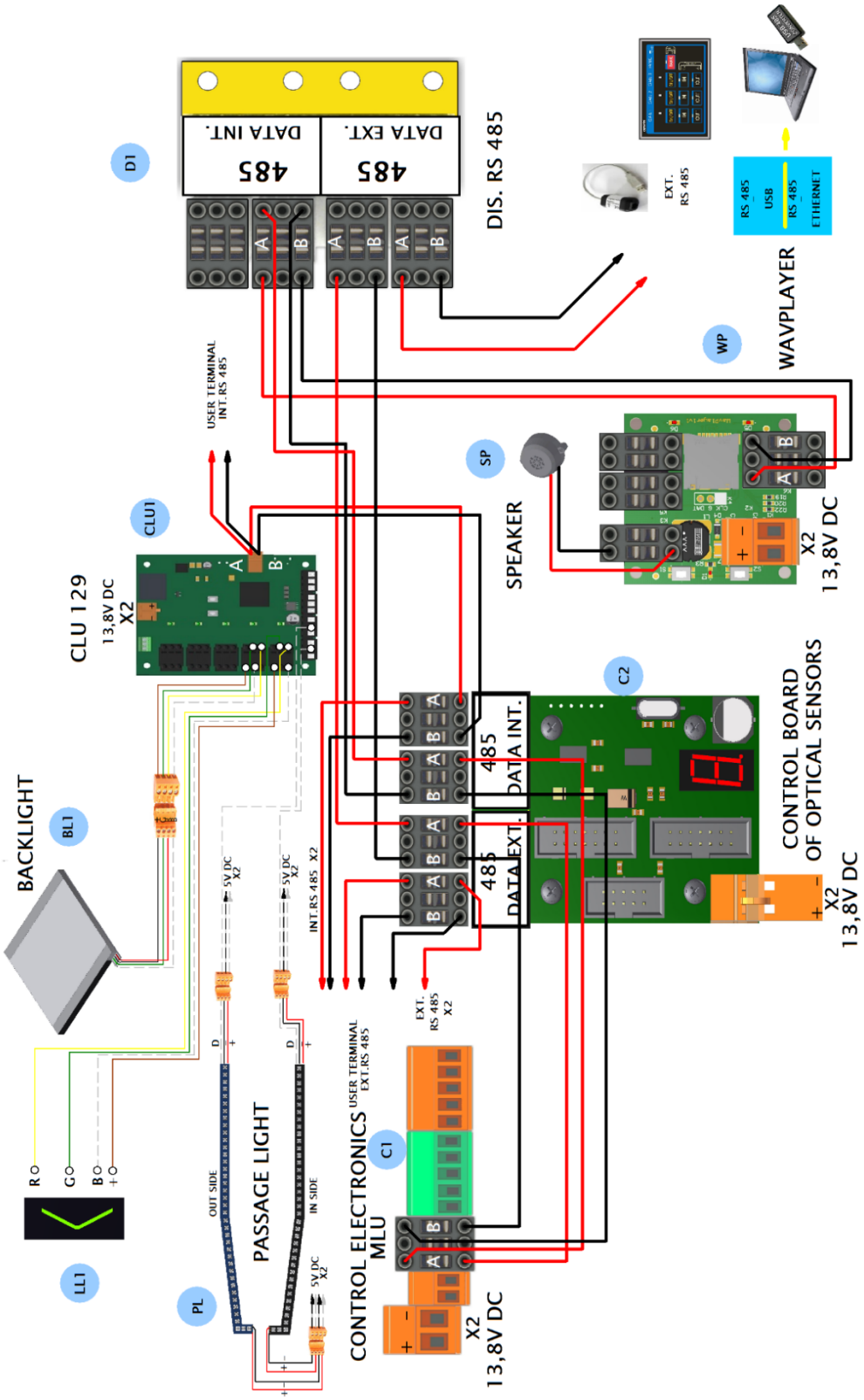
The output signals are set to NO by the manufacturer. Using the TCONF application it is possible to invert any output to NC, independently to other outputs.

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



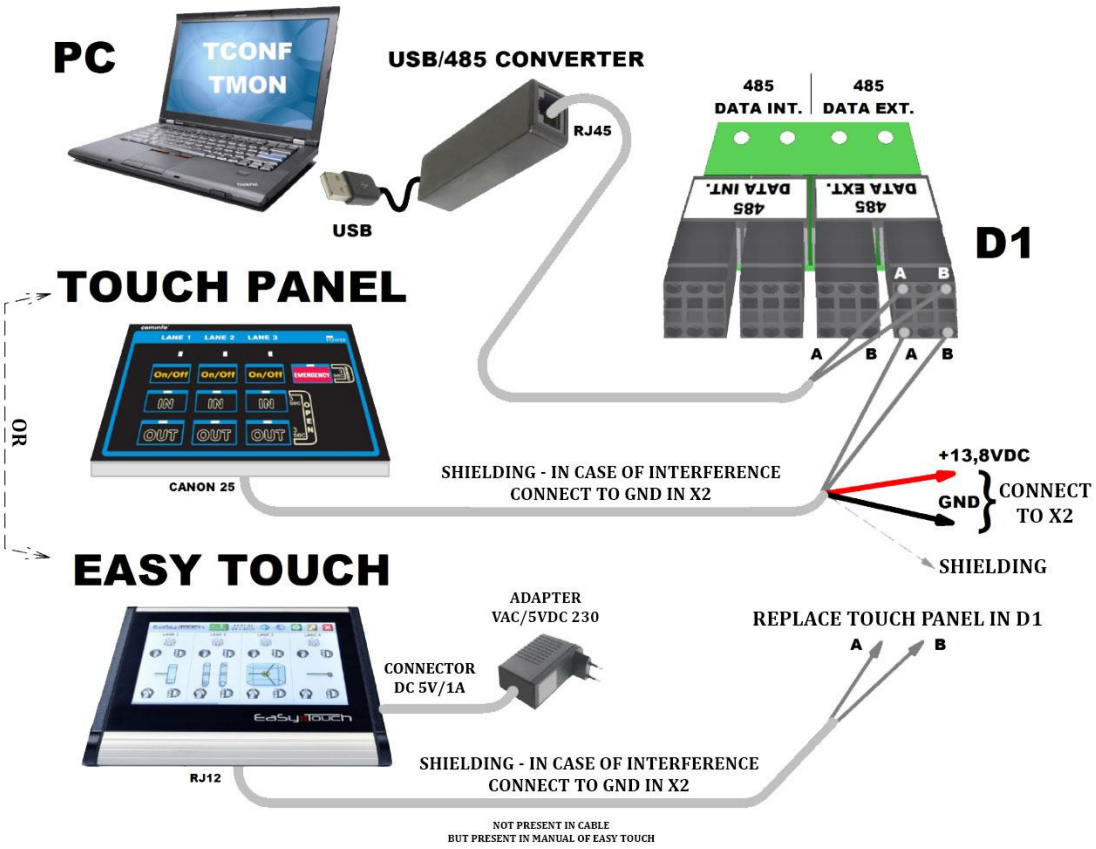
- **DATA INT.** serves for connection the SBCB, Wav Player, CLU and other peripheries.

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

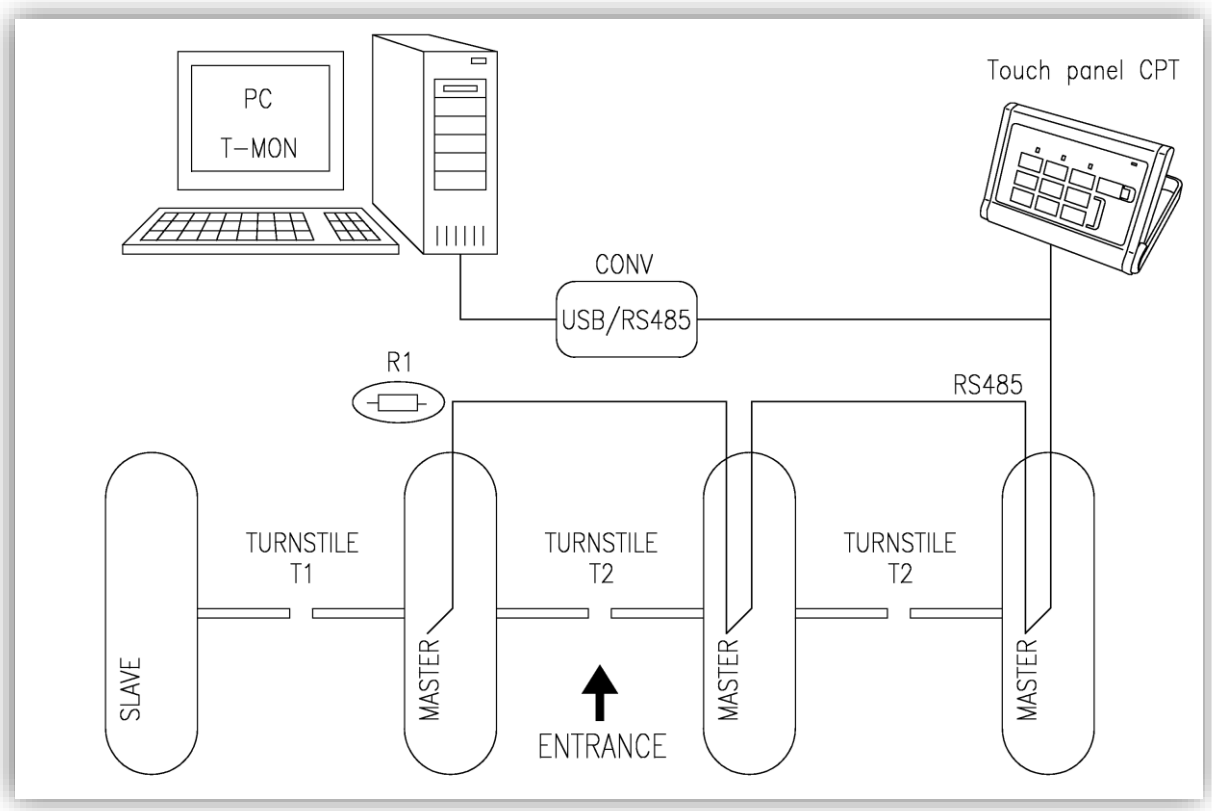
To ensure a reliable PC connection via RS485-USB converter or RS485 Ethernet, it is necessary to use the converter supplied by the COMINFO company. Correct functioning is not guaranteed if different converter is used.



- **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 CPT and turnstiles via the RS485 line is shown of the figure above.

- 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 CPT panel.
- When changing 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:

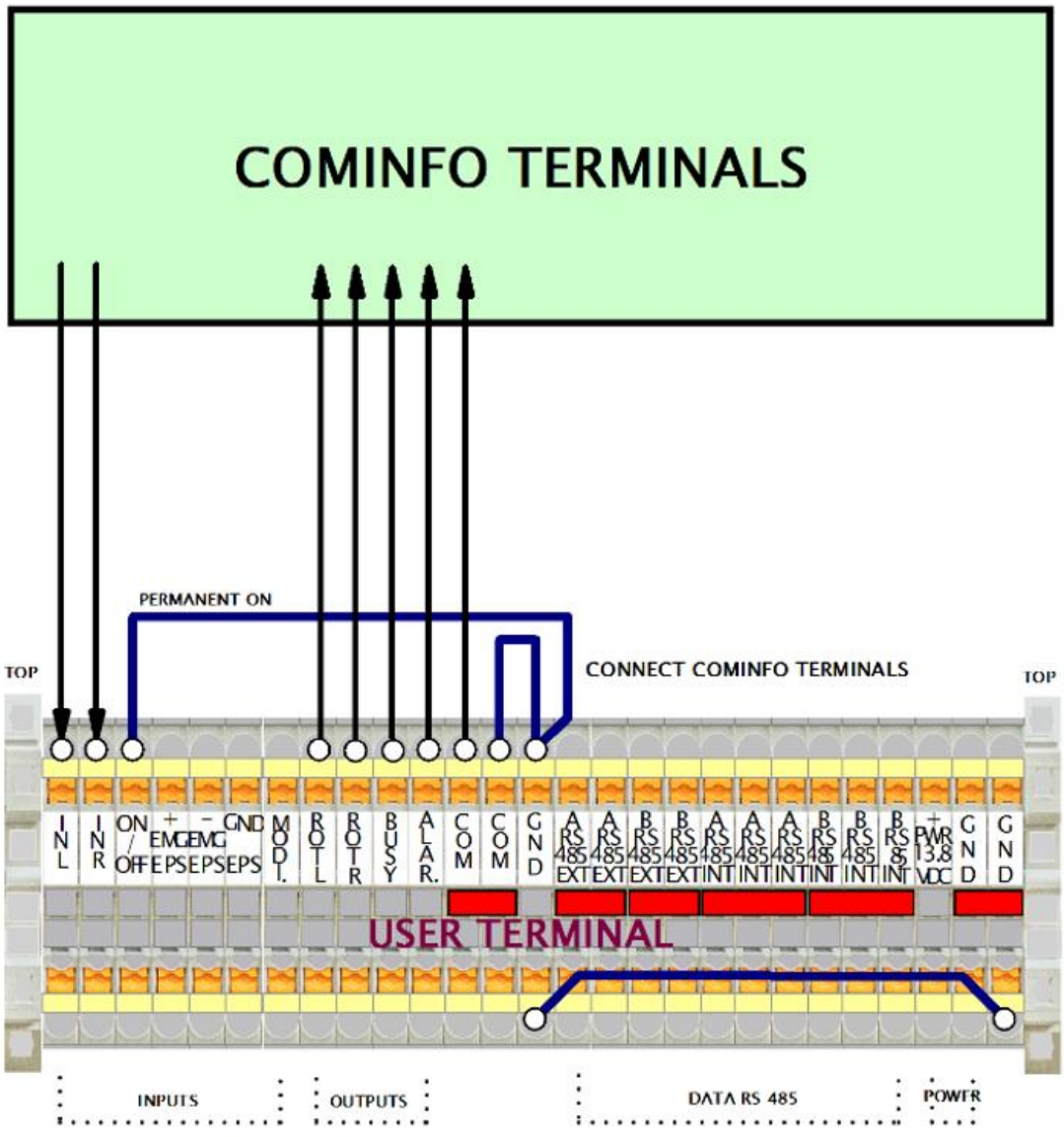
In case of the external Touch Panel device, always connect the shielding to the MLU5 electronics in the turnstile that powers the Touch panel. In case of external 485/USB converter device, do not connect the shielding for PC control. In case of major interference of the cable leading to the 485/USB converter,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



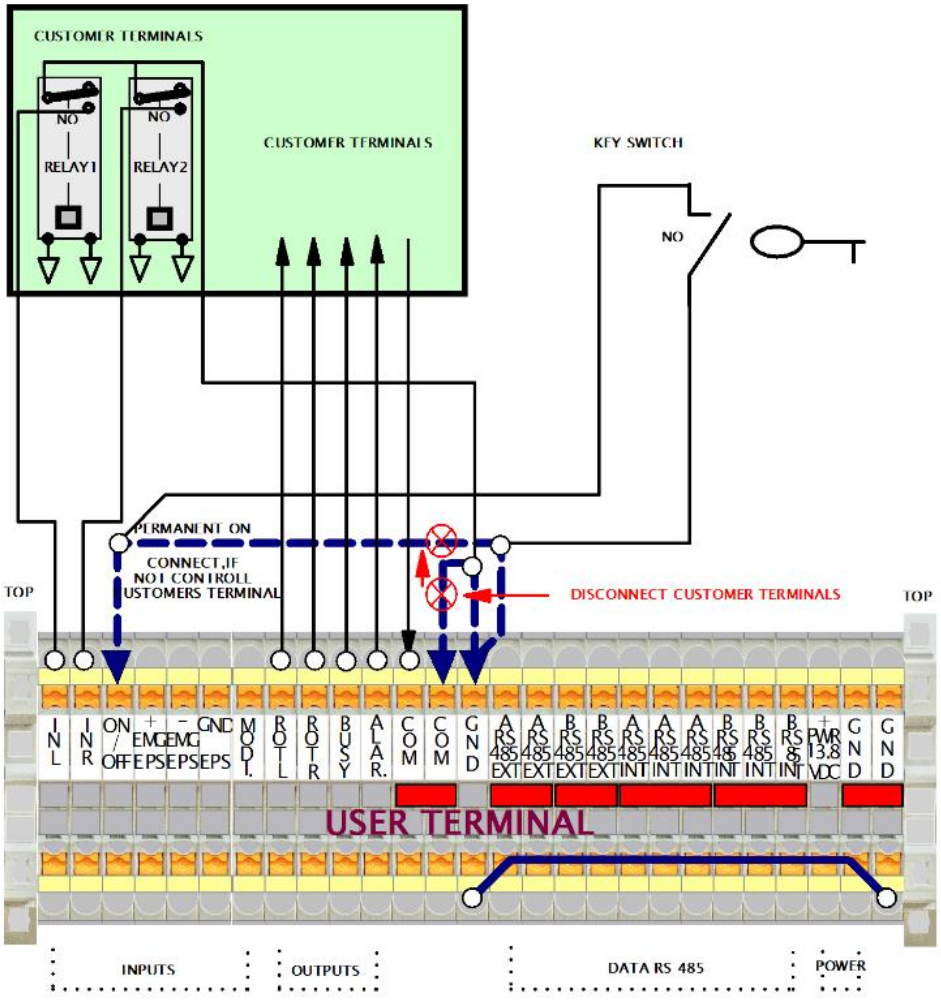
MLU INT. CONNECTION

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).**

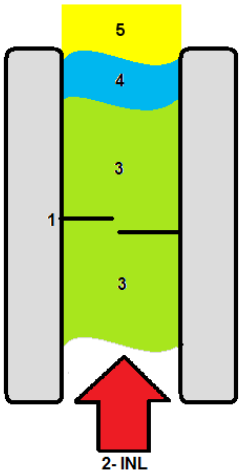
- **The potential of input control signals GND and output control signals COM must be disconnected by removing the interconnecting wire on the XU terminal.**
- **Input control signals with own potential must be connected through a relay.**
- **To control input signals through a relay you must use the 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:

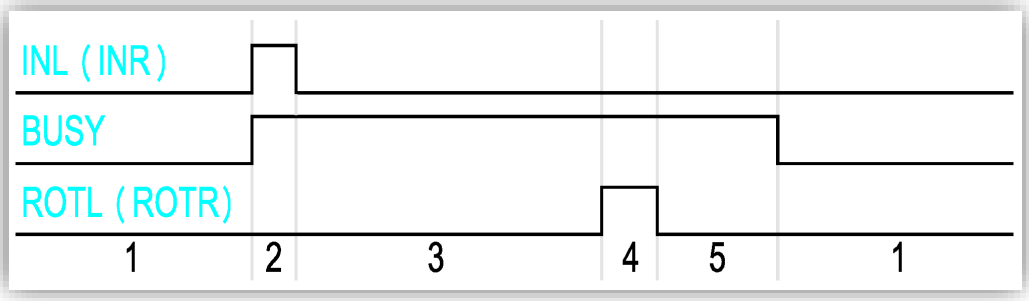
Name of the Input Signal	Single Passage	Permanent Passage
INL	>100ms <2000ms)[1]	>2000ms
INR	>100ms <2000ms)[1]	>2000ms
ON/OFF	FOR THE DURATION OF THE INPUT ACTIVATION	
EMERGENCY (emergency state)	FOR THE DURATION OF THE INPUT ACTIVATION	

)[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

Turnstile passage signals timing diagram:



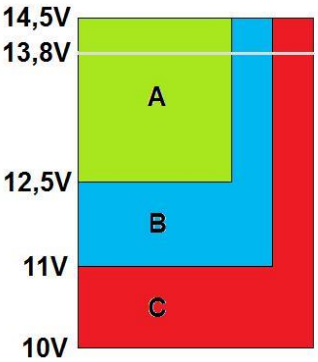
9. TURNSTILE POWER SUPPLY

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.

9.1. 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.).

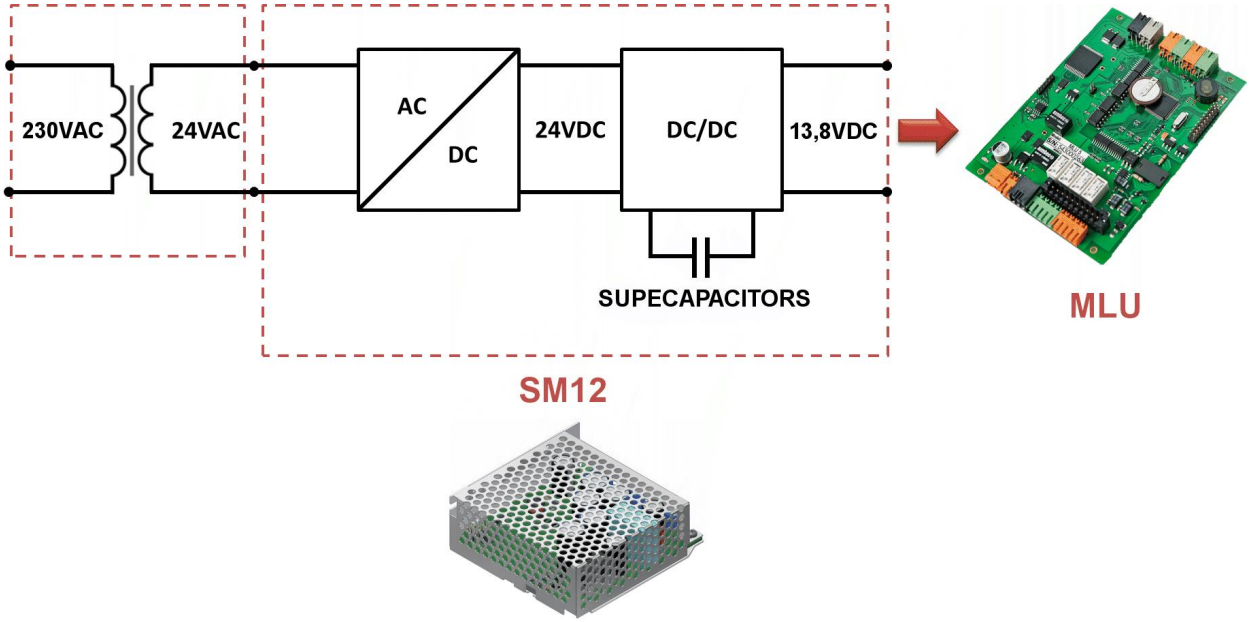
EASYGATE SUPERB turnstiles fall into the **A** area of permitted range of power supply voltage.

9.2. 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

9.2.1. 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:

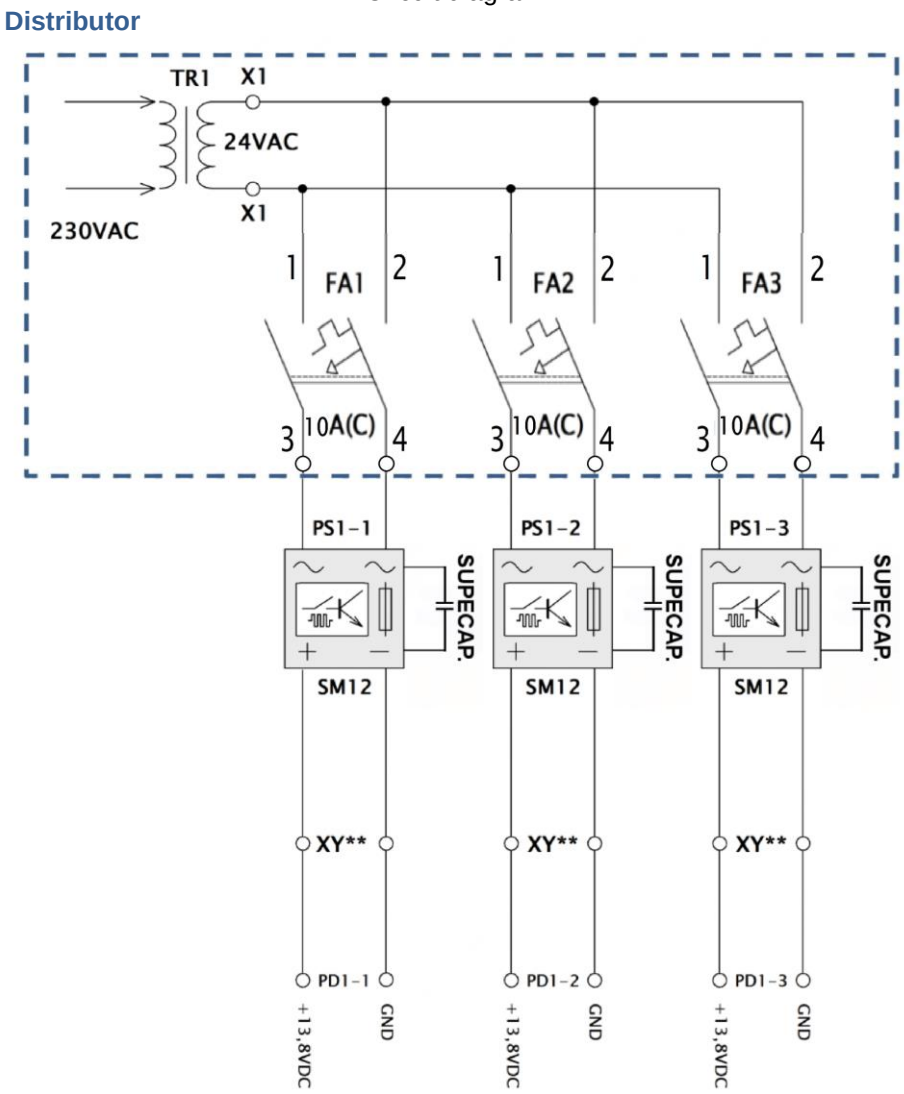
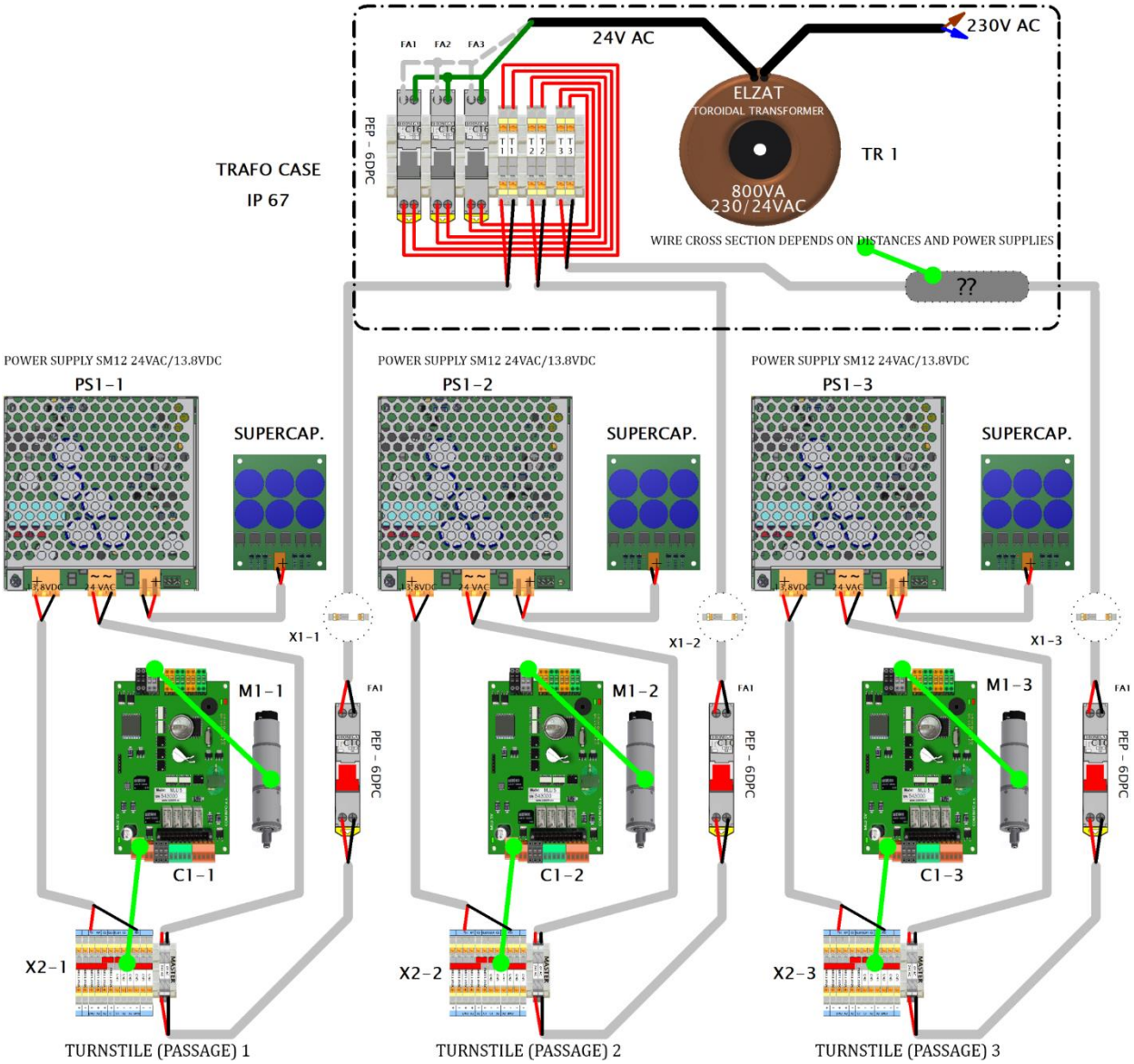
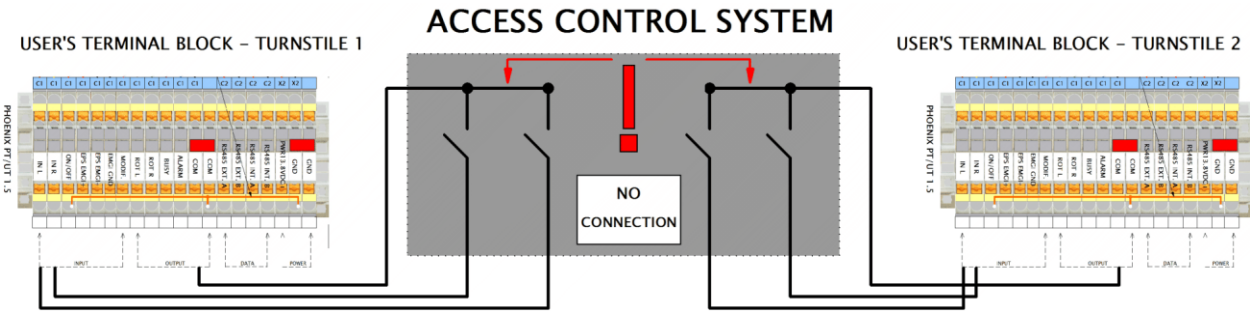


Diagram:



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:

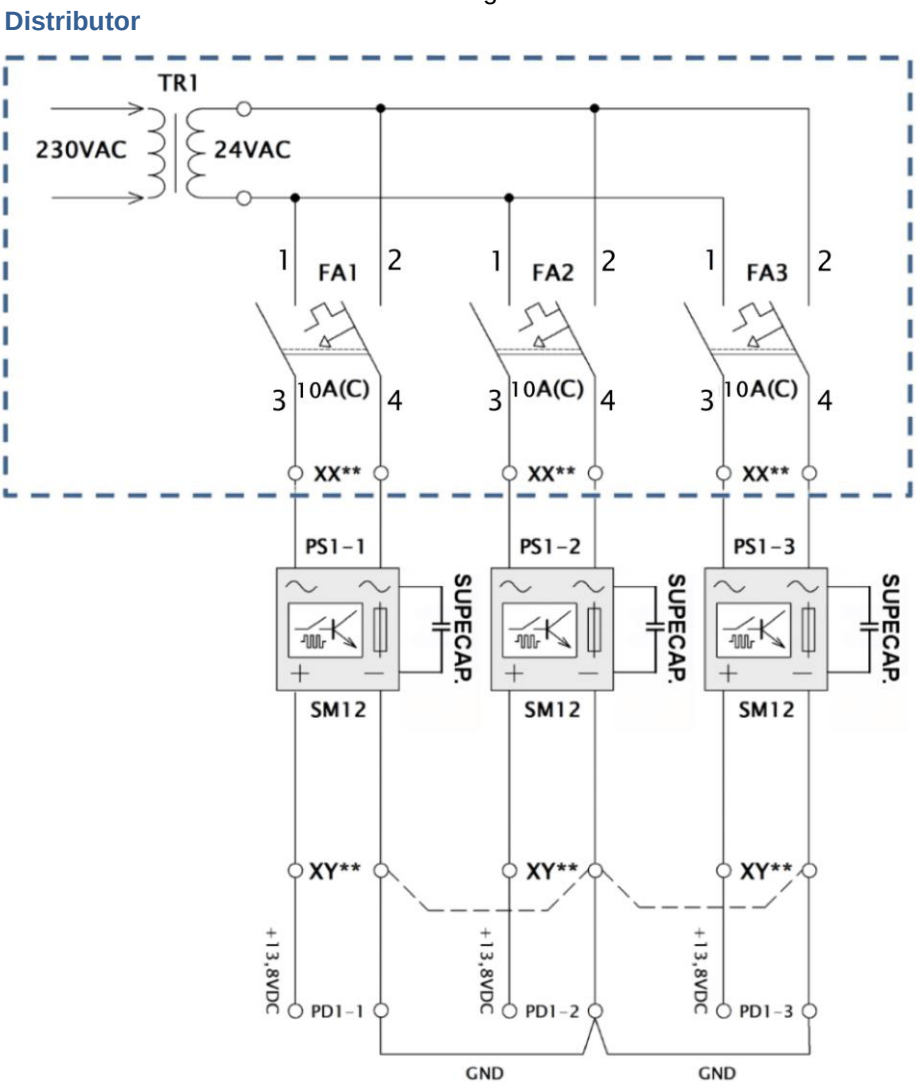
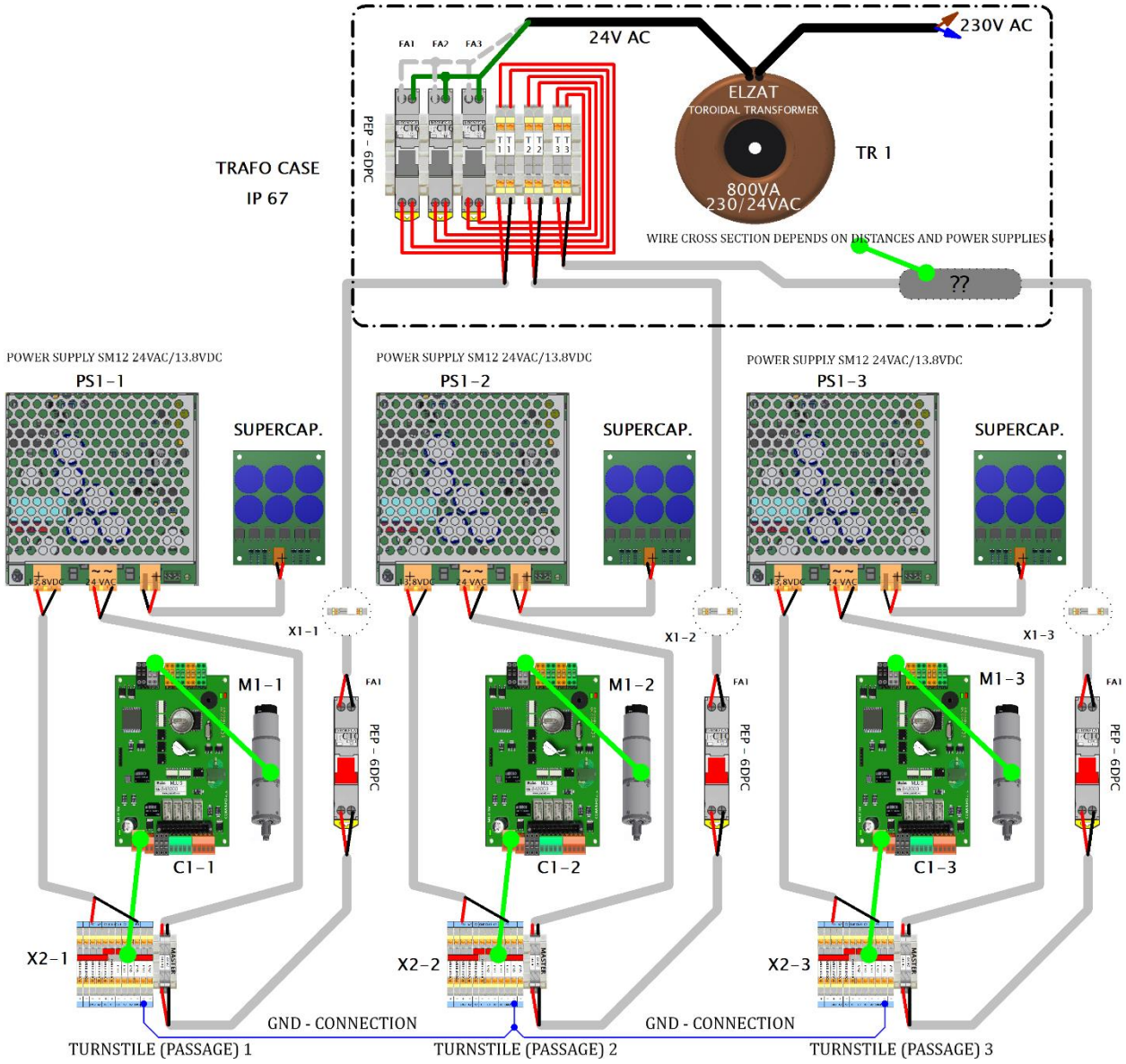
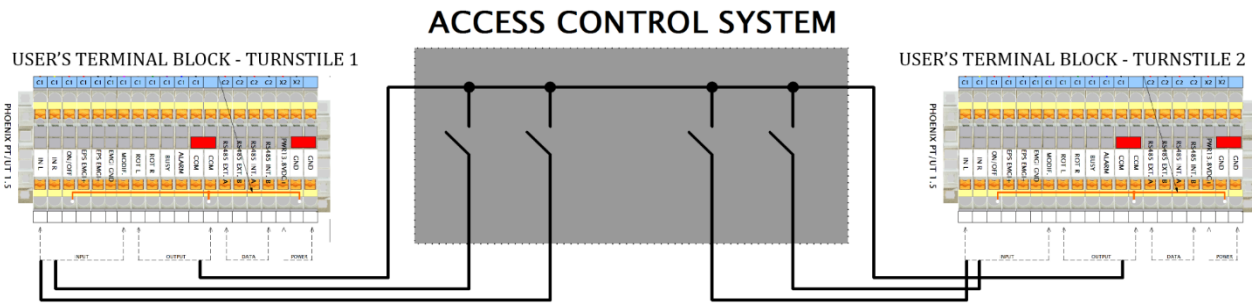


Diagram:



Example of connection of superior system with common GND potential:



9.3. CONNECTION OF EXTERNAL 230VAC MAINS POWER SUPPLY

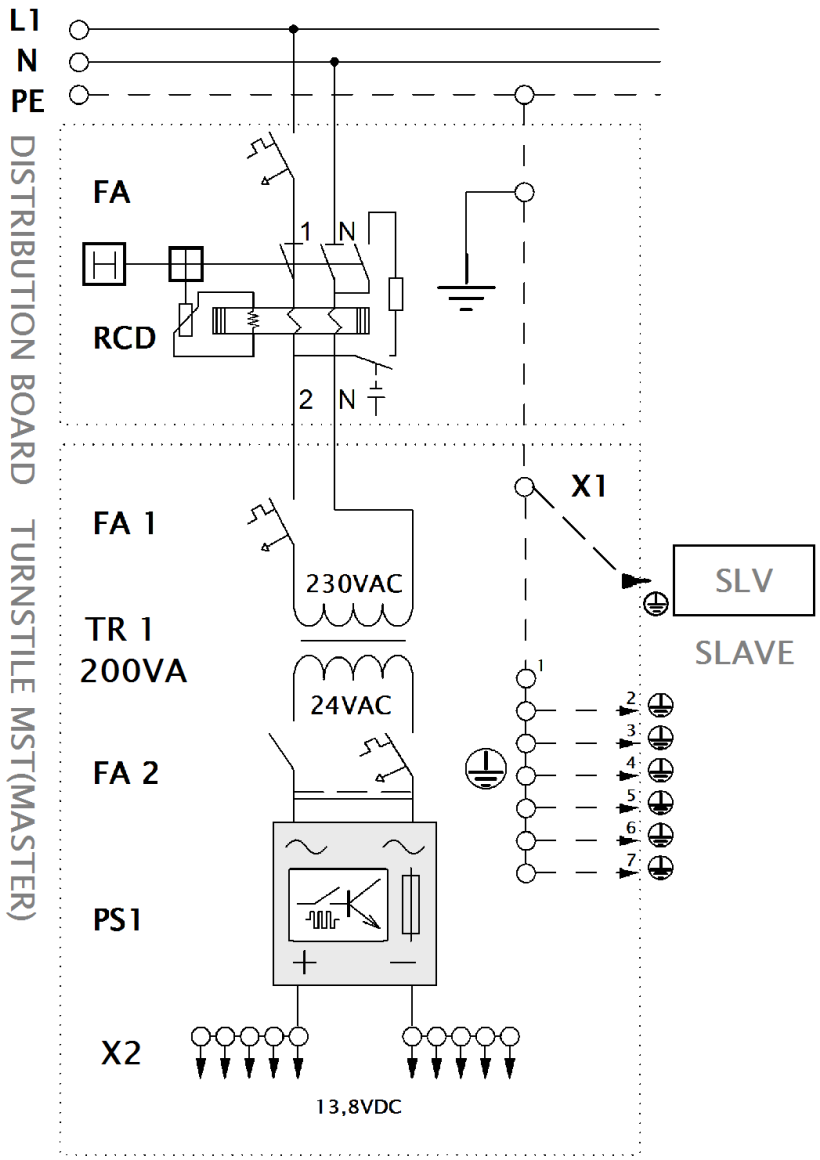
APPLIANCE MUST BE CONNECTED IN COMPLIANCE WITH INSTRUCTIONS THAT ARE ATTACHED TO IT AND ALSO IN COMPLIANCE WITH RESPECTIVE LEGAL REGULATIONS AND STANDARDS, WHICH ARE EFFECTIVE IN THE COUNTRY OF INSTALLATION OF THE PRODUCT. CONNECTION MAY BE PERFORMED ONLY BY A QUALIFIED PERSON

Examples of regulations for select countries:

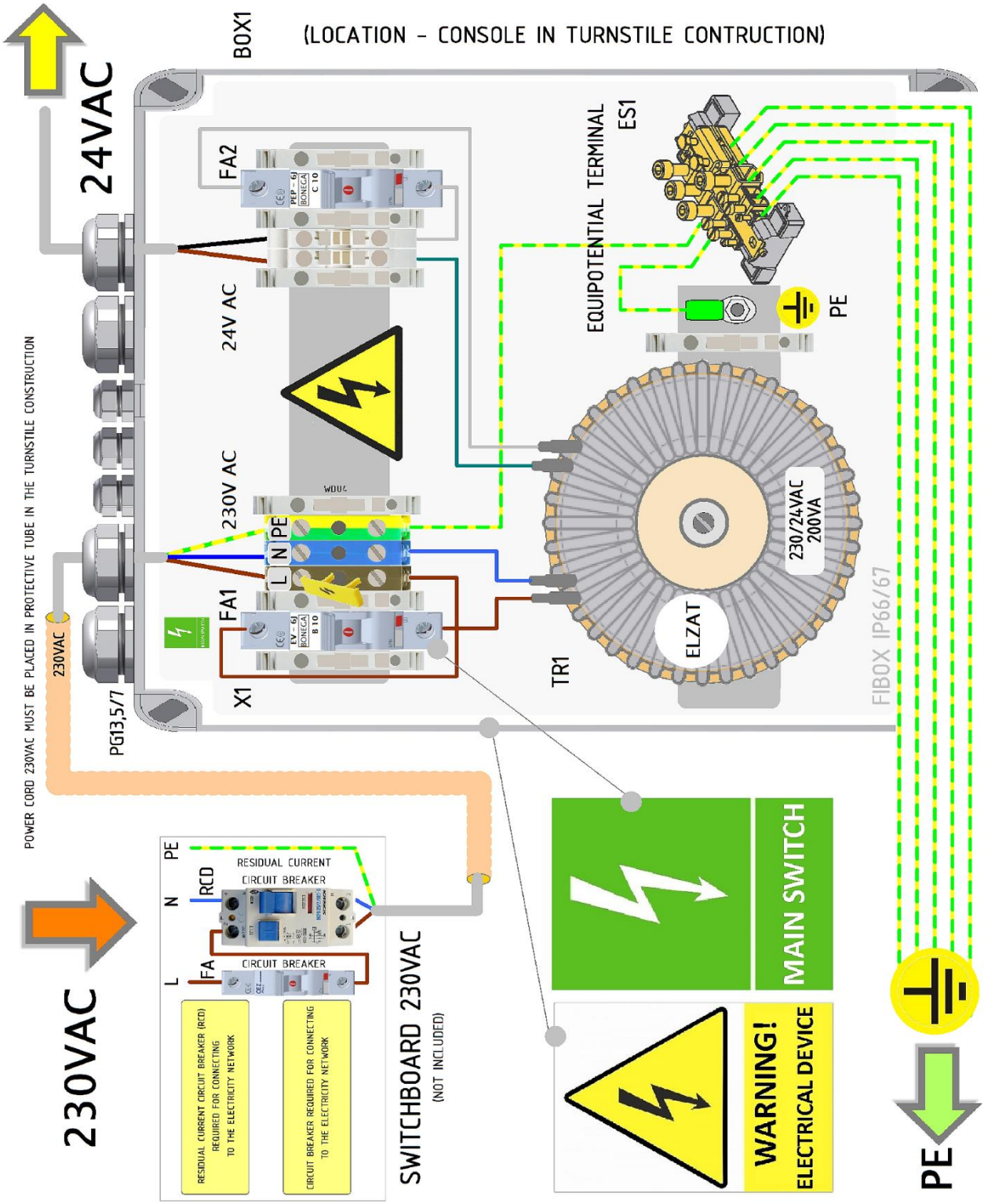
- **CZ: ČSN 33 2000 – 4 – 41 ed.2, ČSN 33 2000-7-706 ed.2, ČSN EN 62305-1 až 4, ČSN 34 0350, ČSN 33 2180**
- **D: DIN VDE 0100-410 Abschnitt 413**
- **EU: IEC 60364-4-41**

CONNECTING THE DEVICE TO THE MAINS POWER SUPPLY IS POSSIBLE ONLY FROM A CIRCUIT EQUIPPED WITH A RESIDUAL-CURRENT DEVICE WITH IΔN=0,03A AND A CIRCUIT BREAKER FOR PROTECTION FROM INJURY BY THE ELECTRIC CURRENT.

Circuit diagram:



Distributor example:



9.4. POWER INPUT OF THE TURNSTILE

Table of maximum power input values during the operation of EASYGATE-SUPERB 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])	**+1.5**	Permanently (for 1x Back Light)
Lane Light [3])	**+2**	Permanently (for 1x Lane Light)
Passage Light [4])	**+120**	For one passage (4x Passage Light)
Card collector	**+35**	Type: MTM-720T
QR scanner	**+1.5**	Type: NLS-FM430

[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 and wing height of 990.

[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 is an optional accessory.

[4]) Passage Light is an optional accessory.
For the MIDDLE turnstiles, the consumption is half.

10. COMPLETE WIRING DIAGRAM

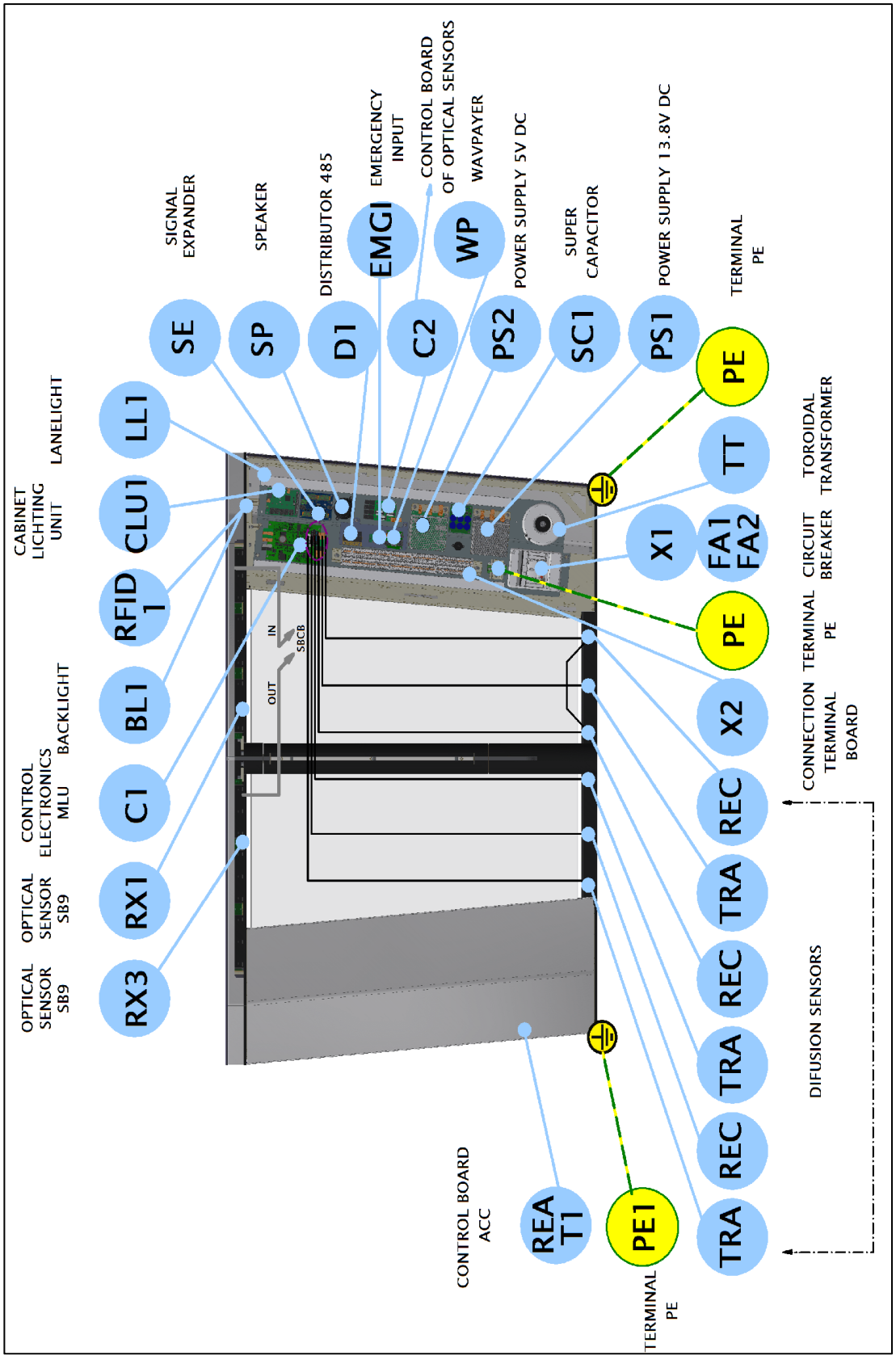
You can get detailed cable diagram after logging-in on our website www.extranet.cominfo.cz.

10.1. CAPTIONS TO THE DIAGRAMS:

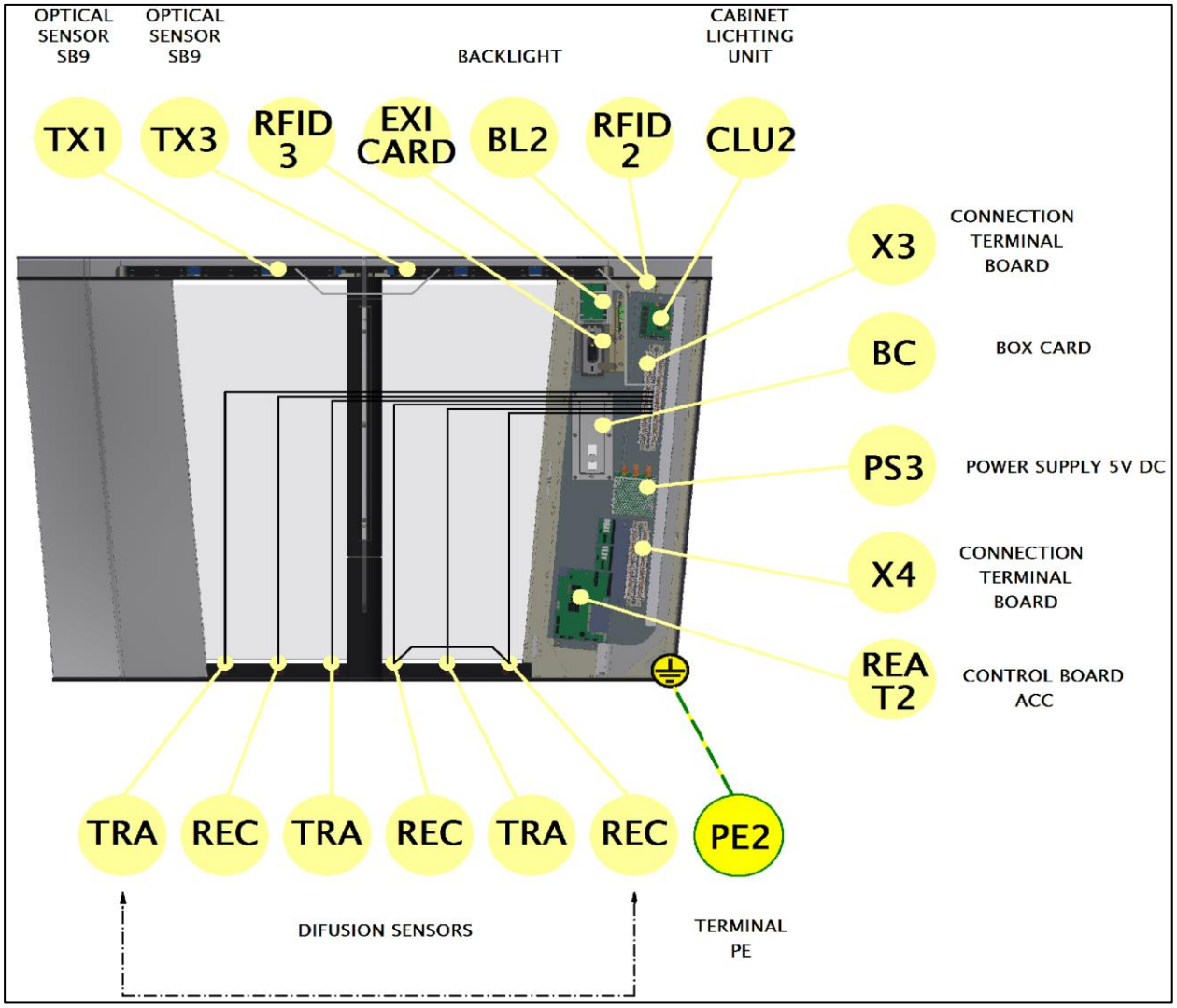
C1 - MLU5 control electronics
C2 - Control electronics of sensors (SBCB) with integrated RS485 distributor
D1 - Distributor RS485
CLU1 - Control electronics of MASTER optical signalization (Cabinet Lighting unit)
CLU2 - Control electronics of SLAVE optical signalization (Cabinet Lighting unit)
EMGI - Electronics for the EMERGENCY signal evaluation (Emergency Input)
EXP - Expander for bottom sensors
M1 - MASTER drive unit
M2 - SLAVE drive unit (not available in a single-wing version)
TT - 230V/24V – 200VA toroidal transformer TT
X1 - **13.8VDC** or **24VAC** or **230VAC** main power terminal block
X2 - MASTER turnstile terminal block
X3 - SLAVE turnstile terminal block
X4 - RFID sensor terminals
X - RFID sensor terminals
ES1 - Earthing terminal block
FA1 - 230VAC circuit breaker
FA2 - 24VAC circuit breaker
PS1 - SM12 (24VAC/13.8VDC) power supply
PS2 - SM5 (24VAC/5VDC) power supply
PS3 - SM5 (24VAC/5VDC) power supply
B2 - Buzzer – acoustic alarm signalization
SC1 - Supercapacitors for PS1
WP - WAV Player Module
SP - Speaker for a WAV Player
PL1 - Passage Light
PL2 - Passage Light
BL1 - MASTER turnstile Back Light
BL2 - SLAVE turnstile Back Light
LL1 - MASTER turnstile Line Light
LL2 - SLAVE turnstile Line Light
RX* - Upper receiving sensors in the MASTER turnstile (RX1 and RX3)
TX* - Upper transmitting sensors in the SLAVE turnstile (TX1 and TX3)
RX1* - Bottom receiving sensors (RX11 – RX16)
TX1* - Bottom transmitting sensors (TX11 – TX16)
REA - Electronics of the access system
CARD - RFID sensors
EXI - RFID sensor for the collector of visitor cards

10.2. LAYOUT OF THE DEVICES IN THE TURNSTILE

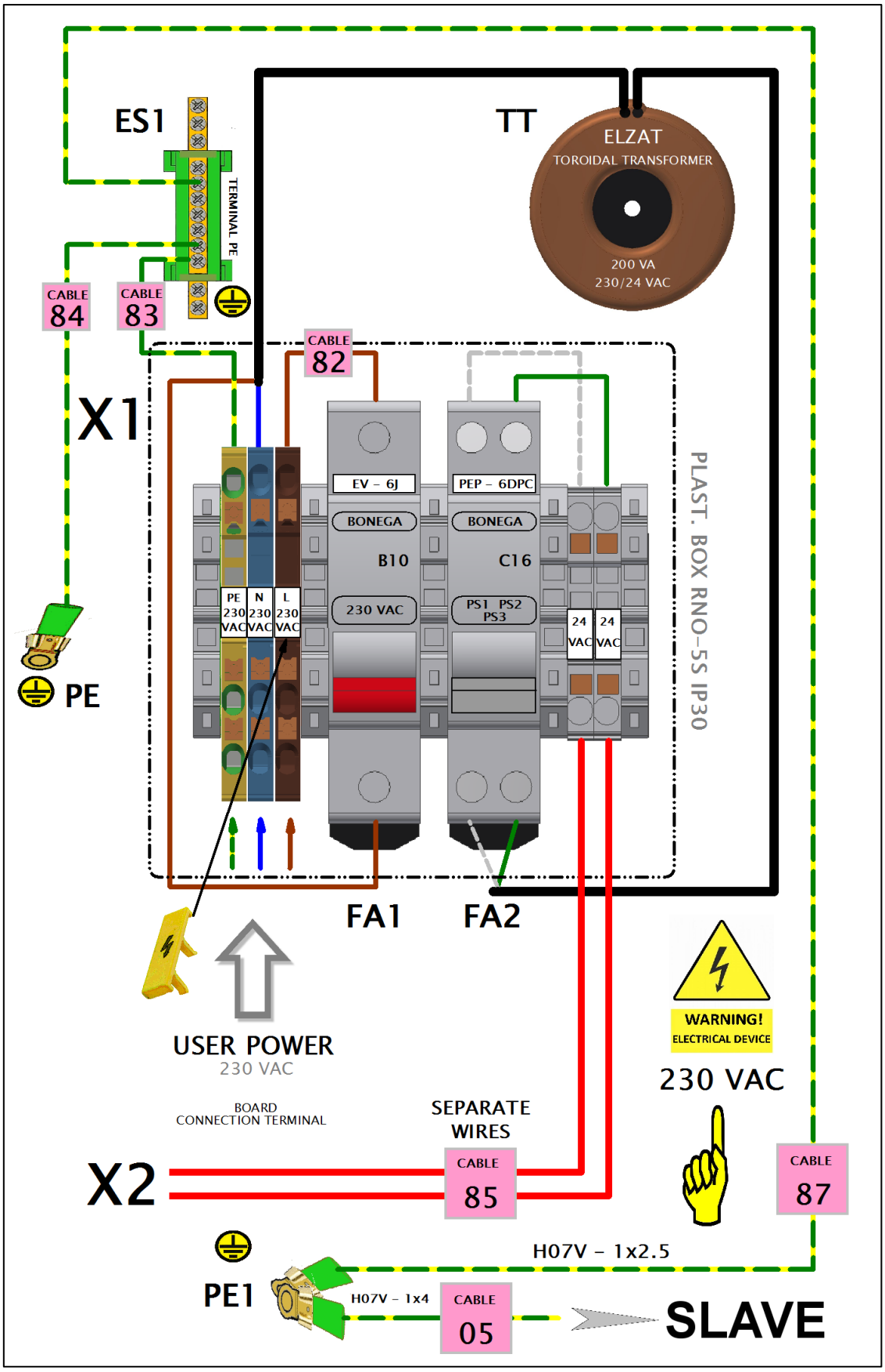
10.2.1. MASTER turnstile



10.2.2. SLAVE turnstile

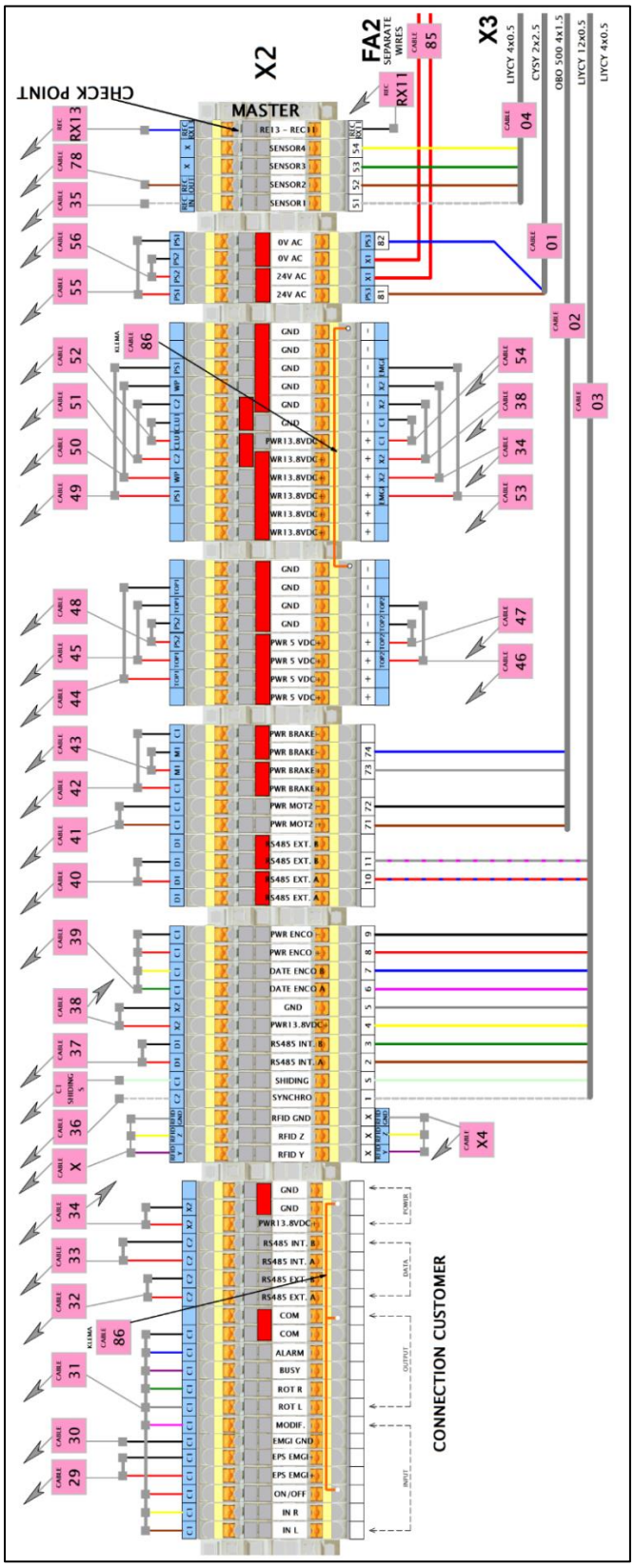


10.3. 230VAC TURNSTILE POWER SUPPLY

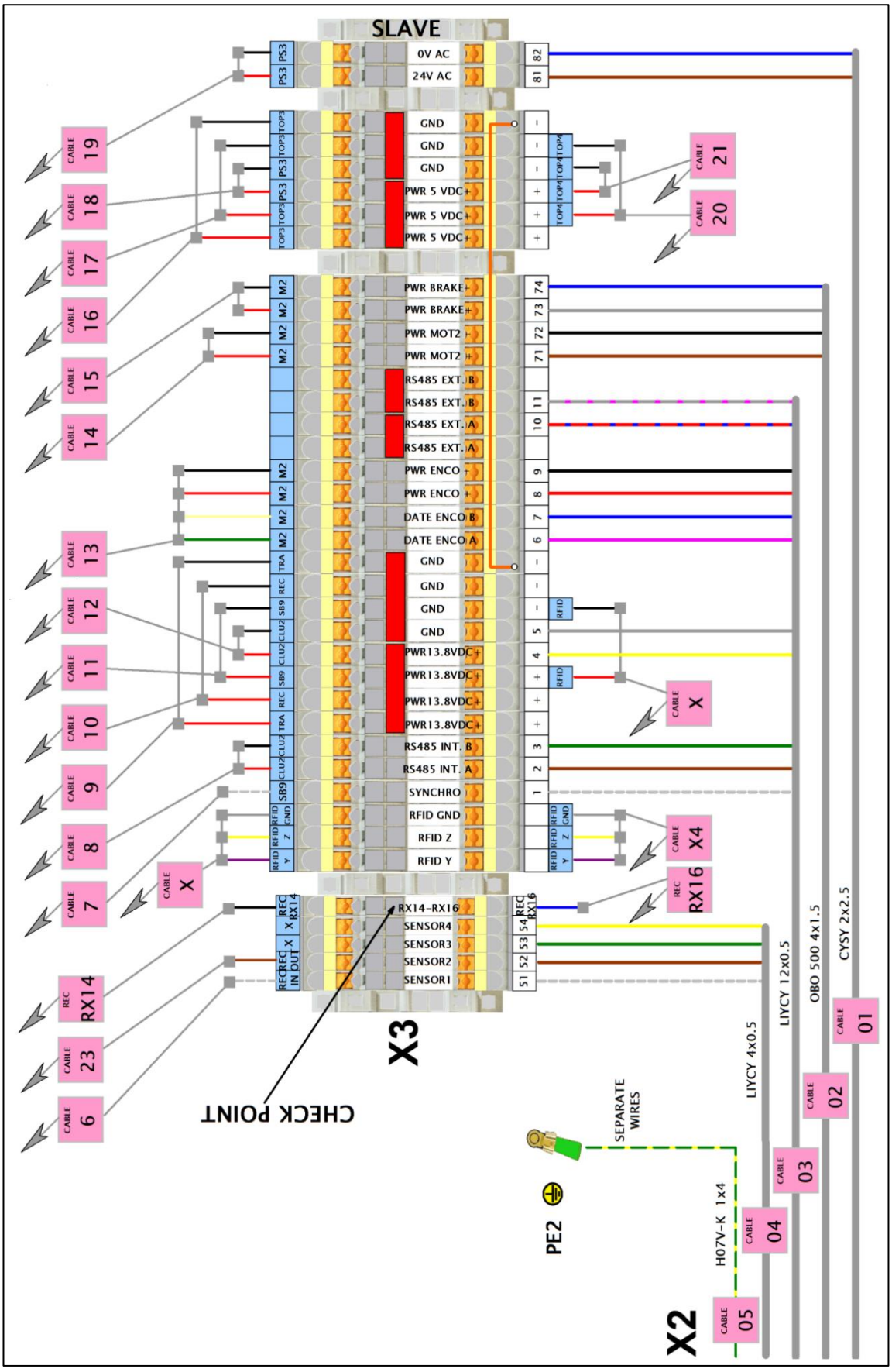


10.4. THE MASTER / SLAVE INTERCONNECTING TERMINAL BLOCK

10.4.1. MASTER terminal block (X2)

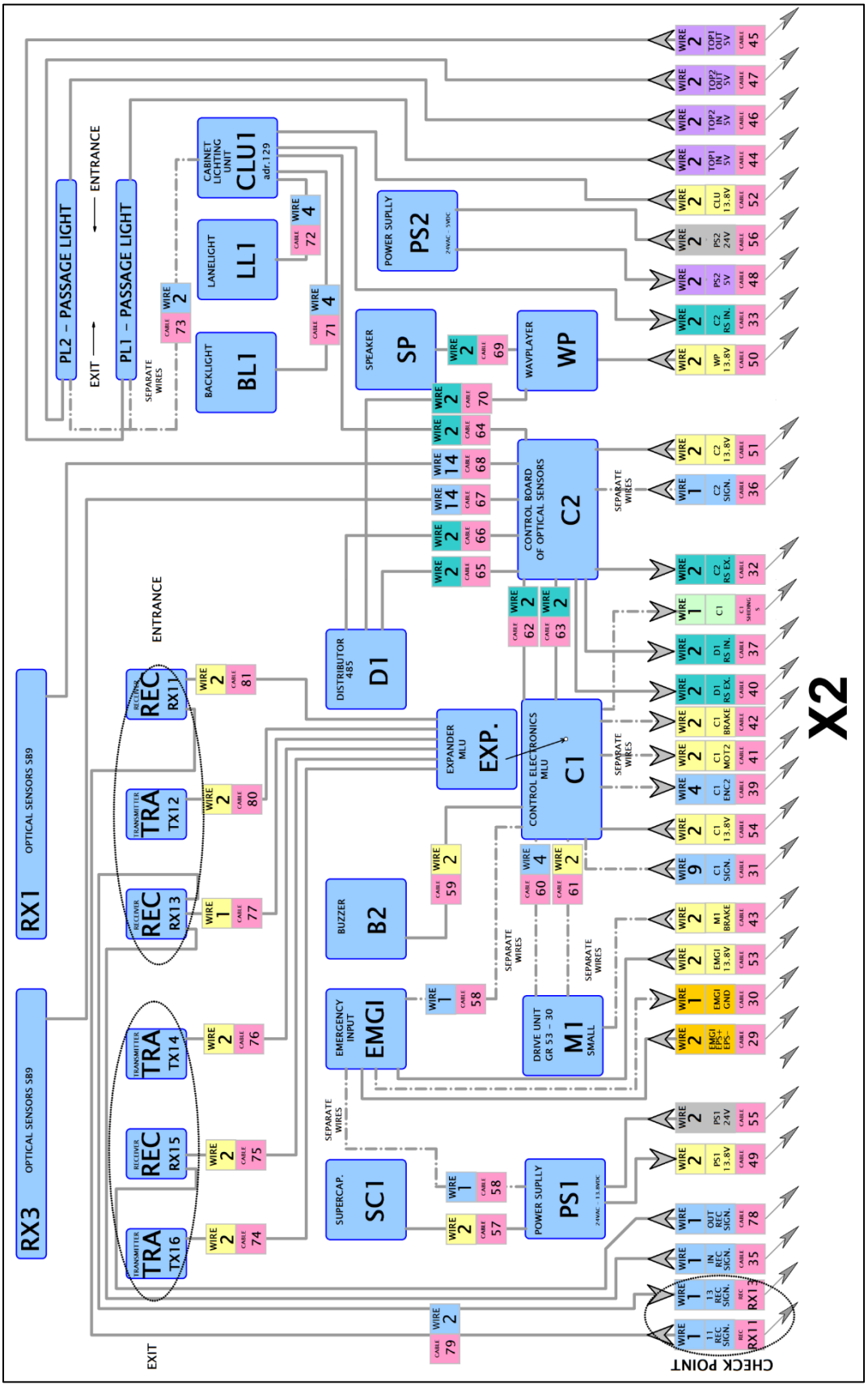


10.4.2. SLAVE terminal block (X3)

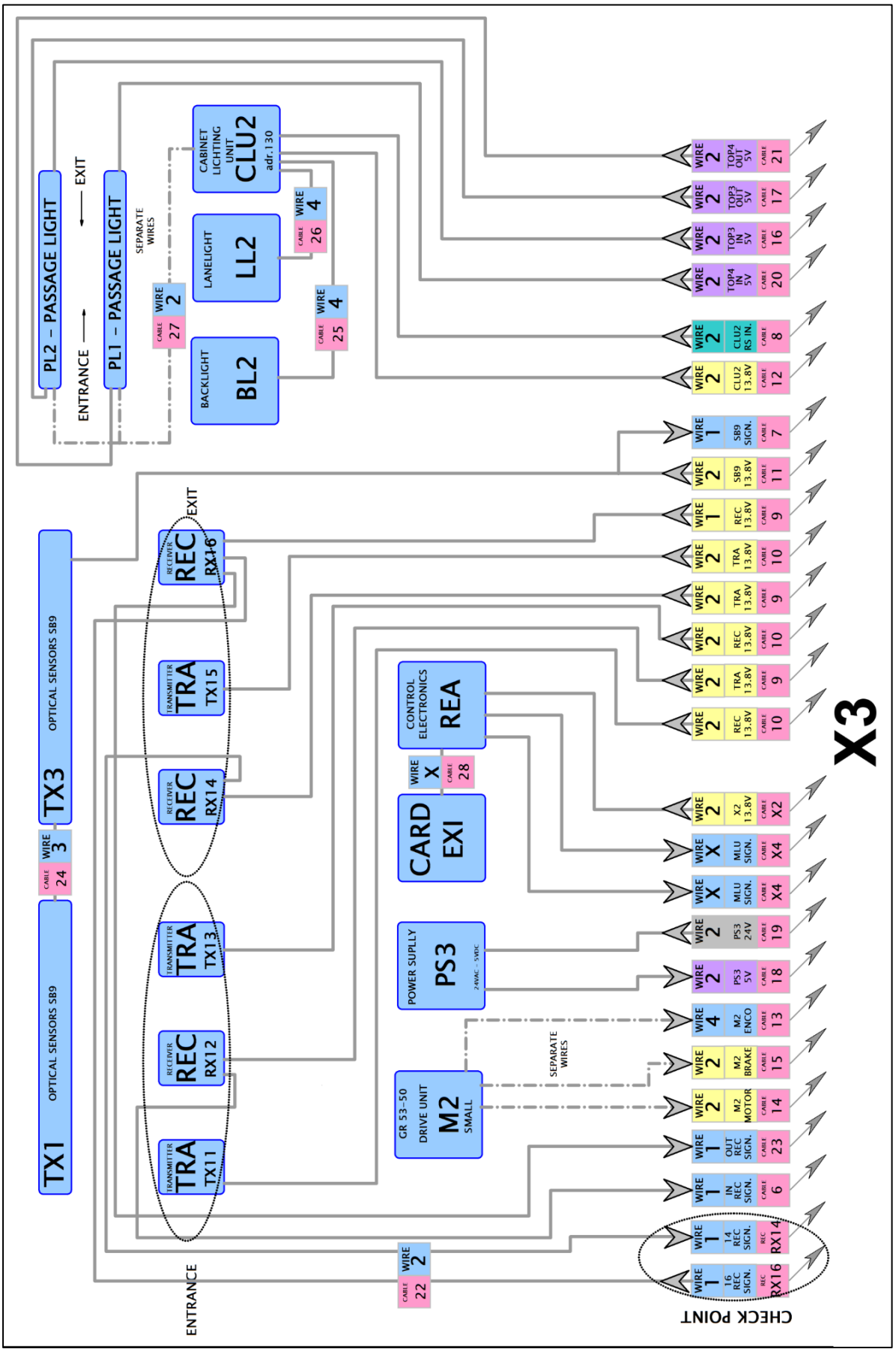


10.5. CABLE DIAGRAM

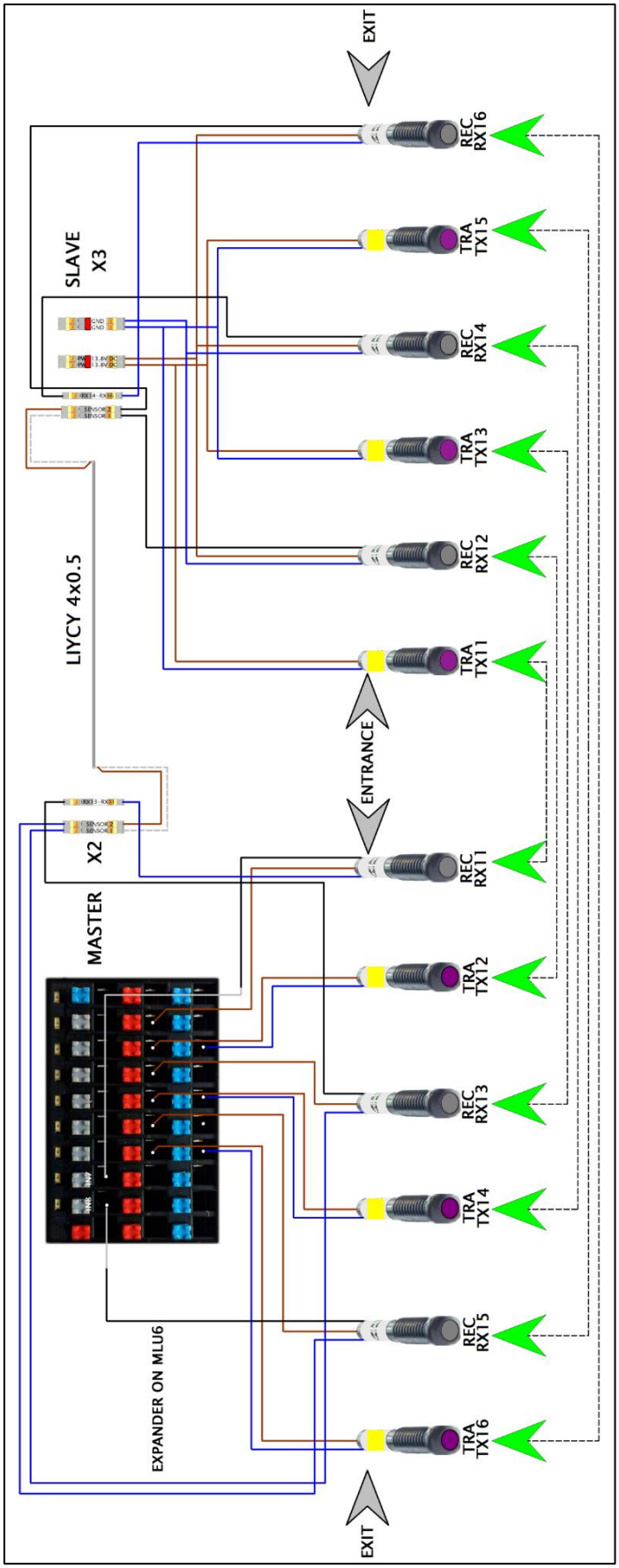
10.5.1. MASTER cable diagram



10.5.2. SLAVE cable diagram



10.6. CONNECTION OF BOTTOM SENSORS



10.7. SPECIFICATIONS AND MARKINGS OF CABLES

10.7.1. MASTER cables specification card

CABLE 01	CYSY 2x2.5	CABLE 45	CYH 2x0.5	CABLE 66	CYH 2x0.35
CABLE 02	OBO 500 4x1.5	CABLE 46	CYH 2x0.5	CABLE 67	28AWG x 14
CABLE 03	LIYCY 12x0.5	CABLE 47	CYH 2x0.5	CABLE 68	28AWG x 14
CABLE 04	LIYCY 4x0.5	CABLE 48	CYH 2x1.5	CABLE 69	CYH 2x0.35
CABLE 05	H07V-K 1x4 PE	CABLE 49	CYH 2x1.5	CABLE 70	CYH 2x0.35
CABLE 29	CYH 2x0.5	CABLE 50	CYH 2x0.5	CABLE 71	LIYY 4x0.25
CABLE 30	LIYV 1x0.5	CABLE 51	CYH 2x0.5	CABLE 72	LIYY 4x0.25
CABLE 31	LIYV 9x1x0.5	CABLE 52	CYH 2x1	CABLE 73	LIYV 1x0.5
CABLE 32	CYH 2x0.35	CABLE 53	CYH 2x0.5	CABLE 74	ORIGINAL WIRES
CABLE 33	CYH 2x0.35	CABLE 54	CYH 2x1.5	CABLE 75	ORIGINAL WIRES
CABLE 34	CYH 2x1	CABLE 55	H07V-K 2x1x2.5	CABLE 76	ORIGINAL WIRES
CABLE 35	ORIGINAL WIRES	CABLE 56	H07V-K 2x1x2.5	CABLE 77	ORIGINAL WIRES
CABLE 36	LIYV 1x0.5	CABLE 57	CYH 2x1	CABLE 78	ORIGINAL WIRES
CABLE 37	CYH 2x0.35	CABLE 58	LIYV 1x0.5	CABLE 79	ORIGINAL WIRES
CABLE 38	CYH 2x1	CABLE 59	LIYV 2x1x0.25	CABLE 80	ORIGINAL WIRES
CABLE 39	LIYV 4x1x0.5	CABLE 60	LIYV 4x1x0.5	CABLE 81	ORIGINAL WIRES
CABLE 40	CYH 2x0.35	CABLE 61	H05V-K 2x1	CABLE 82	H07V-K 1x2.5
CABLE 41	H05V-K 2x1	CABLE 62	CYH 2x0.35	CABLE 83	H07V-K 1x2.5 PE
CABLE 42	LIYV 2x1x0.5	CABLE 63	CYH 2x0.35	CABLE 84	H07V-K 1x2.5 PE
CABLE 43	LIYV 2x1x0.5	CABLE 64	CYH 2x0.35	CABLE 85	H07V-K 2x1x2.5
CABLE 44	CYH 2x0.5	CABLE 65	CYH 2x0.35	CABLE 86	LIYV 1x0.5
				CABLE 87	H07V-K 1x2.5 PE

10.7.2. SLAVE cables specification card

CABLE 01	CYSY 2x2.5	CABLE 15	LIYV – K 2x1x0.5
CABLE 02	OBO 500 4x1.5	CABLE 16	CYH 2x0.5
CABLE 03	LIYCY 12x0.5	CABLE 17	CYH 2x0.5
CABLE 04	LIYCY 4x0.5	CABLE 18	CYH 2x1.5
CABLE 05	CYA 4x1 PE	CABLE 19	H07V-K 2x1x2.5
CABLE 6	ORIGINAL WIRES	CABLE 20	CYH 2x0.5
CABLE 7	LIYY 3x0.5	CABLE 21	CYH 2x0.5
CABLE 8	CYH 2x0.35	CABLE 22	ORIGINAL WIRES
CABLE 9	ORIGINAL WIRES	CABLE 23	ORIGINAL WIRES
CABLE 10	ORIGINAL WIRES	CABLE 24	LIYY 3x0.5
CABLE 11	LIYY 3x0.5	CABLE 25	LIYY 4x0.25
CABLE 12	CYH 2x1	CABLE 26	LIYY 4x0.25
CABLE 13	LIYV 4x1x0.5	CABLE 27	LIYV 1x0.5
CABLE 14	H05V -K 2x1	CABLE 28	W8x0.22+2x0.75

10.7.3. Cable markings

24V AC : X2 – SM12	RS 485: X2 – INT.EXT.
24V AC : X1 – X2	SIGNAL: X2 – COMPONENTS
13.8V DC: X2 – COMPONENTS	EMGI: X2 – EMGI
5V DC: X2 – COMPONENTS	GROUND: MASTER – SLAVE PE

11. TROUBLESHOOTING

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

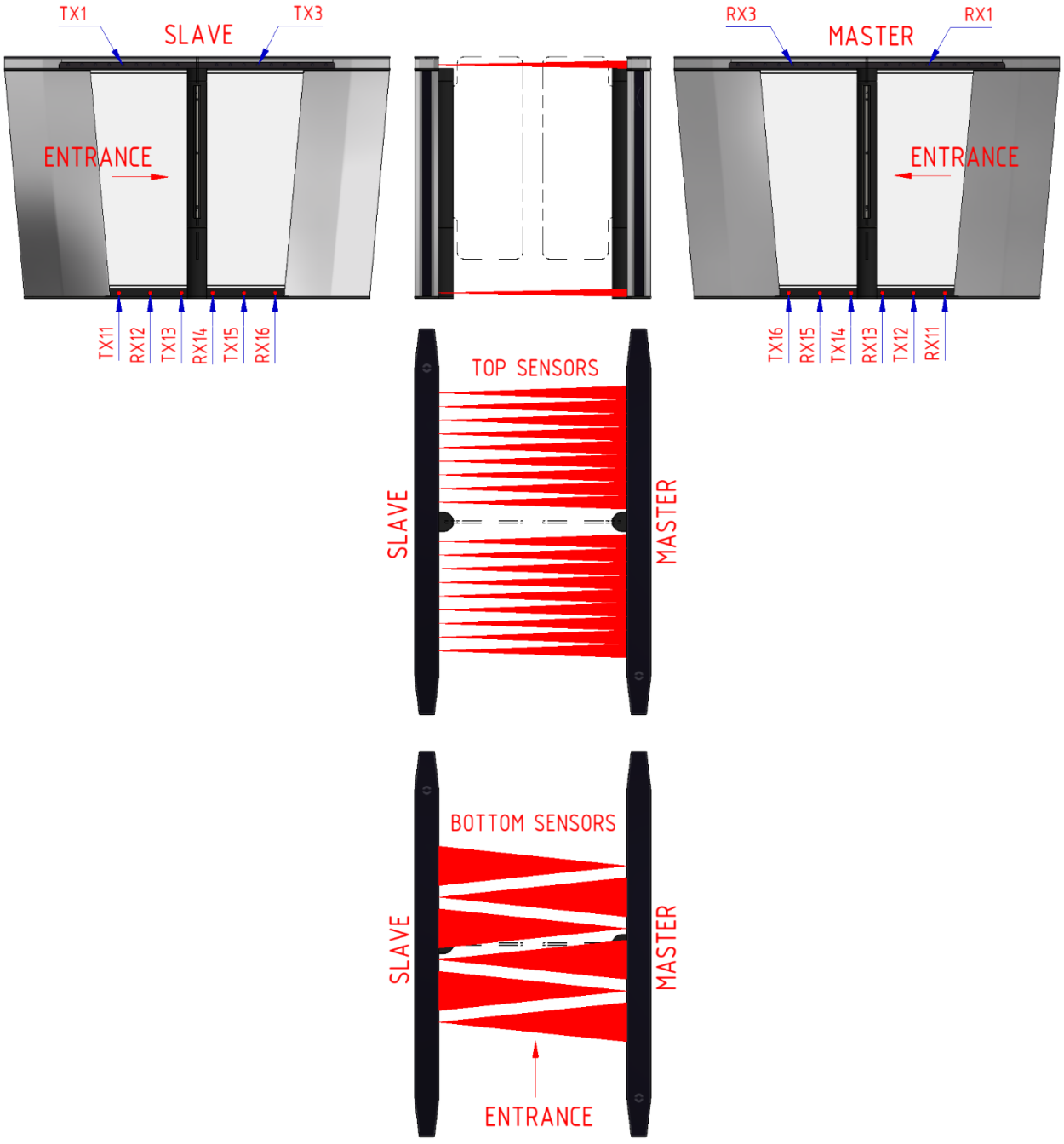
11.1. CHECKING ERROR STATES AFTER TURNING ON THE POWER SUPPLY

- Remove the side cover 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.

11.2. CHECKING THE OPTICAL SENSORS

11.2.1. Layout of the optical sensors



11.2.2. Connecting the optical sensors

The upper sensor bars with 18 optical sensors serves for detection of passage of persons through the turnstile.

The electronics evaluates individual optical sensors (18 signals).

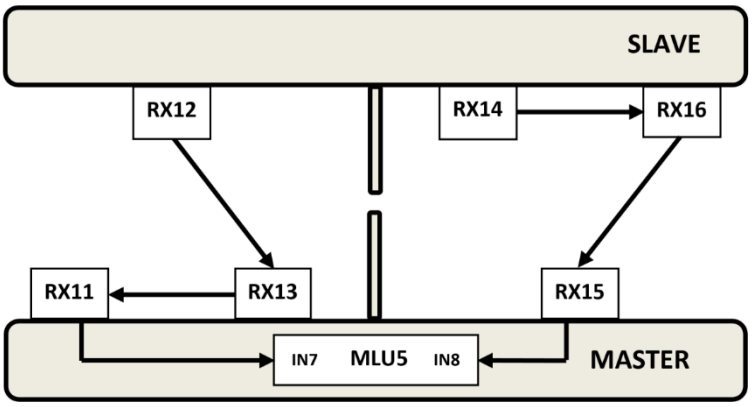
- The transmitter bars **T** are located in the **SLAVE** turnstile and are connected to the power supply to the **X3** terminal block.
- The receiver bars **R** are located in the **MASTER** turnstile and are connected to control electronics of **C2** sensors.
- The MIDDLE turnstile has transmitters on one side, and receivers on the other side.

The bottom separate sensors serve only for protection against impact of closing wings.

The electronics evaluates two trios of sensors connected in series (2 signals).
In order to avoid interference of sensors, the transmitters and receivers are located alternately as per the figure in chapter *Layout of the optical sensors*.

- Transmitting sensors in the **MASTER** turnstile are connected to the power supply to the **expander** of the MLU5 electronics according to connection diagram in chapter *Connection of bottom sensors*.
- Transmitting sensors in the **SLAVE** turnstile are connected to power supply voltage in the **X3** terminal block.
- The serial connection of a trio of receiving sensors is realized in such a way that the output signal of the previous sensor switches the **GND** supply of the next sensor.
- Three receiving sensors of the **entry** zone in the turnstile are connected in series over the **X2 and X3** terminal blocks and the signal of the last one is connected to the MLU5 electronics **expander IN7 input**.
- Three receiving sensors of the **exit** zone in the turnstile are connected in series over the **X2 and X3** terminal blocks and the signal of the last one is connected to the MLU5 electronics **expander IN8 input**.
- Due to the limited number of terminal connections between turnstiles, the receiving sensors are connected as follows:
    - Trio of the entry zone sensors:
        - The first sensor RX12 in the SLAVE turnstile switches the second sensor RX13 in the MASTER turnstile
        - The second sensor RX13 in the MASTER turnstile switches the third sensor RX11 in the MASTER turnstile
        - The third sensor RX11 in the MASTER turnstile switches the IN7 of the MLU5 electronics expander
    - Trio of the exit zone sensors:
        - The first sensor RX14 in the SLAVE turnstile switches the second sensor RX16 in the SLAVE turnstile
        - The second sensor RX16 in the SLAVE turnstile switches the third sensor RX15 in the MASTER turnstile
        - The third sensor RX15 in the MASTER turnstile switches the IN8 of the MLU5 electronics expander

- The superiority of receiving sensors connected in series is illustrated on the following figure



11.2.3. Inspection - upper 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 any of the bars is not connected to the electronics, or is connected incorrectly due to damaged cabling or connector, the respective bar number is displayed on the screen.

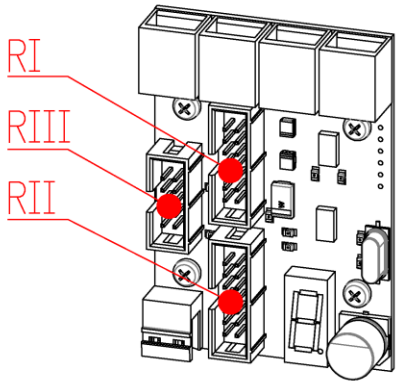
Four sensor bars are usually connected to the electronics. The **EASYGATE SUPERB** turnstile is fitted only with **two** bars.

If both receiver bars are connected correctly, the screen must display only the numbers of the bars that are not connected. The screen must alternately display **2** and **4** and must not display **1** and **2**.

Numeral assignment to individual receiver bars and assignment of connectors to individual bars of receivers can be found in the following table.

Receiver bars markings	Sensor bar	Connector number	Displayed on the screen
RX1	9 sensors	RI	1
RX2	Not fitted	Not connected	2
RX3	9 sensors	RII	3
RX4	Not fitted	Not connected	4

C2 sensors control electronics:



11.2.4. Checking the signalization of the upper sensor bars electronics

- Check if green LEDs are blinking on both transmitting sensor bars **T**, which signal 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 both receiver sensor bars **R**, which signal connection of power supply voltage.

11.2.5. Checking the upper sensor bars using the TCONF application

While checking, the upper lid 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.
- The squares on upper bars must stay white after starting the communication.
- Gradually, one by one, cover each of 18 receiving sensors of the upper 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, TX3)
sensor bar - receivers (RX1, RX3)

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.

11.2.6. Checking the bottom sensors

The sensors must have clean apertures when checking.

- Find out if the malfunction is on the entry or exit zone sensors, according to chapter *Checking the correct function of the optical sensors*.
- The location of sensors does not allow to observe LED signaling of states on the sensors.
- First, look for a malfunction related to the electrical connection of the sensors.
- When looking for the malfunction, it is necessary to measure the power supply voltage and output signals of sensors using a multimeter.
- When measuring, follow the connection diagram.
- **First, measure the voltage on the connection terminal of the sensor.**
- **In case of a malfunction, proceed measuring all connecting terminals towards the source of the power supply voltage or source of the signal.**
- First measure the transmitters supply voltage.
    - In the Master turnstile, the sensors are powered from the MLU5 electronics expander.
    - In the Slave turnstile, the sensors are powered through the X2 and X3 **terminal blocks.**
- When measuring the receivers, always proceed from the first sensor connected in series.
    - Measure the supply voltage of the **first sensor.**
    - Measure the output signal of the **first sensor** and by covering the beam, try its function (it turns off when covered).
    - Measure the supply voltage of the **second sensor** (with the first sensor not covered).
    - Measure the output signal of the **second sensor** and by covering the beam, try its function (it turns off when covered).
    - Measure the supply voltage of the **third sensor** (with the previous sensors not covered).
    - Measure the output signal of the **third sensor** and by covering the beam, try its function (it turns off when covered).

In case of internal malfunction of any of the bottom sensors, the turnstile is not functional.

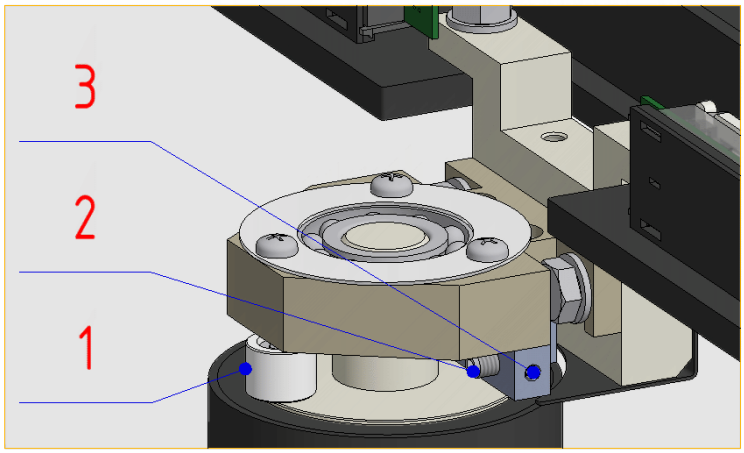
In case of a sensor malfunction, it is not possible to determine by measurement if it is a transmitting or receiving sensor. Faulty sensor can be identified by using replacement sensors.

- **Connect the replacement sensors to the supply voltage.**
- **Using a spare transmitting sensor pointed at the installed receiving sensor, verify the receiving sensor function.**
- **Using a spare receiving sensor pointed at the installed transmitting sensor, verify the receiving sensor function.**

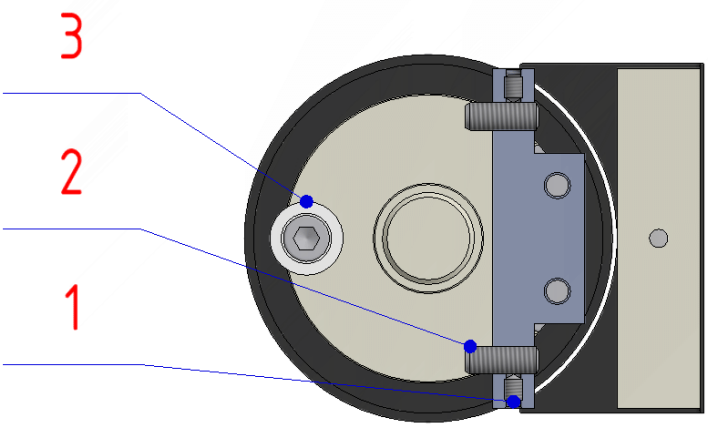
Replacement of bottom sensors is described in detail in the Instructions for preventive maintenance.

11.3. 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 pin
2. Stopper adjusting screw
3. Locking screw



Adjustment procedure:

1. Remove the covers according to the chapter *Description* of access *to the wing stoppers*.
2. First, check if the stopper pin is not loose (pos.1). To tighten it, it is necessary to remove the wing holder according to chapter *Description of access to the motor drive unit*.
3. Loosen both M4x6 bolts (pos.3) before adjusting the stopper.
4. By gently turning both M6x16 bolts (pos.2) adjust end positions of the wings so that when the stopper pin (pos.1) gets to the stop bolts (pos.2), the glass wings are in the same distance from the turnstile cabinet in both end positions. These distances must be identical for both wings of given gate in case a two-wing design is used.
5. After adjusting the stop bolts, tighten both bolts (pos.3) and check both end positions of the wing again.
6. 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.

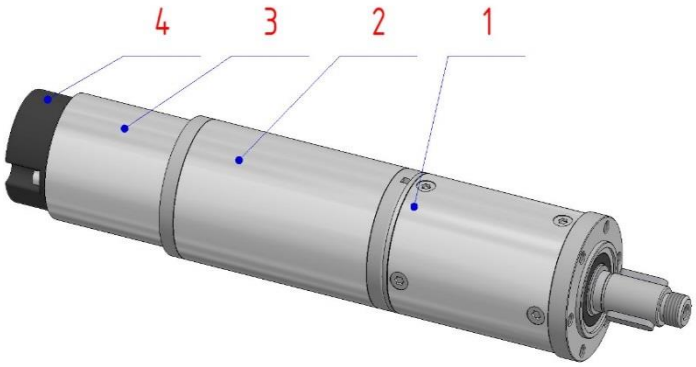
7. In case the turnstile is anchored inaccurately, we must follow the principle that the glass always stops in the middle of the path between both end stoppers. If we change only one end stopper, the wing stops in the home position by half the path of the changed stopper. If we change both stoppers in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

11.4. 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).

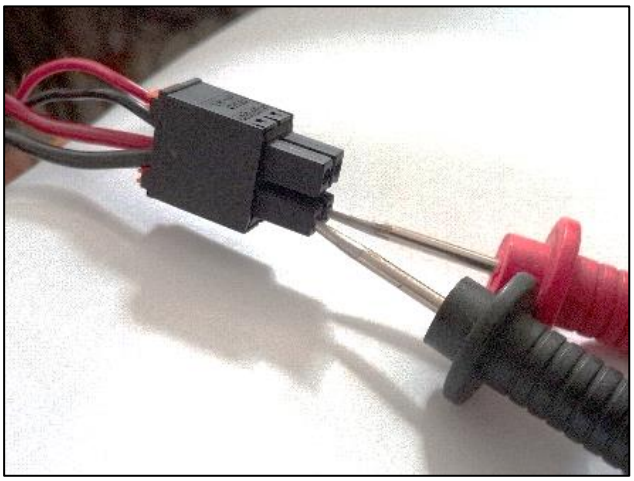
11.4.1. Description of the drive unit



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

11.4.2. 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.

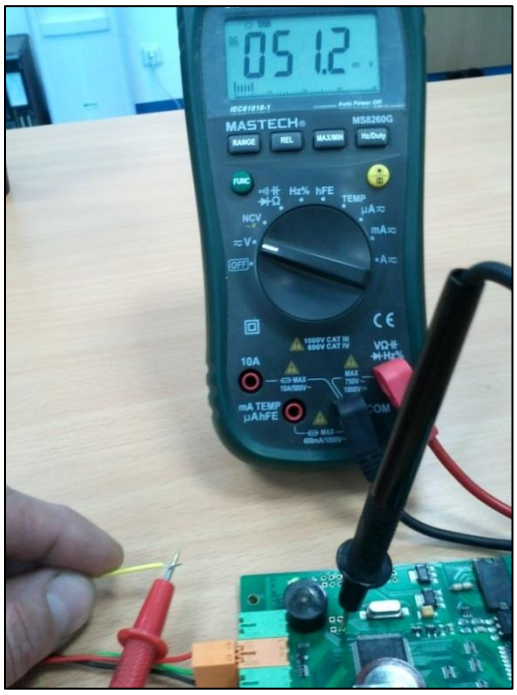
11.4.3. Checking the brakes

- 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.

11.4.4. 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

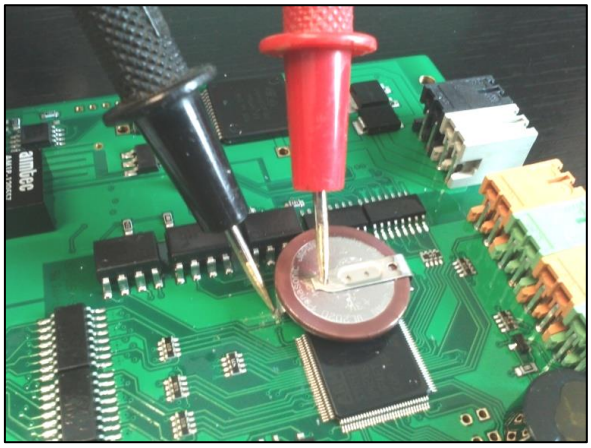
11.5. CHECKING THE BACKUP ACCUMULATOR OF THE ELECTRONICS

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.

11.6. 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.

11.6.1. 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).

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*.

11.6.2. 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.

11.7. 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** uploaded the MLU5V_._ _ firmware	☐
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-SUPERB***

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:	*2.12.2021*

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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