INSTALLATION INSTRUCTIONS FOR TURNSTILE TYPE:

EASYGATE-LC

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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 color design of interconnecting cables is clear. In case of a printed version of these Instructions, the manufacturer strongly recommends to print them in color. Instructions are intended for turnstiles fitted with MLU electronics.

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-LC 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.

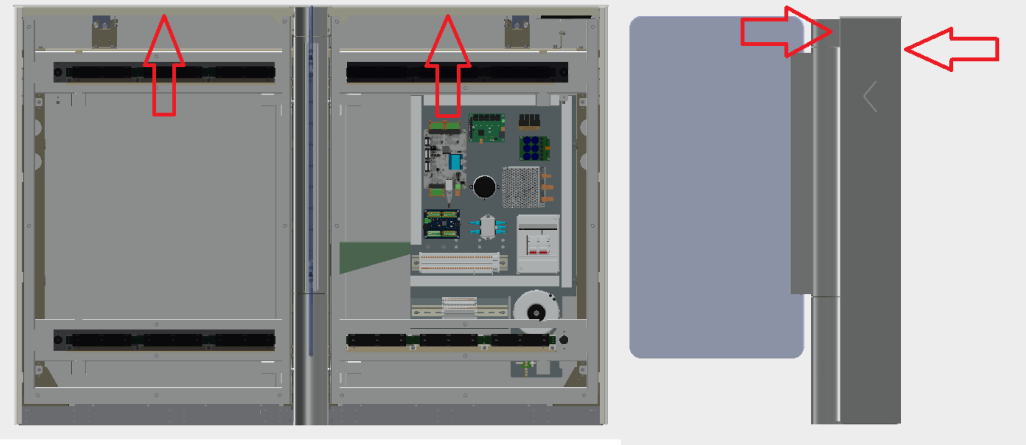
WARNING!
Important information or procedure.

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 when internal cover is opened - see chapter 3.3.1. as per the arrows in the figure:



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

2.1. TURNSTILE WEIGHTS

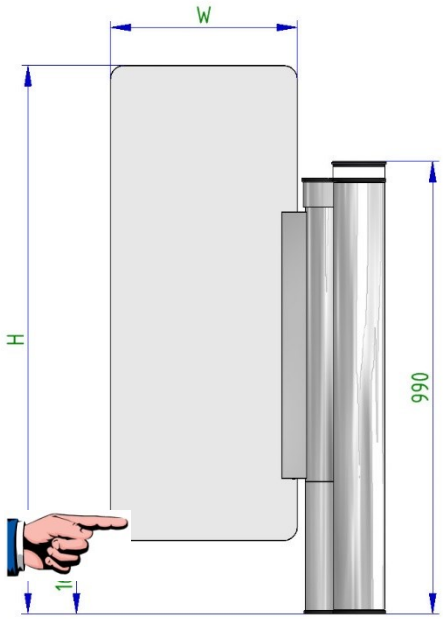
This turnstile is supplied in two versions:

EasyGate-LC: cabinet length of1400 mm

Turnstile	Weight [kg]
EASYGATE-LC-S-0W	**122**
EASYGATE-LC-S-1W	**133**
EASYGATE-LC-M-0W	**135**
EASYGATE-LC-M-1W	**147**
EASYGATE-LC-M-2W	**159**

- 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-LC-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]									
	225	275	325	350	375	400	410	425	450	500
900	4.2	5.1	6.0	6.5	6.9	7.4	7.6	7.8	8.3	9.3
990	4.7	5.7	6.7	7.3	7.7	8.3	8.5	8.8	9.3	10.4
1100	5.3	6.5	7.6	8.2	8.8	9.4	9.6	10.0	10.6	11.8
1200	5.9	7.2	8.5	9.1	9.7	10.4	10.7	11.0	11.7	13.0
1300	6.4	7.8	9.3	10.0	10.7	11.4	11.7	12.1	12.8	14.3
1400	7.0	8.5	10.1	10.9	11.6	12.4	12.7	13.1	14.0	15.5
1500	7.5	9.2	10.9	11.7	12.5	13.4	13.7	14.2	15.1	✗
1600	8.1	9.9	11.7	12.6	13.5	14.4	14.8	15.3	16.2	✗
1700	8.7	10.6	12.5	13.5	14.4	15.4	15.8	16.3	17.3	✗
1800	9.2	11.3	13.3	14.4	15.3	16.4	16.8	17.4	18.5	✗

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.

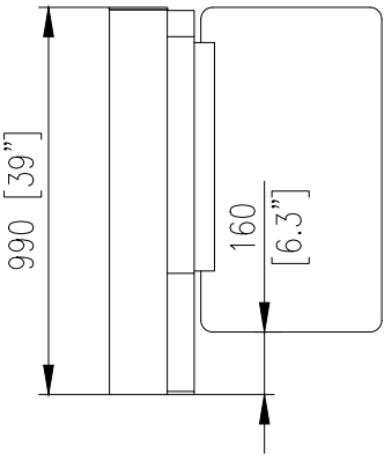
3.1. DIMENSIONS FOR ANCHORING

CAPTIONS FOR THE FIGURES AND THE TABLE:

1. Contour of the turnstile (dashed lines)
2. Holes for cables (cross-hatched)
3. Holes for M8 anchoring bolts (4x for one turnstile)

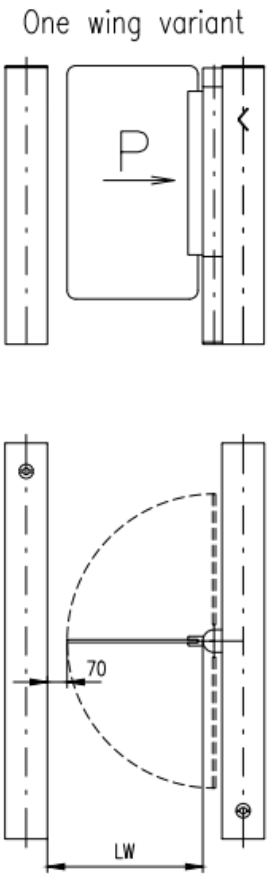
A1 Axial pitch of the turnstiles (one-wing version)
A2 Axial pitch of the turnstiles (two-wing version)
B1 Total dimension of two turnstiles forming one passage gate (one-wing version)
B2 Total dimension of two turnstiles forming one passage gate (two-wing version)
C1 Inner distance of the turnstiles (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	950	1000	1100
A1	One-wing version	768	818	✗	✗	✗	✗	✗	✗	✗	✗	✗
A2	Two-wing version	836	✗	936	1036	1086	✗	1186	1206	✗	1286	1386
W	One-wing version	450	500	✗	✗	✗	✗	✗	✗	✗	✗	✗
	Two-wing version	225	✗	275	325	350	375	400	410	425	450	500

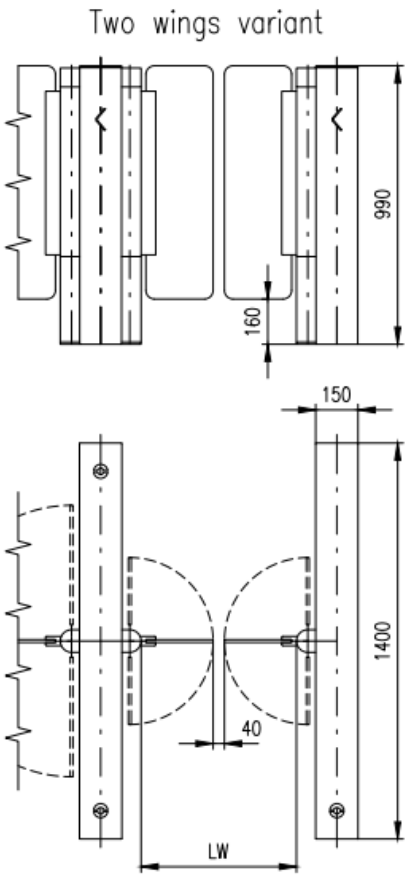


The width of glass wings is designed separately for each gate width so the edge of the glass wing in the open position does not interfere with the beam of any sensor. The glass must be clear without any labelling or other surface treatment in the area where the sensors are placed. Provided dimensions are just average dimensions of wings used on Cominfo turnstiles.

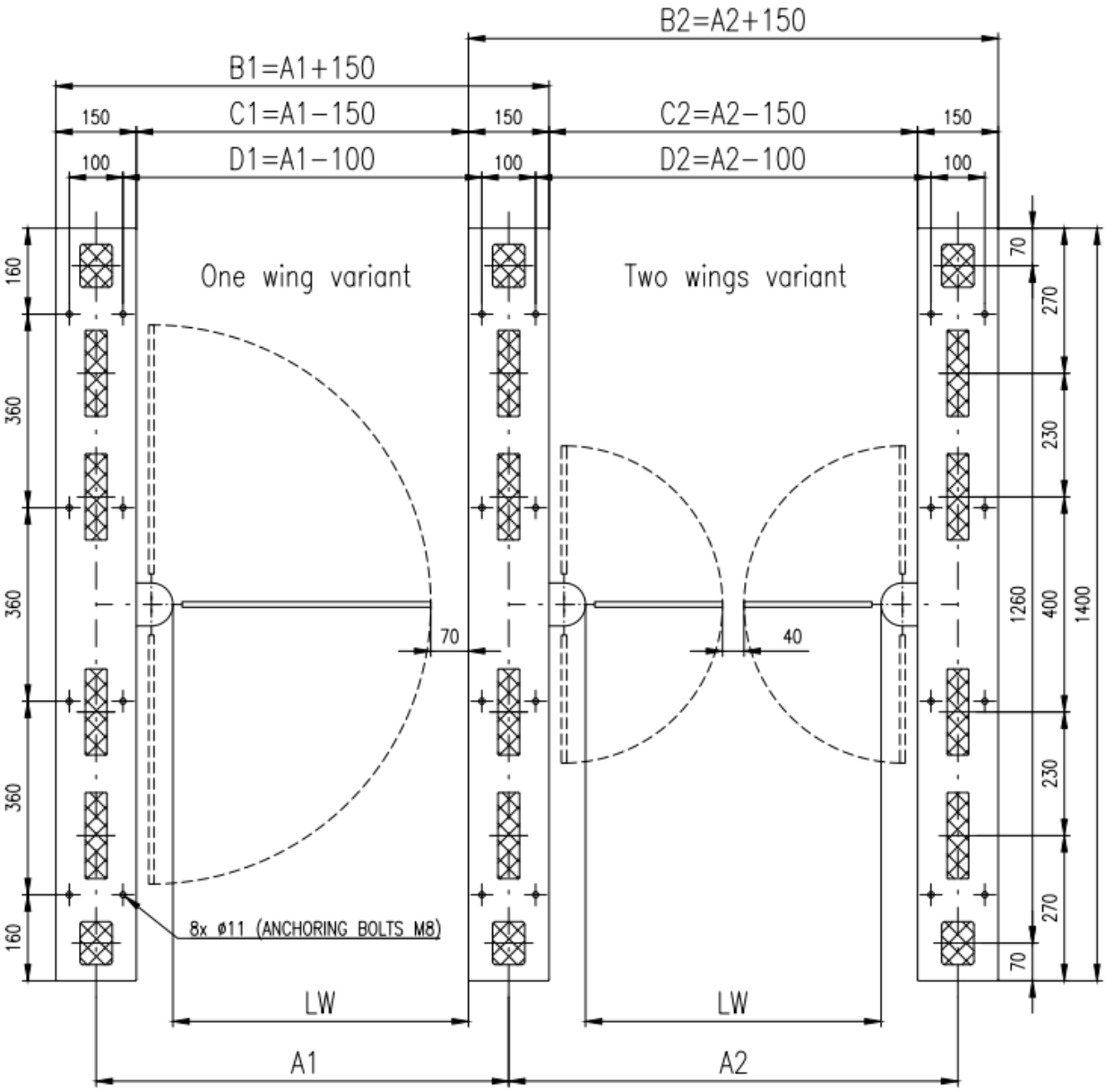
ONE-WING VERSION:



TWO-WING VERSION:



EasyGate-LC (1400mm)



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:

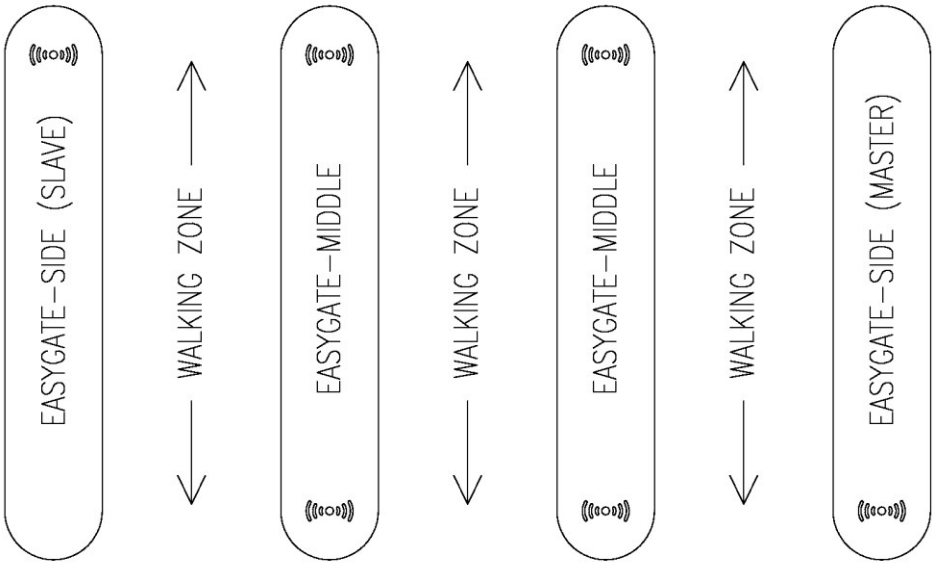
EASYGATE SIDE MASTER:

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

EASYGATE SIDE SLAVE:

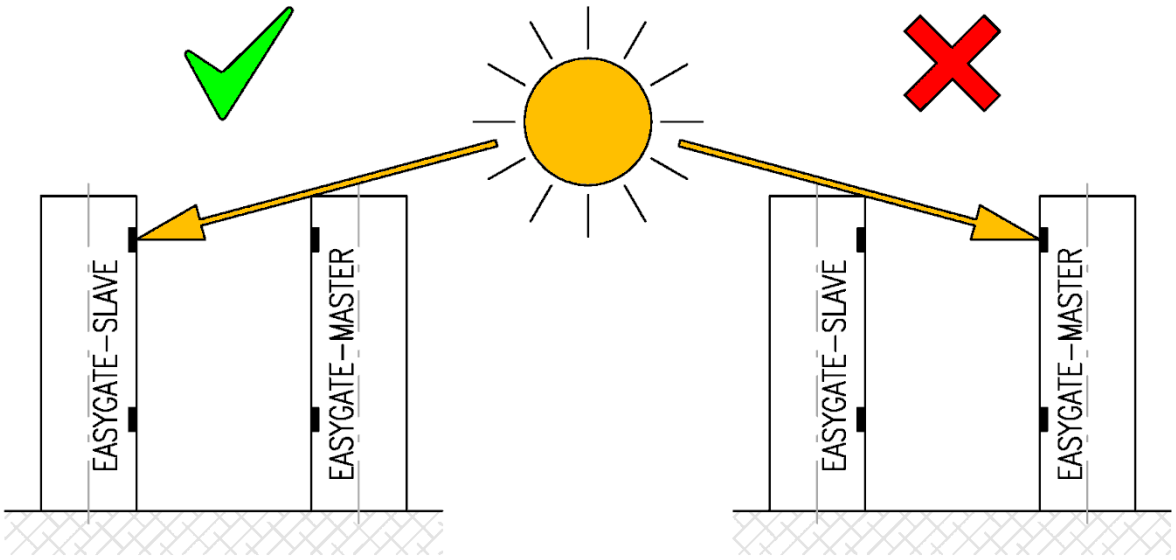
The turnstile has only a motor unit built-in, it is equipped with transmitters of optical sensors and is only able to operate in connection with the EASYGATE SIDE MASTER or EASYGATE MIDDLE turnstile.

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

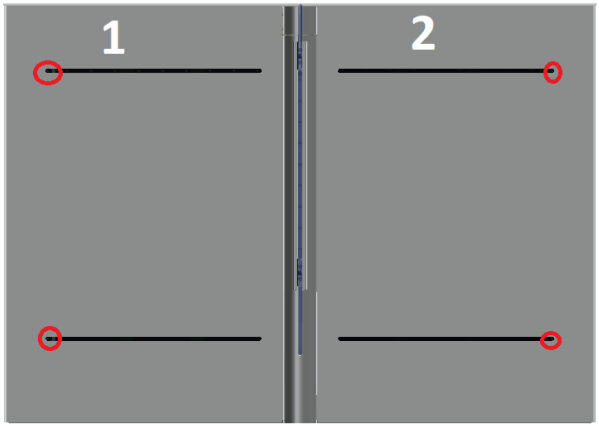
Access the anchoring holes after disassembling two front covers of the turnstile.

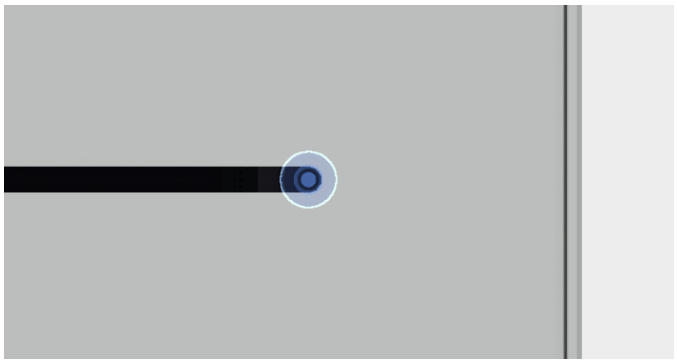
BEFORE REMOVING THE FRONT COVER, IT IS NECESSARY TO DISCONNECT THE TURNSTILE FROM POWER SUPPLY

3.3.1. Removing the side covers

Procedure for removing the cover:

- EasyGate LC turnstile is equipped with hidden locks (2 per panel one on top and one on bottom) which are located in polycarbonate sensor covers.
- Master and slave cabinet have hidden locks only on panels with sensors. Outer panels is not necessary to dismantle. Contact Cominfo team in case of need to dismantle outer panels eg. due to wall accessibility. The middle cabinet has locks from both sided.
- To unlock the hidden keylock is needed hex-key – size 6
- When both keys are loosened carefully pull out the cover from the turnstile and slide it of in the direction from the motor unit (left or right) to prevent damaging the surface finish on the panel.
- Put the dismounted cover on a predetermined place.

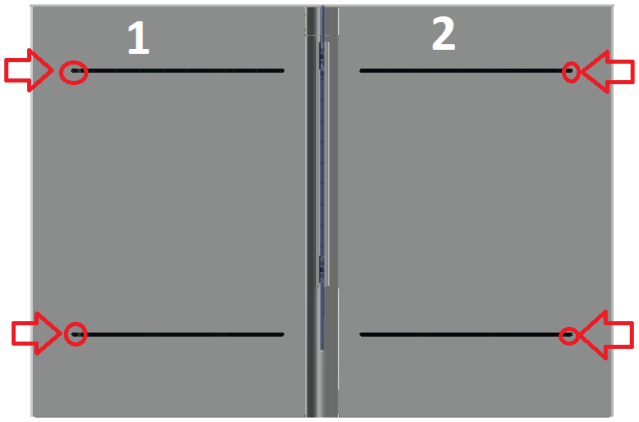




Procedure for putting the cover back on:

- Carefully slide the cover back to the turnstile. Again, pay attention not to damage the surface finish on the frame of the turnstile.
- Set the cover so that all pins are located against the openings.
- Check that the front cover fits completely in its place.

- Tighten the hidden locks by hex key

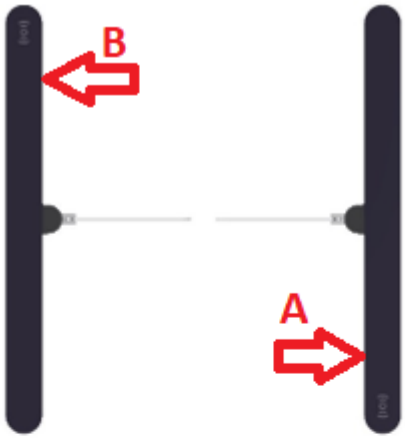


3.4. DESCRIPTION OF ACCESS TO THE CONTROL ELECTRONICS AND TERMINAL BLOCKS

To access the control electronics, terminal blocks and power supply of the respective gate, remove the side covers on master cabinet as you can see on chapter 3.3.1. 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:

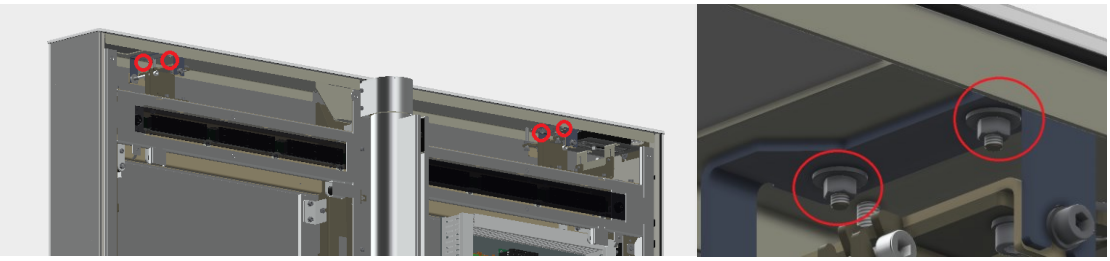
In this case, the control electronics is usually placed on the entrance side of the passage gate of the right turnstile. Location of the control electronics depends on mutual combination of two-wing and one-wing versions in one set, depending on optimal cable interconnection of the turnstiles. Correct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

One-wing version:

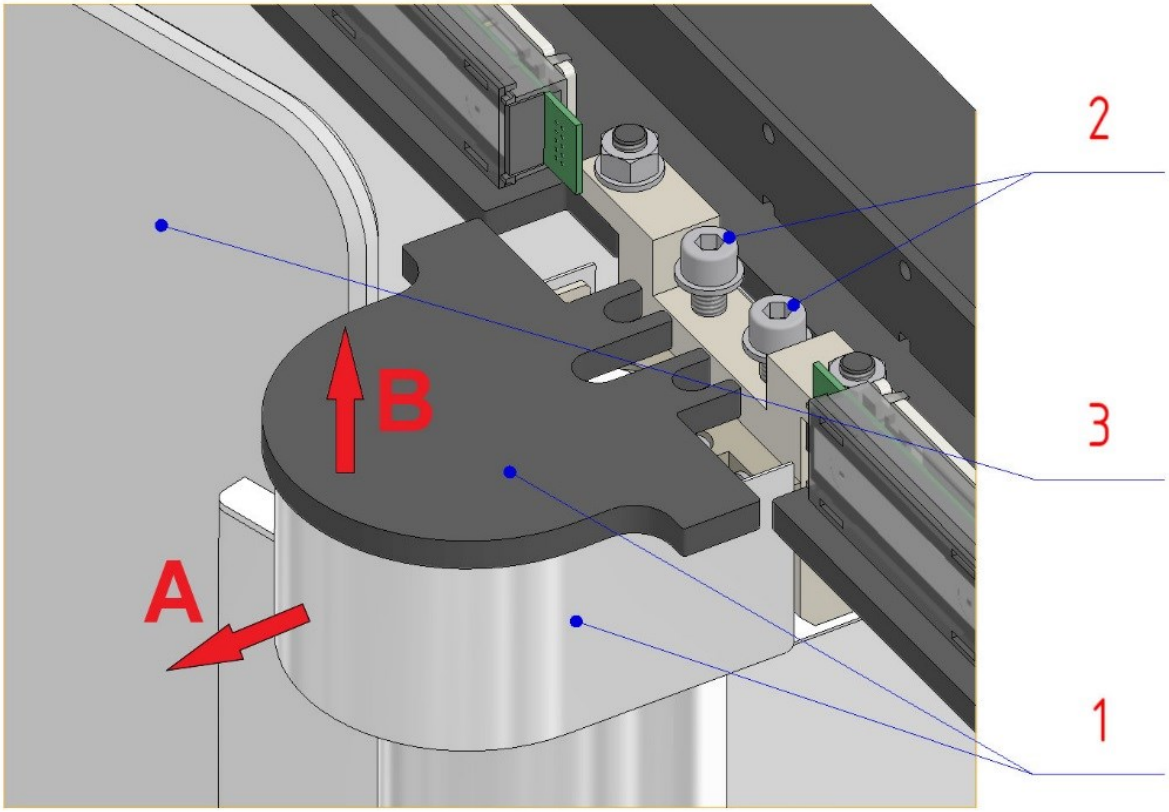
In this case, the control electronics is always placed in the turnstile, in which the drive unit for the given passage gate is located.

3.5. DESCRIPTION OF ACCESS TO THE WING STOPPERS

1. Remove the side covers according to chapter 3.3.1.
2. Remove the upper lid
    a. Remove 4 nuts M5 and pull the lid up

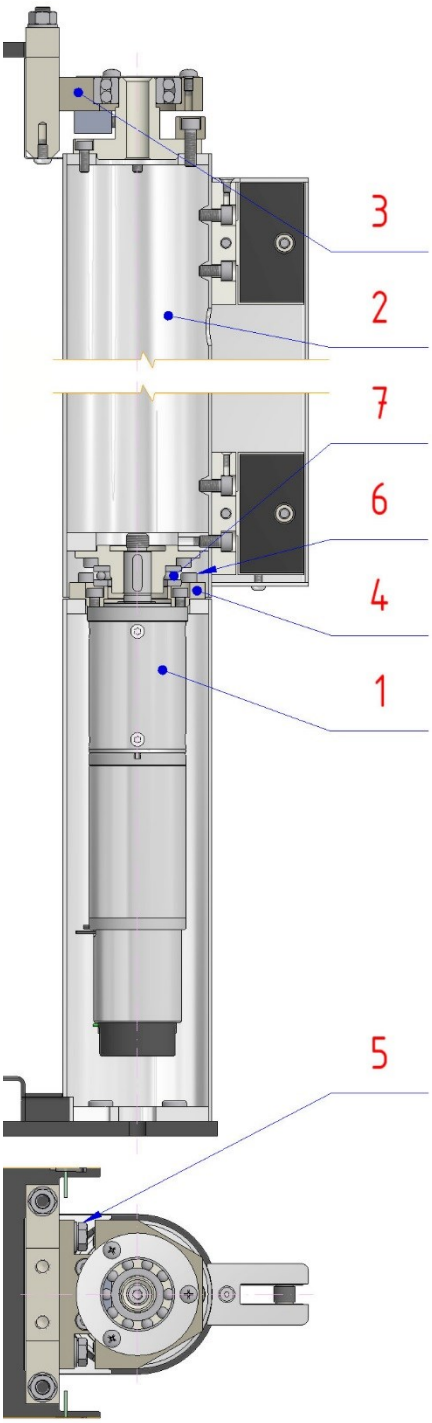


3. Disconnect the turnstile from the power supply and turn the glass wing (pos. 3) by approximately 75° from the home position.
4. Loosen the two M8x20 bolts (pos. 2).
5. Slide the complete cover of the stoppers (pos.1) by approximately 25mm in the direction of arrow **A** first, then in the direction of arrow **B**.



3.6. 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*.

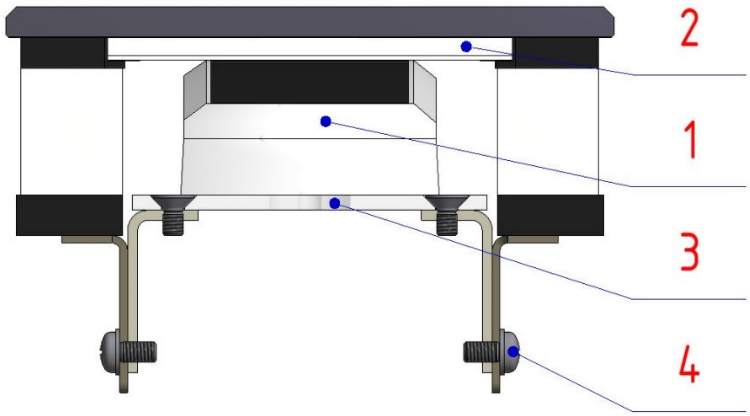


1. Remove the cover of the stoppers according to chapter *Description of Access to the Wing Stoppers*.
2. Loosen two M8x20 bolts (pos.5) and slide out the upper wing holder (pos.3) with its bearing upwards by approximately 20mm. If Wing Light is installed in the turnstile, it is necessary to disconnect the supply cable to the LED strip on the wing. 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).

3.7. INSTALLATION OF THE RFID READER

3.7.1. Description of RFID reader installation



1. Remove the side cover according to chapter *3.3.1.*.
2. Loosen the four M4x8 bolts (pos.4) and slide out the RFID reader 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 reader (pos.1) to the plate (pos.3). If the dimensions of the sensor allow, place it on the plate in a way so that the reader axis is in the axis of the Access Light pictogram.
5. Put the plate (pos.3) with the RFID reader back in the turnstile. Using M4x8 bolts (pos.4), adjust the vertical position so that the reader touches the Access Light plate (pos.2) or the upper lid directly.
6. Install the front cover back.

3.8. DESCRIPTION OF THE INSTALLATION

3.8.1. Necessary tools for installation

All fastening materials used in the turnstile are metric.

- Turnstile Tester
- NOTEBOOK with current version of the TCOMSERVER (manual TComServer_instructions_for_use)
- Ethernet 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

3.8.2. 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

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

- **MLU10 control electronics - see manual:** *MLU10 Basic Principle of connection*

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

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

- **Access Light – see manual:** *Access Light*

- **Edge Light – see manual:** *Edge Light*

- **CLU – see manual:** *CLU*

- **TCONF** (Configuration SW for setting the parameters and diagnostics of the turnstile)
  – see manual: TCOMSERVER instruction for use

- **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 (MLU5 Only)*

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

3.8.4. General description of the installation

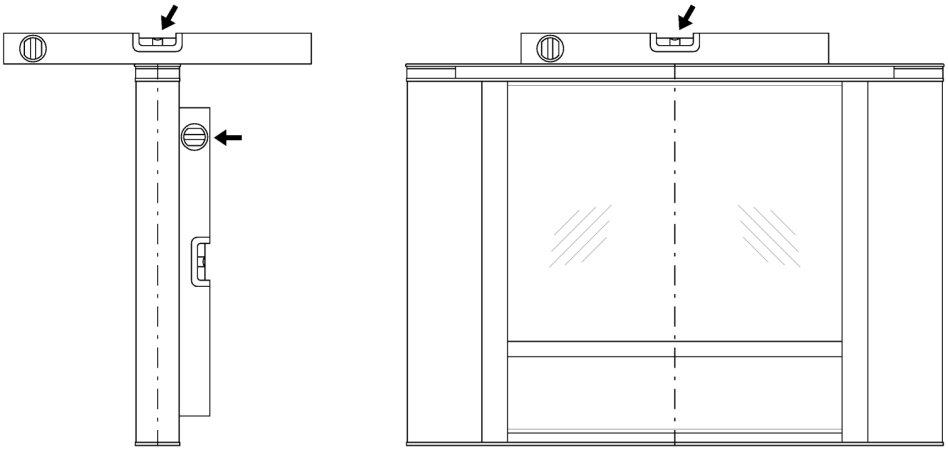
The area of installation must be free from clutter and perfectly even before you start installing. Base for anchoring has to be solid enough so that stability of the turnstile is ensured. In case of large unevenness of the ground, use special bolsters. These bolsters are made with regard to the actual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

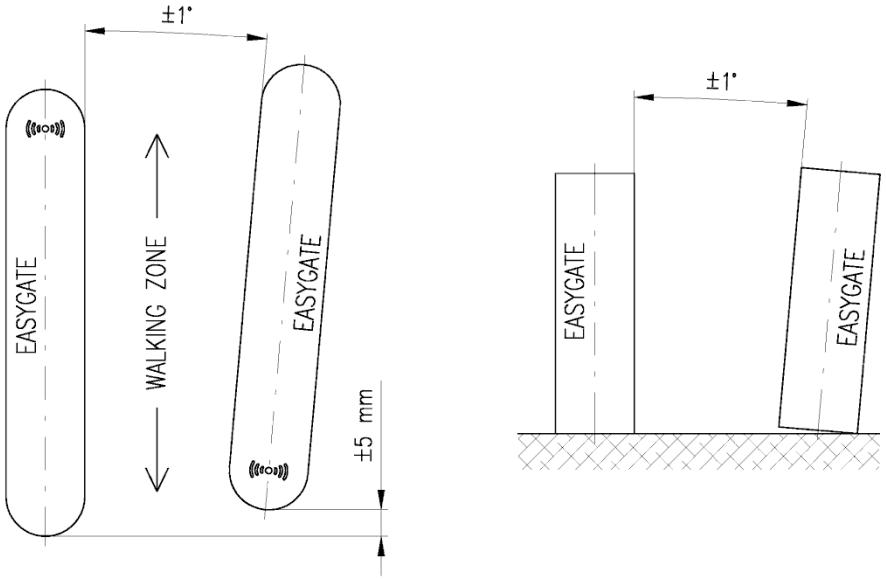
Description of the installation:

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*.

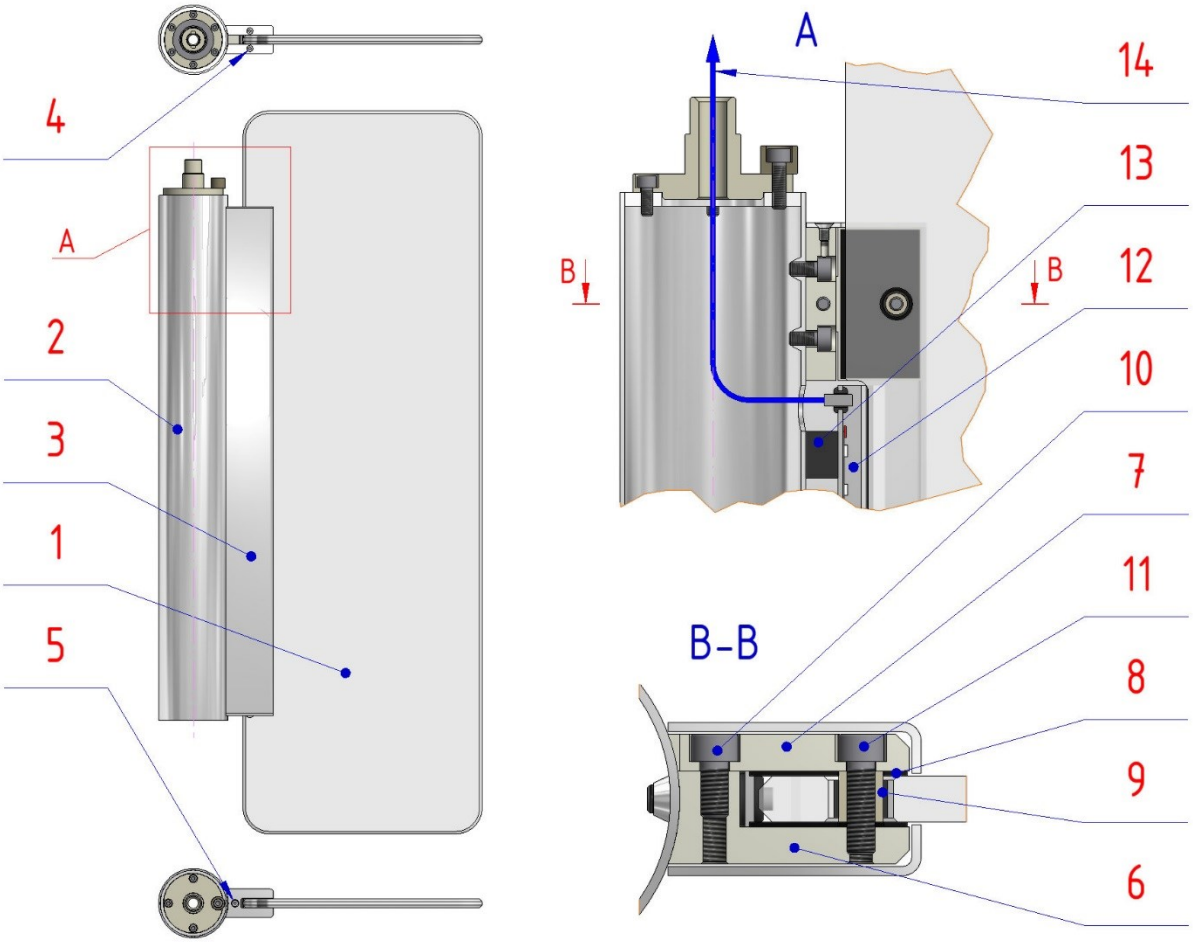
11. Install all the removed covers.

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

3.8.5. Attaching the wings

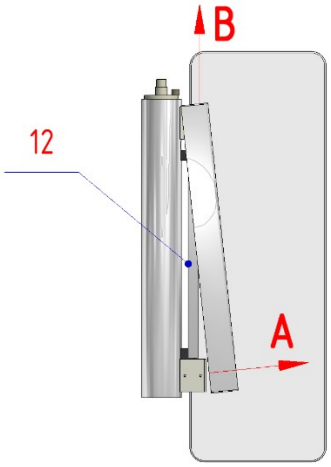
At least two persons should cooperate when mounting the glass wing.

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



1. Unscrew the two M4x12 bolts (pos.4) and the M4x8 bolt (pos.5).

2. Remove the glass holders cover (pos.3). First tilt the cover (arrow **A**) and then slide it upwards (arrow **B**). Carefully lay the cover aside to avoid damaging it.



3. Remove all the M6x12 (pos.10) and M6x20 bolts (pos.11) from the side of loose parts of glass holders (pos.7). Remove the loose parts of the glass holders (pos.7) and glass inserts (pos.9).

4. Check if rubber (pos.8) that serves for contact with the glass, is glued to all holders (pos.6 and 7).

5. Insert M6x20 bolts (pos.11) in both dismantled holders (pos.7) and slide the glass inserts (pos. 9) which must have rubber tubes on them out of the factory, on the bolts.

6. If Wing Light is included, place the LED strip (pos.12) on the glass wing (pos.1). Check if two rubber cubes (pos.13) which serve for stabilization of the strip position against the glass, are glued to the strip.

7. While one person slightly lifts the glass (pos.1) and sets it in position, the other person lightly screws the top loose part of the holder using the M6x20 bolt (pos.11) and then the bottom one.

8. Lightly screw the holders (pos.7) using the M6x12 bolts (pos.10).

9. While one person slightly lifts the glass and sets it in position, the other person tightens all the bolts (pos.10 and 11).

10. Place the holders cover (pos.3). First, screw the upper M4x8 bolt (pos.5) and then the two bottom M4x12 bolts (pos.4).

Cables (poz.14) for Wing Light lead through the opening in the upper part.

4. ELECTRICAL CONNECTION OF THE TURNSTILE

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

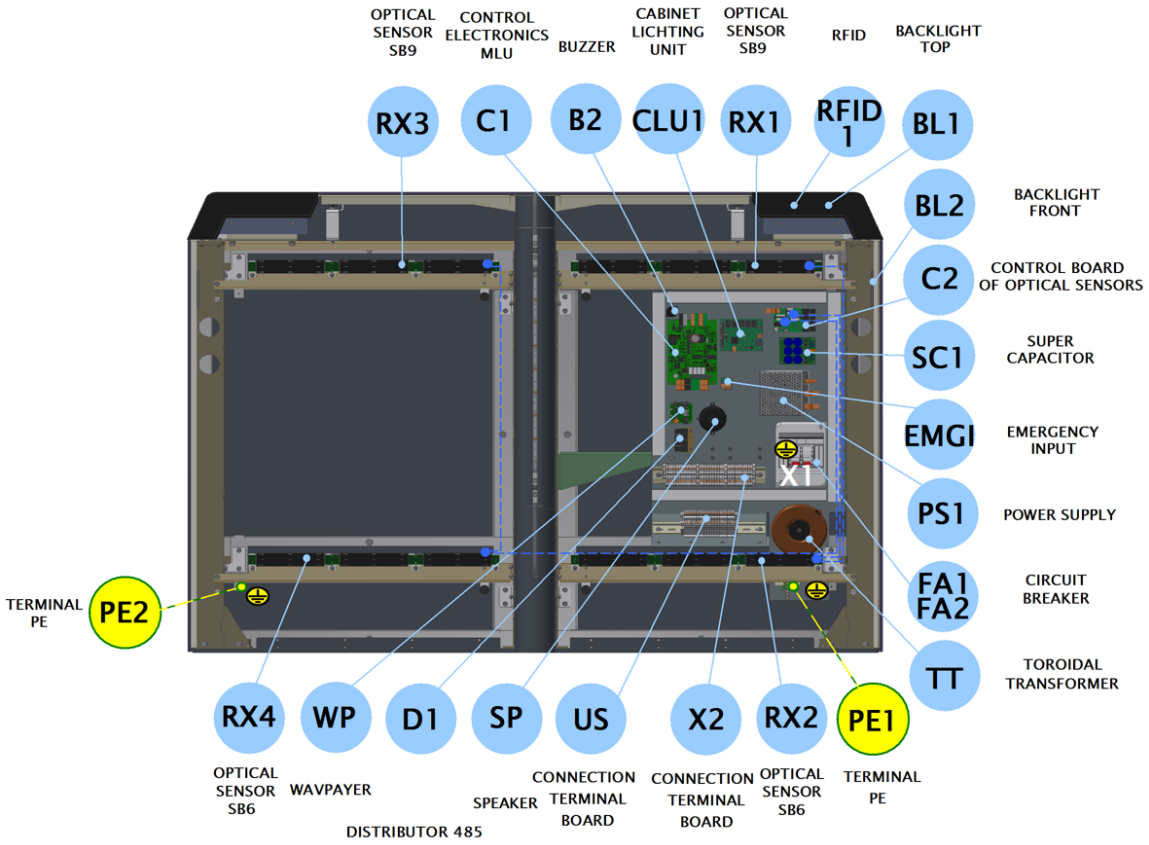
4.1. LAYOUT OF ELECTRONIC DEVICES AND INTERCONNECTING ELEMENTS

Standard accessories:

C1 - Control electronics MLU5 or MLU10
C2 - Control electronics of sensors (SBCB) with integrated RS485 distributor – *ONLY MLU 5 Version*
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) – *ONLY MLU 5 Version*
TT - 230V/24V – 200VA toroidal transformer TT
X1 - Main power terminal block
X2 - MASTER turnstile terminal block
X3 - SLAVE turnstile terminal block
FA1 - 230VAC circuit breaker
FA2 - 24VAC circuit breaker
PS1 - SM12 (24VAC/13.8VDC) power supply

Optional accessories:

SC1 - Supercapacitors for PS1
WP - WAV Player Module
SP - Speaker for a WAV Player *(wav player board is only on MLU5 version)*


OPTICAL SENSOR SB9
CONTROL ELECTRONICS MLU
BUZZER
CABINET LICHTING UNIT
OPTICAL SENSOR SB9
RFID
BACKLIGHT TOP
RX3
C1
B2
CLU1
RX1
RFID 1
BL1
BL2
BACKLIGHT FRONT
C2
CONTROL BOARD OF OPTICAL SENSORS
SC1
SUPER CAPACITOR
EMGI
EMERGENCY INPUT
X1
PS1
POWER SUPPLY
FA1
FA2
CIRCUIT BREAKER
TT
TOROIDAL TRANSFORMER
TERMINAL PE
PE2
RX4
WP
D1
SP
US
X2
RX2
PE1
OPTICAL SENSOR SB6
WAVPAYER
DISTRIBUTOR 485
SPEAKER
CONNECTION TERMINAL BOARD
CONNECTION TERMINAL BOARD
OPTICAL SENSOR SB6
TERMINAL PE


OPTICAL SENSOR SB9
OPTICAL SENSOR SB9
RFID
BACKLIGHT TOP
TX1
TX3
RFID 2
BL3
BL4
BACKLIGHT FRONT
X3
CONNECTION TERMINAL BOARD
CLU2
CABINET LICHTING UNIT
PE2
TERMINAL PE
PLACE CPU (OPTICAL SENSORS)
PE2
TX2
TX4
OPTICAL SENSOR SB6
OPTICAL SENSOR SB6

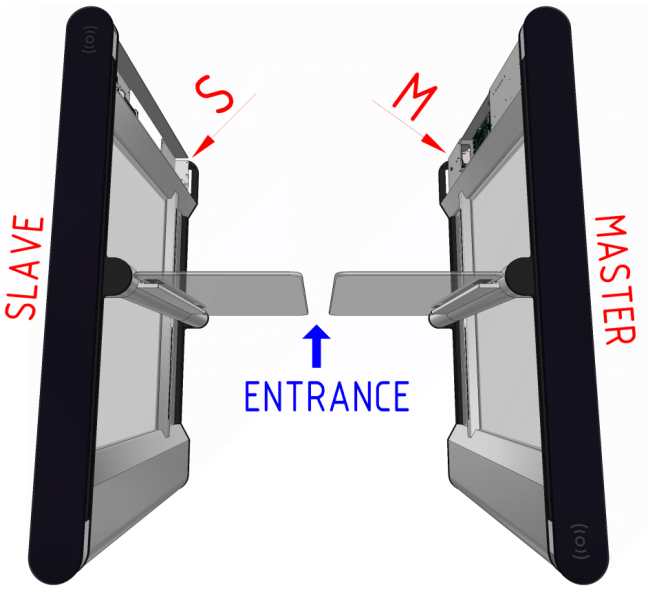
4.2. CONNECTION PROCEDURE

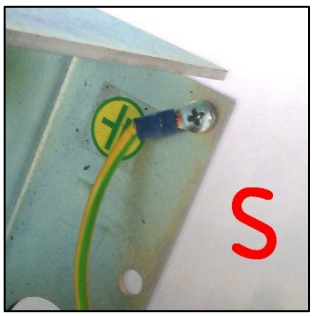
4.2.1. Interconnecting the MASTER and SLAVE turnstile.

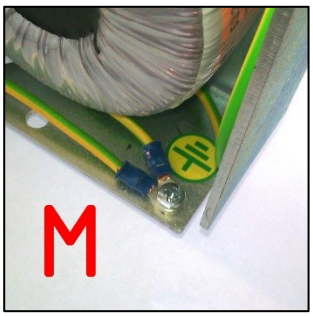
IT IS ALWAYS NECESSARY TO ONLY USE CABLES PROVIDED BY THE COMINFO COMPANY FOR INTERCONNECTING TURNSTILES.

- 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.

- Connect the supplied green-yellow wire conductor on the **230V** turnstile to the earthing terminal of the **MASTER** turnstile.
- Connect the second end of the conductor to the earthing terminal of the **SLAVE** turnstile.

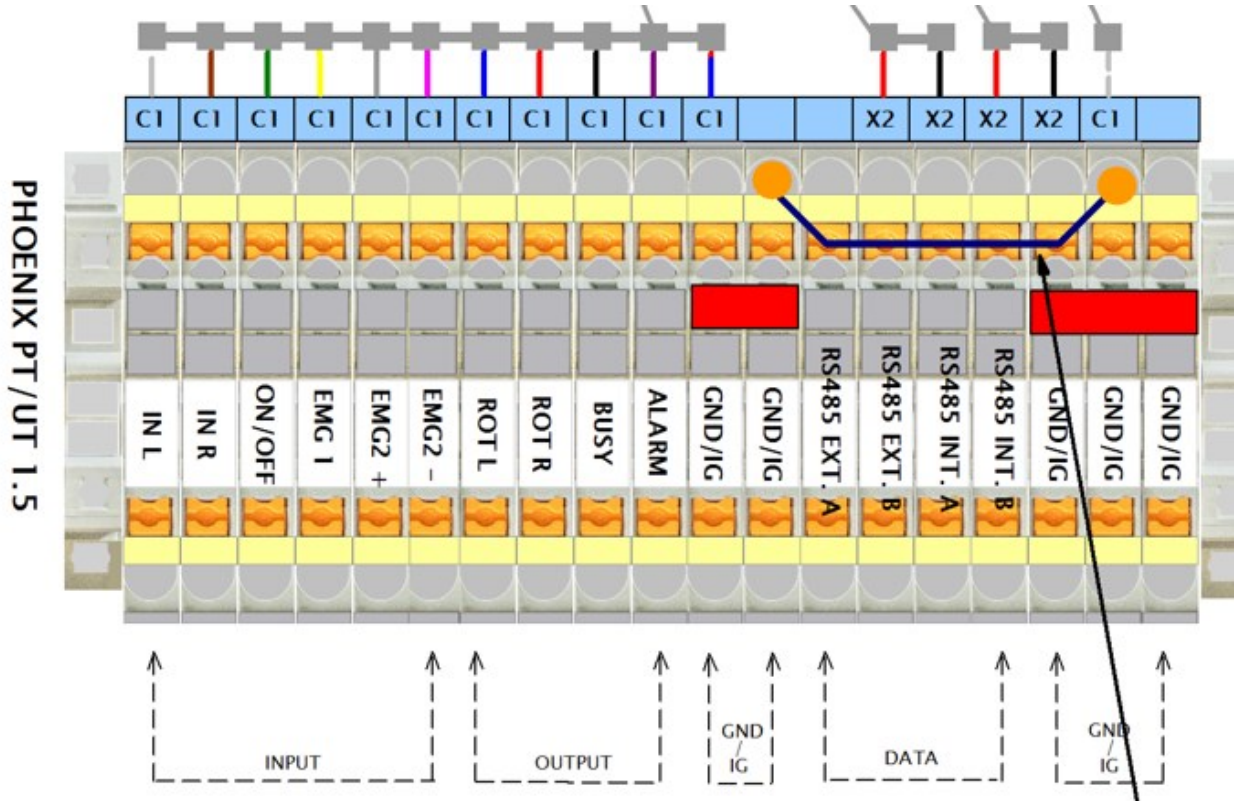






4.2.2. Connecting the superior control system of the turnstile

- 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.

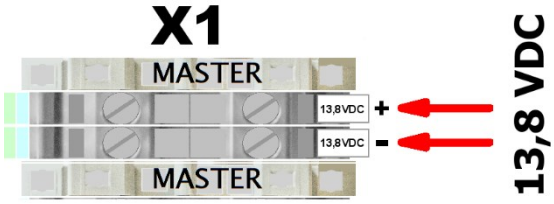
Connection to the mains power supply may only be performed by an authorized person with the appropriate qualifications.

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

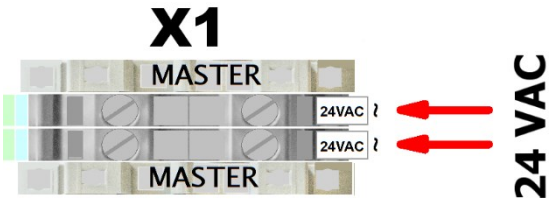
BEFORE CONNECTING THE POWER SUPPLY CABLE, IT IS NECESSARY TO CHECK IF THE SUPPLY VOLTAGE VALUE CORRESPONDS WITH THE VALUE OF THE NOMINAL VOLTAGE ON THE PRODUCTION LABEL AND ADHERE TO THE LISTED POLARITY.

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

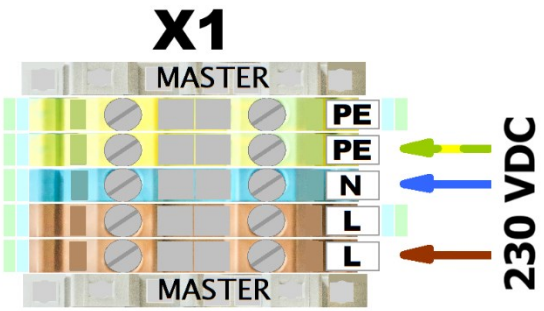
Connect the supply voltage to the **X1** terminal in the MASTER turnstile according to following figures.



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



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



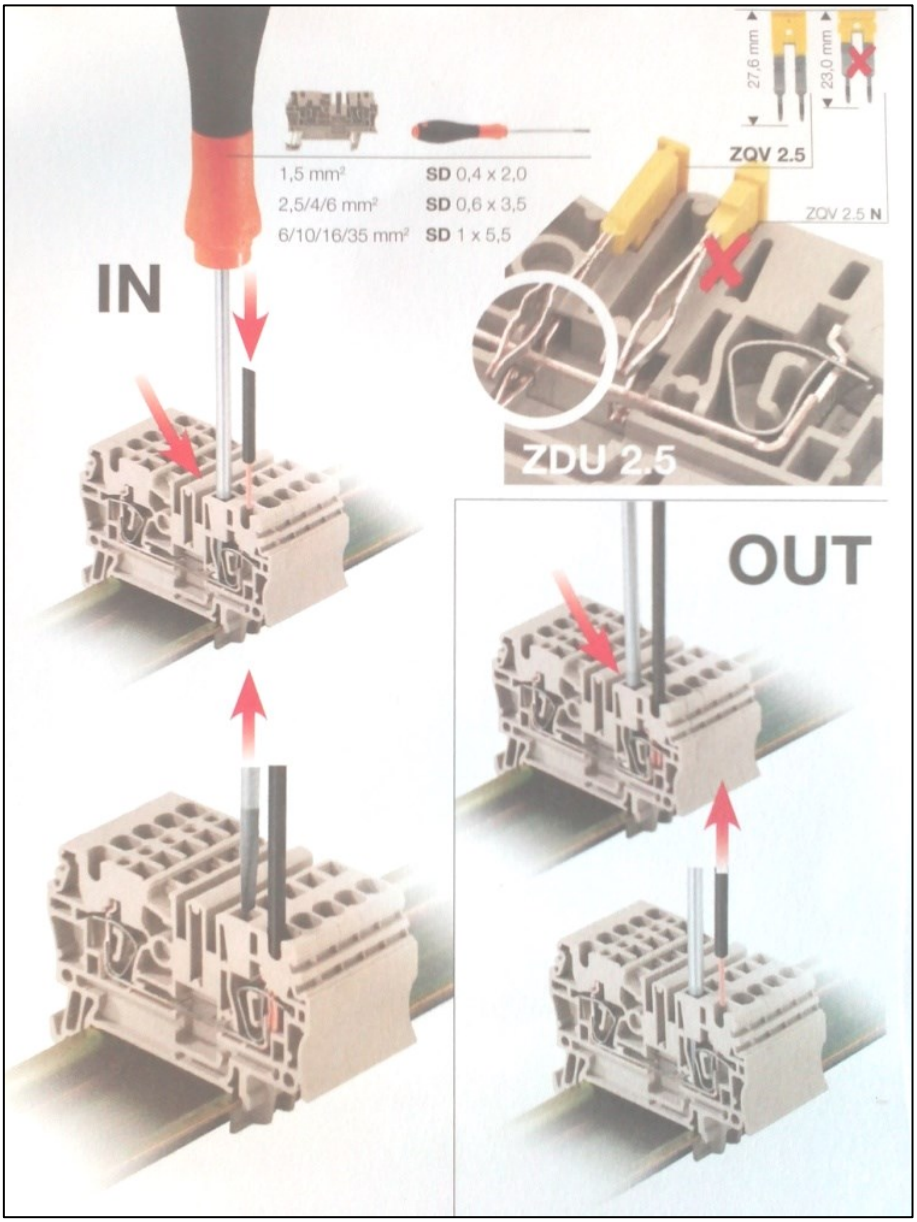
Connection of supply voltage in case of using the **230VAC** mains supply.

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.

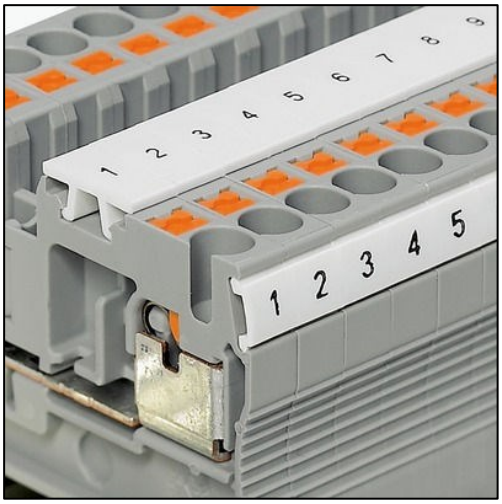
Serial <u>Weidmüller</u> terminal box with flexible clamps:

- 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.



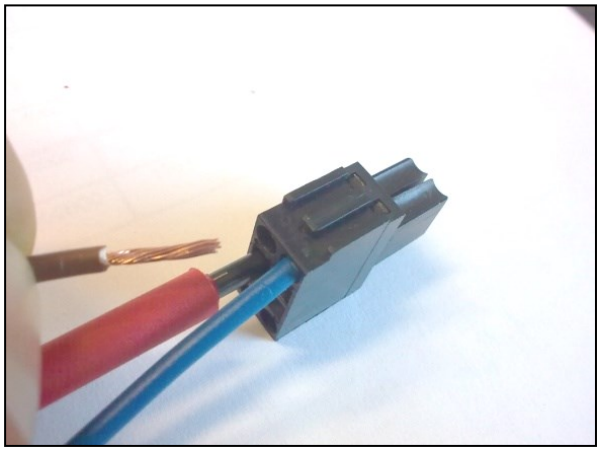
Serial <u>Phoenix</u> terminal box with flexible push-in clamps:

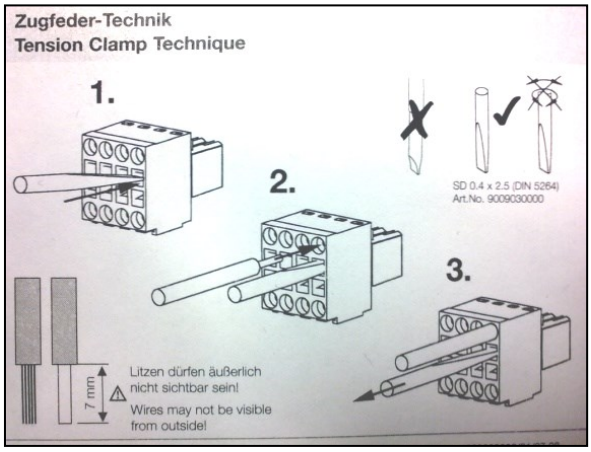
- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with any tool as shown on the figure.



<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.





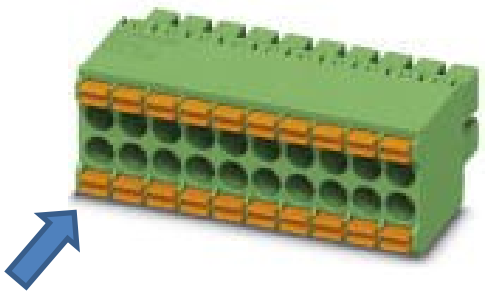
Weidmüller connector with flexible push-in clamps:

- 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 MLU control electronics needs to be increased.

Phoenix 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. And go through the commissioning checklist.

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.

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
- MLU control electronics (C1)
  - green power LED is on
  - check MLU10 error log using the buttons and display.
    - sensor test included.
    - check available guides to MLU10
- Supercapacitors (SC1)
  - green power LED is on
- SBCB sensors control electronics (C2) – *Only with MLU5*
  - 0 is shown on the display.
- Control electronics of optical signalization (CLU1 and CLU2)
  - green power LED is on
  - green communication LED is on
- WAV Player – *Only with MLU5*
  - 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.

5.4. 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.

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***.**

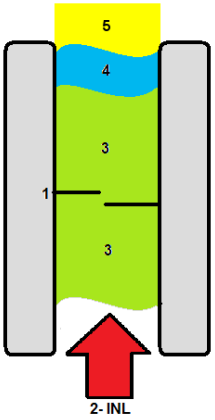
The safety parameters setting may be changed to a level, when turnstile wings can close in case of an attempt for unauthorized passage and injury of authorized and unauthorized persons may be caused! The turnstile owner must be provably notified about this. In such case, the manufacturer shall not be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

See additional manual MLU10_Basic Principles of connections

6.1. 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:

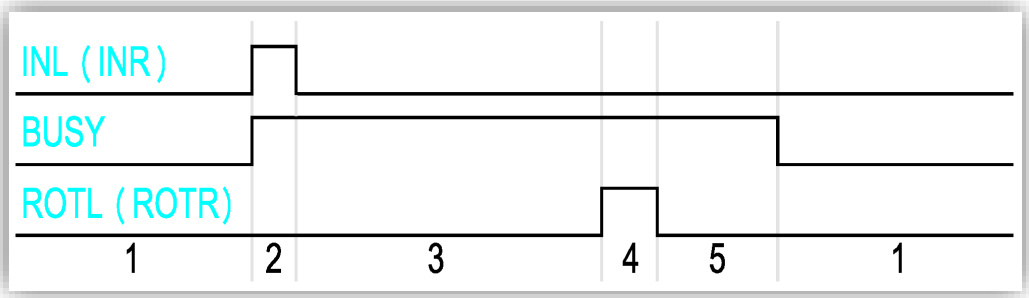
Name of the Input Signal	Single Passage	Permanent Passage
INL	>100ms <2000ms)[1]	>2000ms
INR	>100ms <2000ms)[1]	>2000ms
ON/OFF	FOR THE DURATION OF THE INPUT ACTIVATION	
EMERGENCY (emergency state)	FOR THE DURATION OF THE INPUT ACTIVATION	

)[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:



7. DESRIPTION OF REMOTE CONTROLING OF THE TURNSTILE

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

- **The turnstile controlled by status signals through a superior system can be simultaneously controlled by COMINFO products from any location through external communication line RS 485 or ethernet (see manual: MLU10 basic principle of connection).**
- **Apart from the superior system, also TOUCH PANEL, EASYTOUCH and computers with the T-MONITOR application can be simultaneously connected.**
- **All these control systems display statuses independently triggered by any of them.**
- **Information on statuses triggered by any of these devices are sent to the superior system by the MLU electronics by status signals.**

7.1. CONTROLLING THE TURNSTILE BY THE TOUCH PANEL

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

7.2. CONTROLLING THE TURNSTILE BY THE EASY TOUCH PANEL

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

7.3. CONTROLLING THE TURNSTILE BY T-MONITOR APPLICATION

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

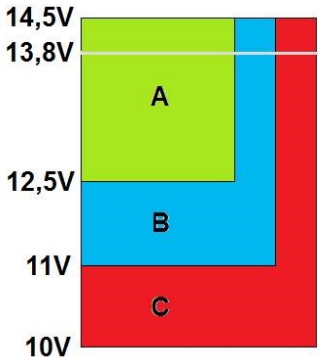
8. TURNSTILE POWER SUPPLY

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.

8.1. 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.)

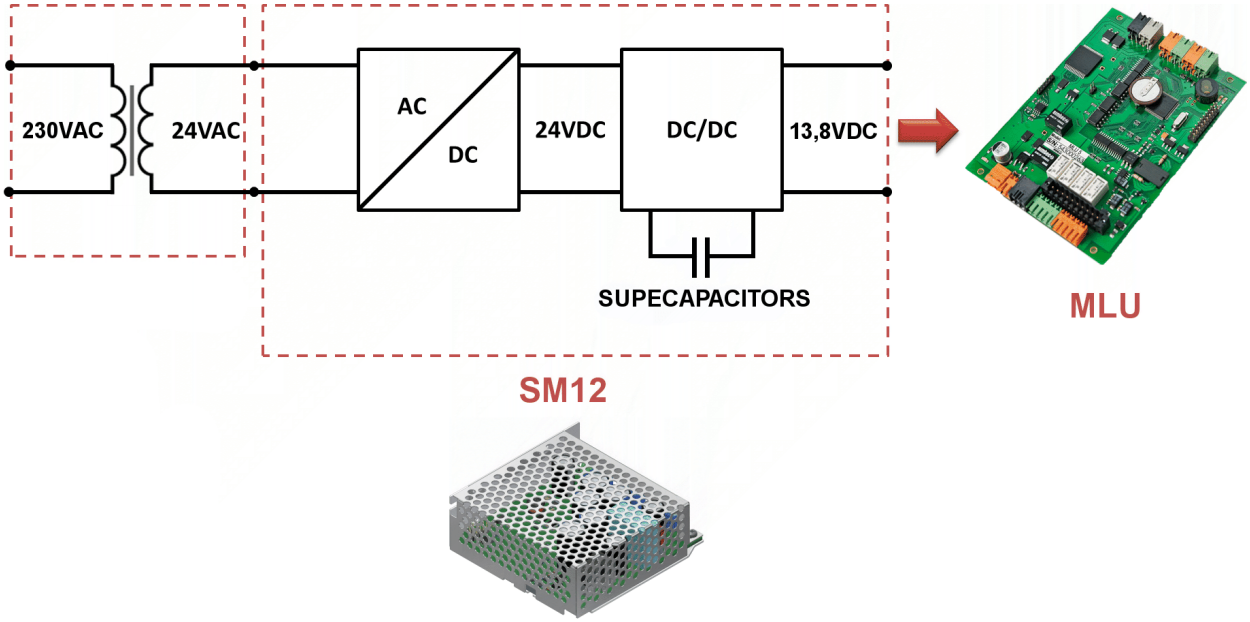
EASYGATE LC turnstiles fall into the **A** area of permitted range of power supply voltage.

8.2. 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

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

CONNECTION WITHOUT COMMON GND POTENTIAL

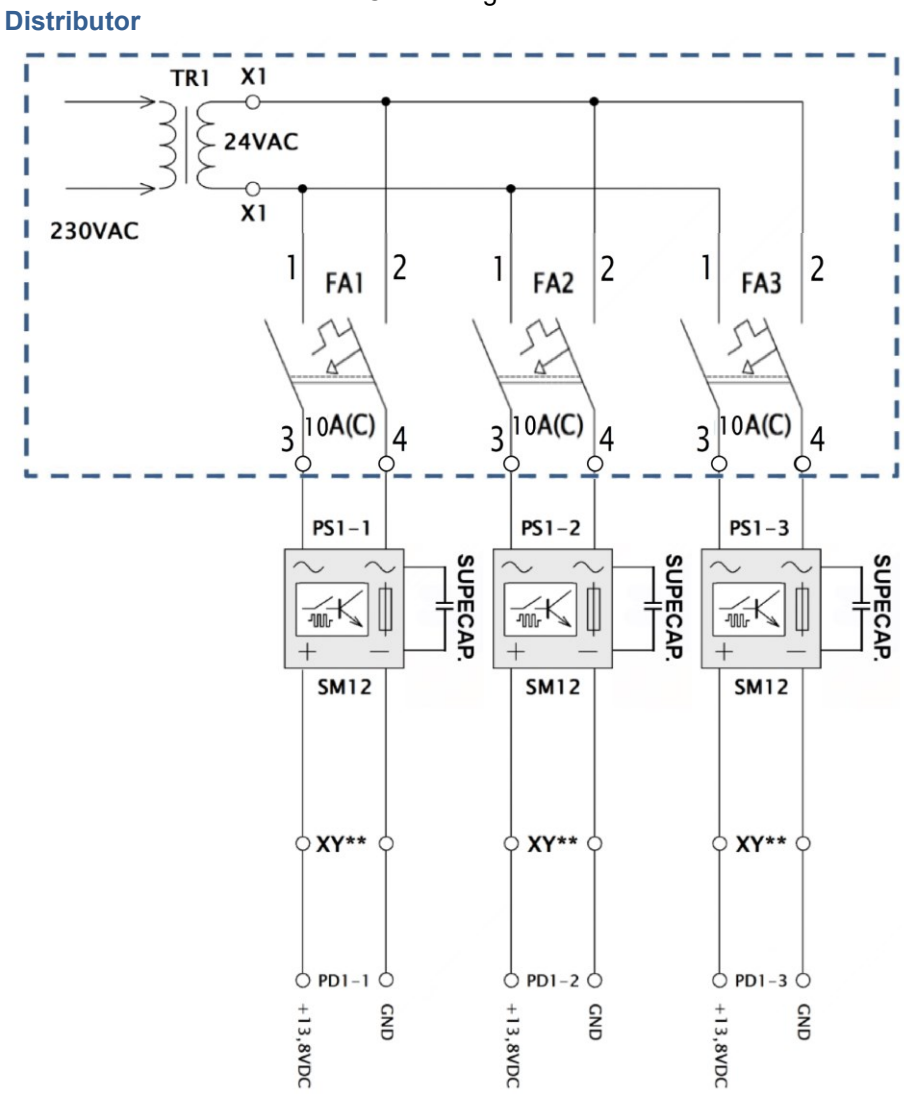
This connection may be used in case of installation of more turnstiles if the superior system does not require setting the turnstiles under a common GND potential for control purposes.

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

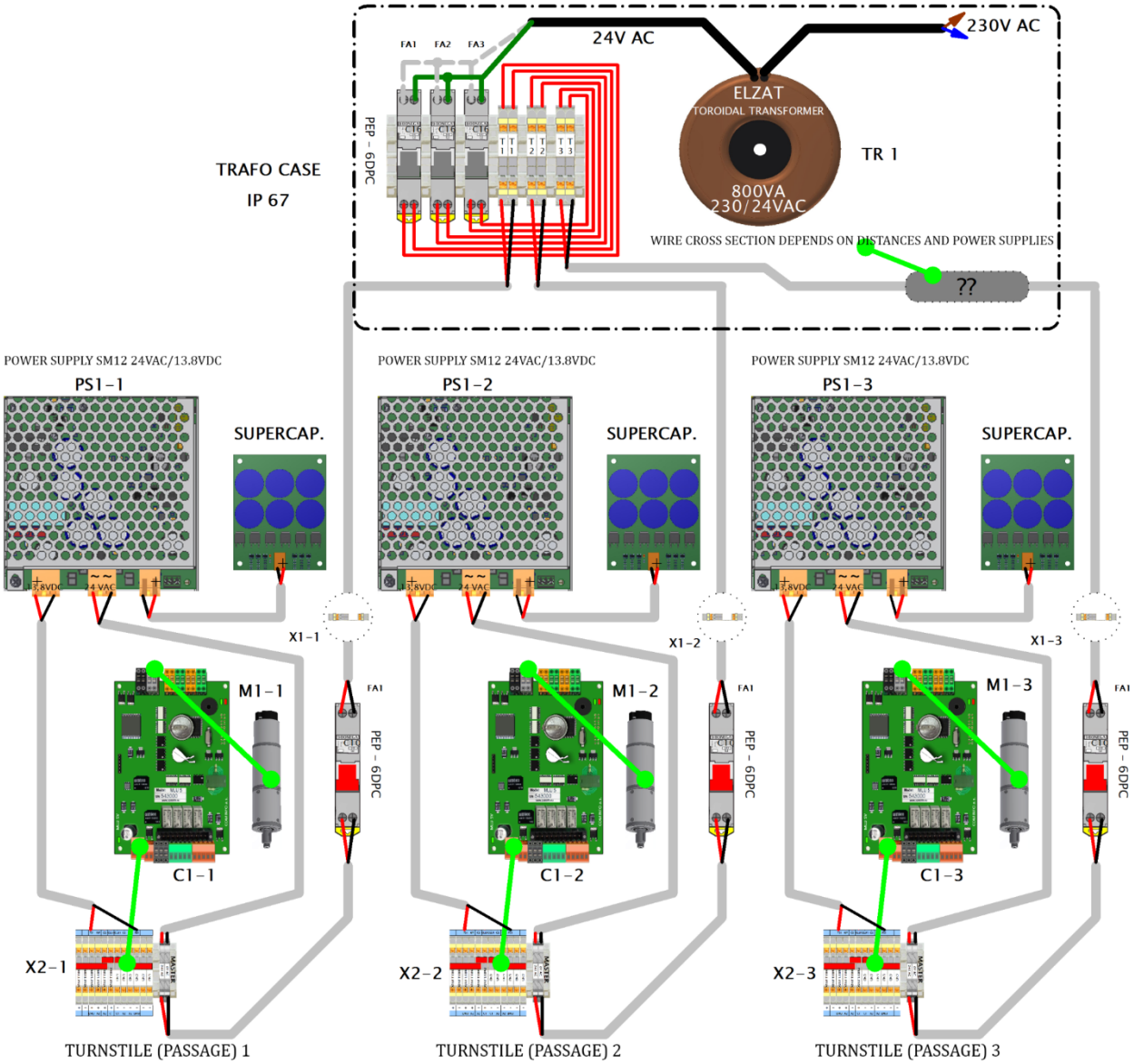
In case of unipolar protection, power sources may not be set under the same GND potential.

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.

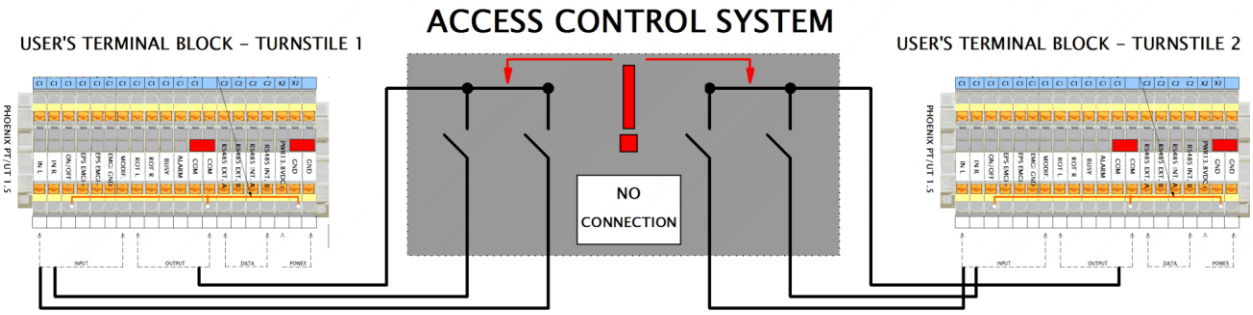
Circuit diagram:



Circuit 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.

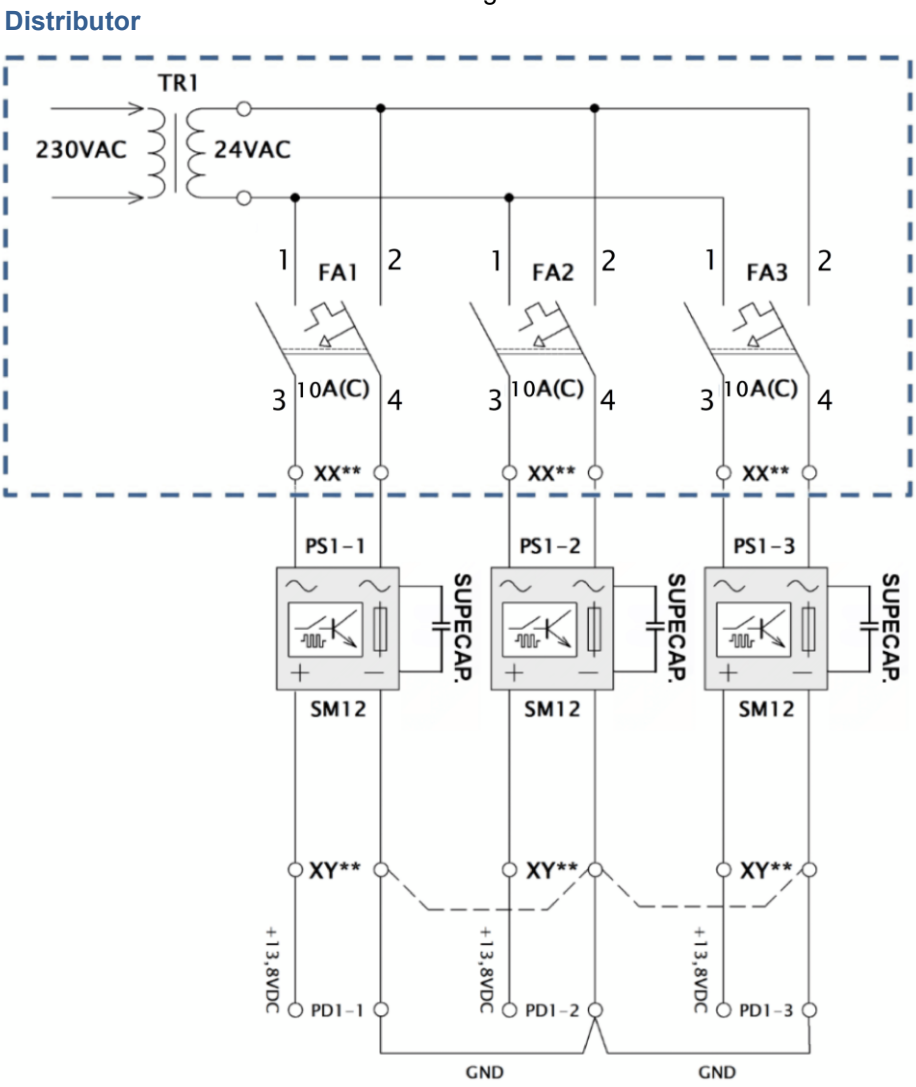
In case of a failure, both poles of SM12 power supply will disconnect and the turnstile will be completely disconnected from the common supply transformer.

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

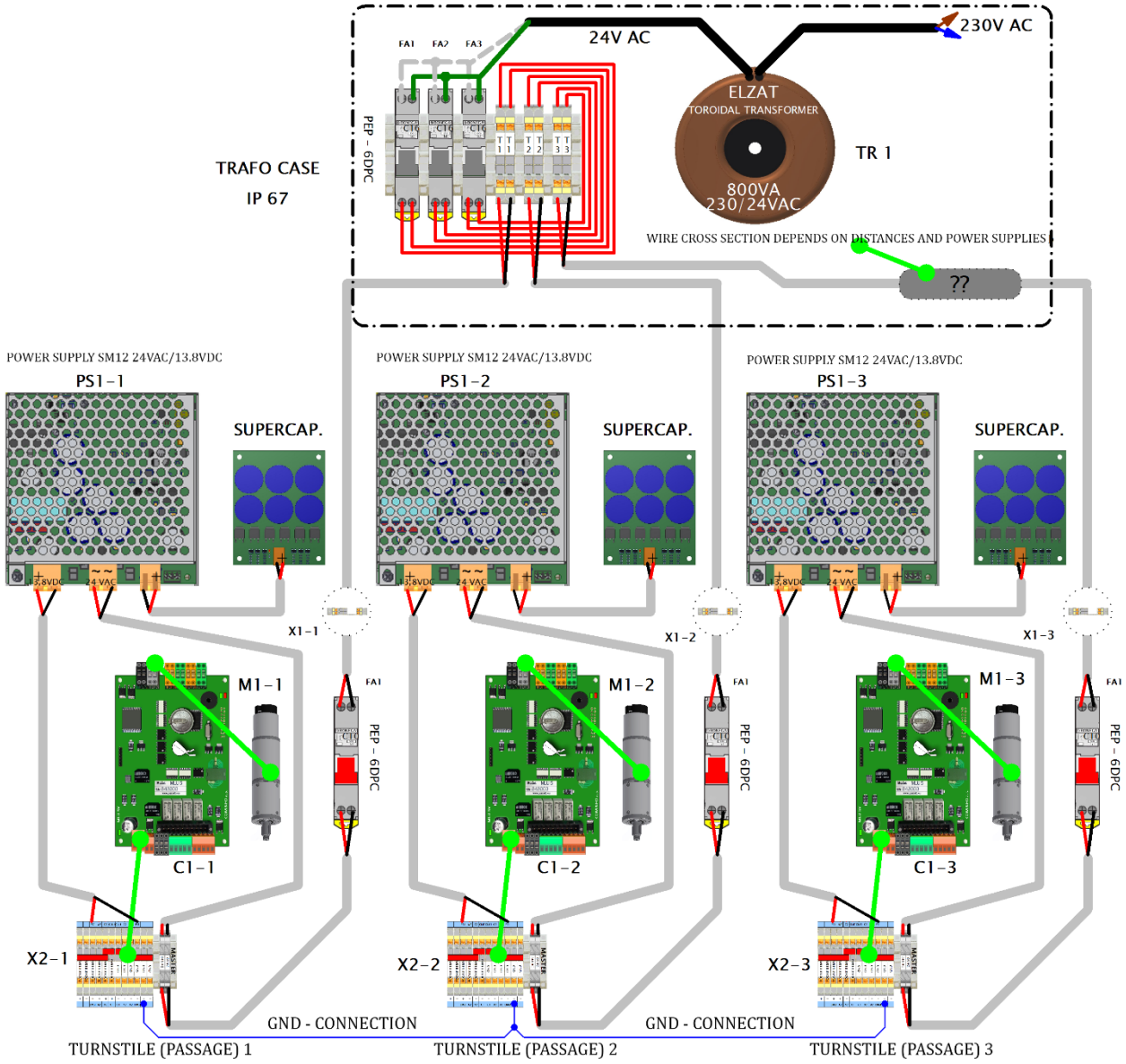
Only special DPC circuit breakers supplied by the manufacturer must be used for double-pole protection.

Superior system can control the turnstiles by common GND relay.

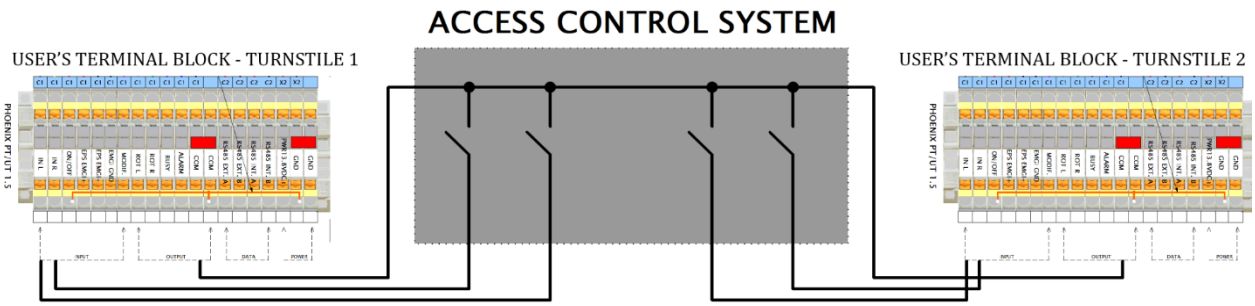
Circuit diagram:



Circuit diagram:



Example of connection of superior system with common GND potential:



8.3. CONNECTING THE EXTERNAL 230VAC MAINS POWER SUPPLY

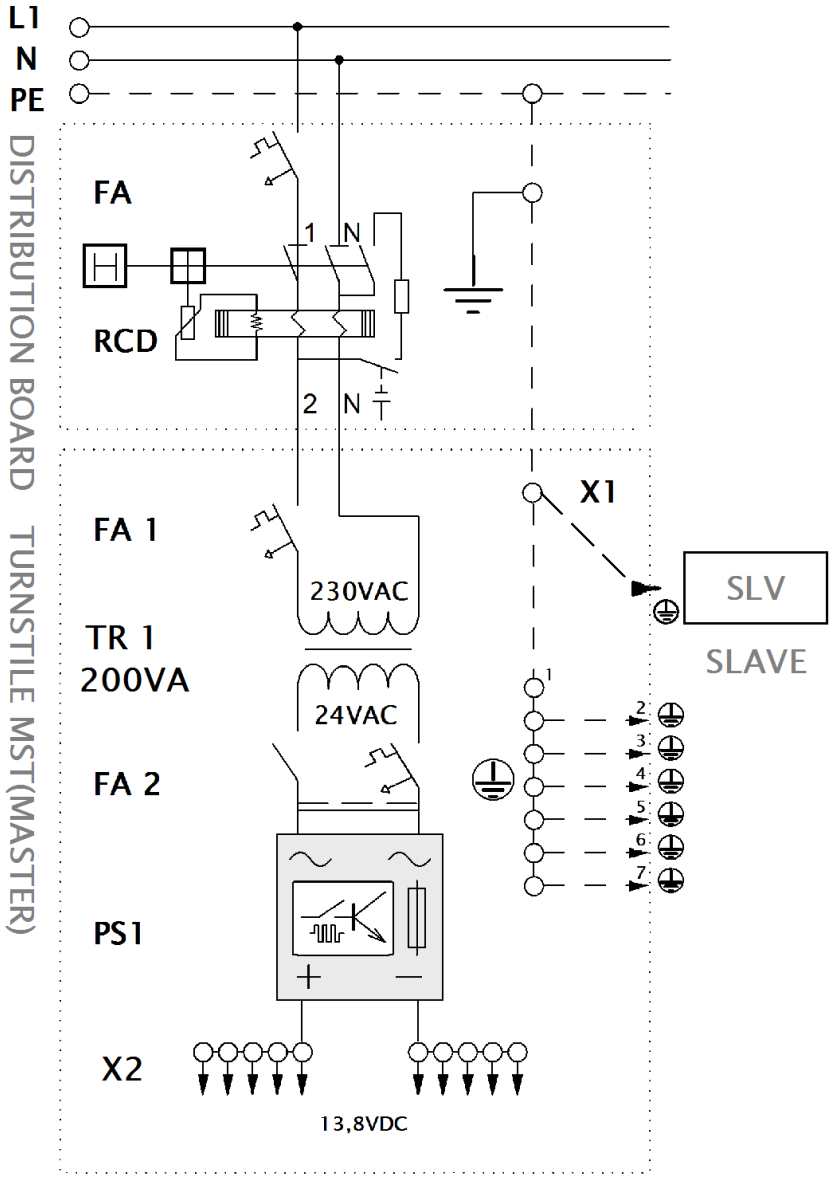
APPLIANCE MUST BE CONNECTED IN COMPLIANCE WITH INSTRUCTIONS THAT ARE ATTACHED TO IT AND ALSO IN COMPLIANCE WITH RESPECTIVE LEGAL REGULATIONS AND STANDARDS, WHICH ARE EFFECTIVE IN THE COUNTRY OF INSTALLATION OF THE PRODUCT. CONNECTION MAY BE PERFORMED ONLY BY A QUALIFIED PERSON

Examples of regulations for select countries:

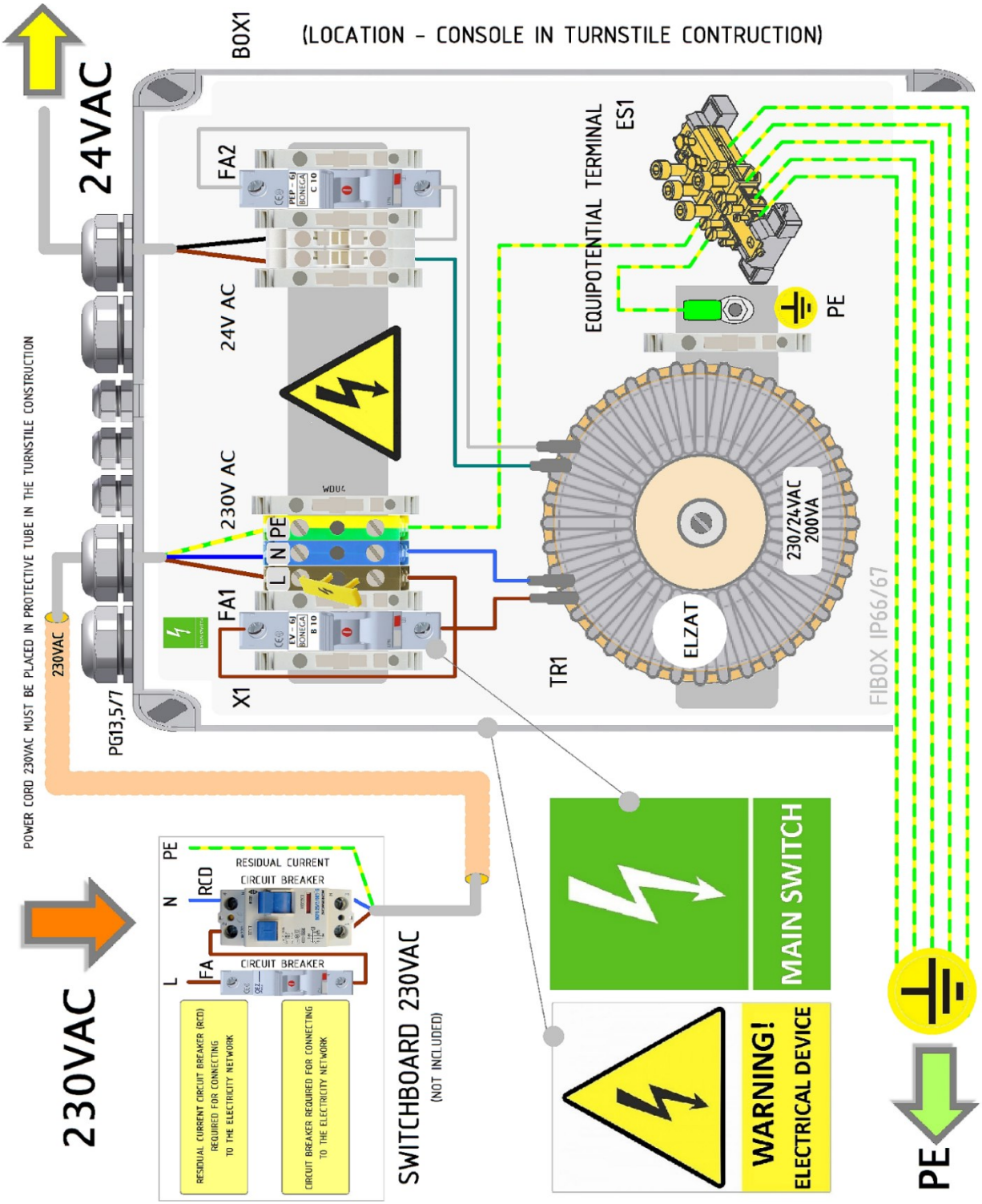
- **CZ: ČSN 33 2000 – 4 – 41 ed.2, ČSN 33 2000-7-706 ed.2, ČSN EN 62305-1 až 4, ČSN 34 0350, ČSN 33 2180**
- **D: DIN VDE 0100-410 Abschnitt 413**
- **EU: IEC 60364-4-41**

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:



8.4. POWER INPUT OF THE TURNSTILE

Table of maximum power input values during the operation of EASYGATE-LC 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
Access Light [2])	**+1.5**	Permanently (for 1x Access Light)
Edge Light [3])	**+25**	For one passage (4x Edge Light)
Wing Light [4])	**+45**	For one passage (2x wing)

[1]) Input power depends on dimensions of the turnstile glass wing and the set opening speed. The table states input power for maximum opening speed with the standard passage width of 650 and wing height of 990.

[2]) Access 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]) Edge Light is an optional accessory.
For the MIDDLE turnstiles, the consumption is half.

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

9. COMPLETE WIRING DIAGRAM

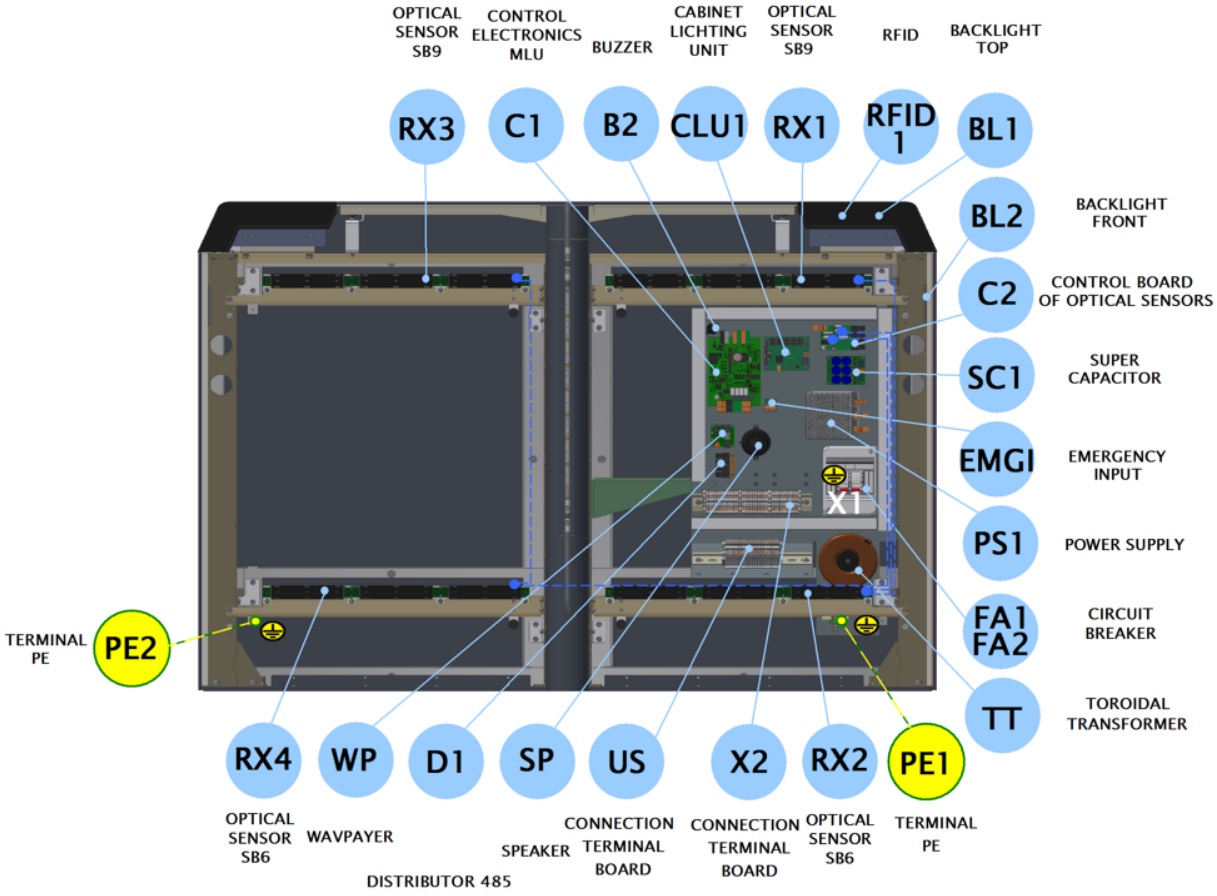
You can get detailed cable diagram after logging-in on our website www.extranet.cominfo.cz.

9.1. CAPTIONS TO THE DIAGRAMS:

C1 - MLU 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) - *Only with MLU5*
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
FA1 - 230VAC circuit breaker
FA2 - 24VAC circuit breaker
PS1 - SM12 (24VAC/13.8VDC) power supply
B2 - Buzzer - acoustic alarm signalization
SC1 - Supercapacitors for PS1
WP - WAV Player Module - *Only with MLU5*
SP - Speaker for a WAV Player
BL1 - MASTER turnstile Access Light
BL2 - SLAVE turnstile Access Light
WL1 - MASTER turnstile Wing Light
WL2 - SLAVE turnstile Wing Light

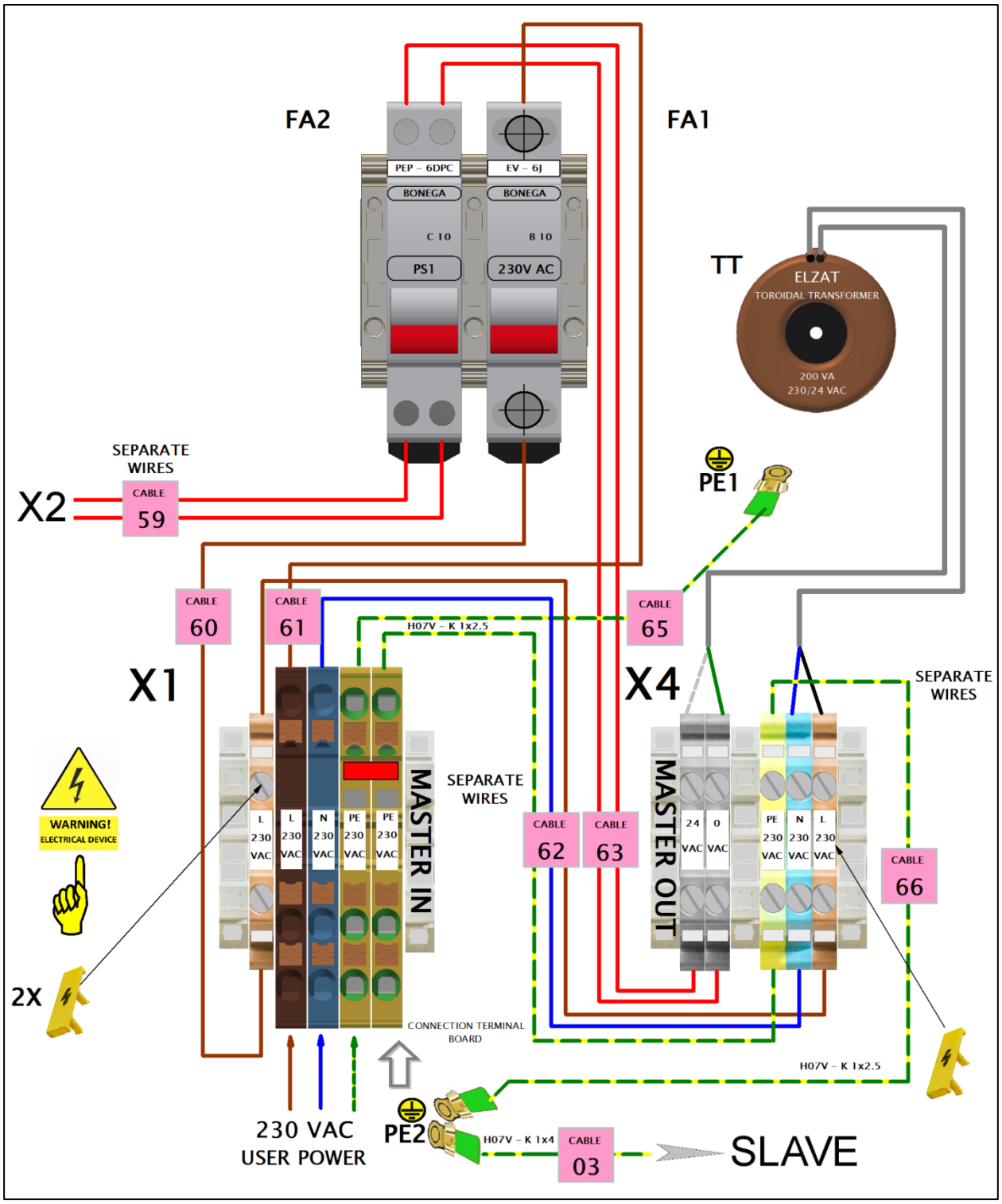
9.2. LAYOUT OF THE DEVICES IN THE TURNSTILE

9.2.1. MASTER turnstile



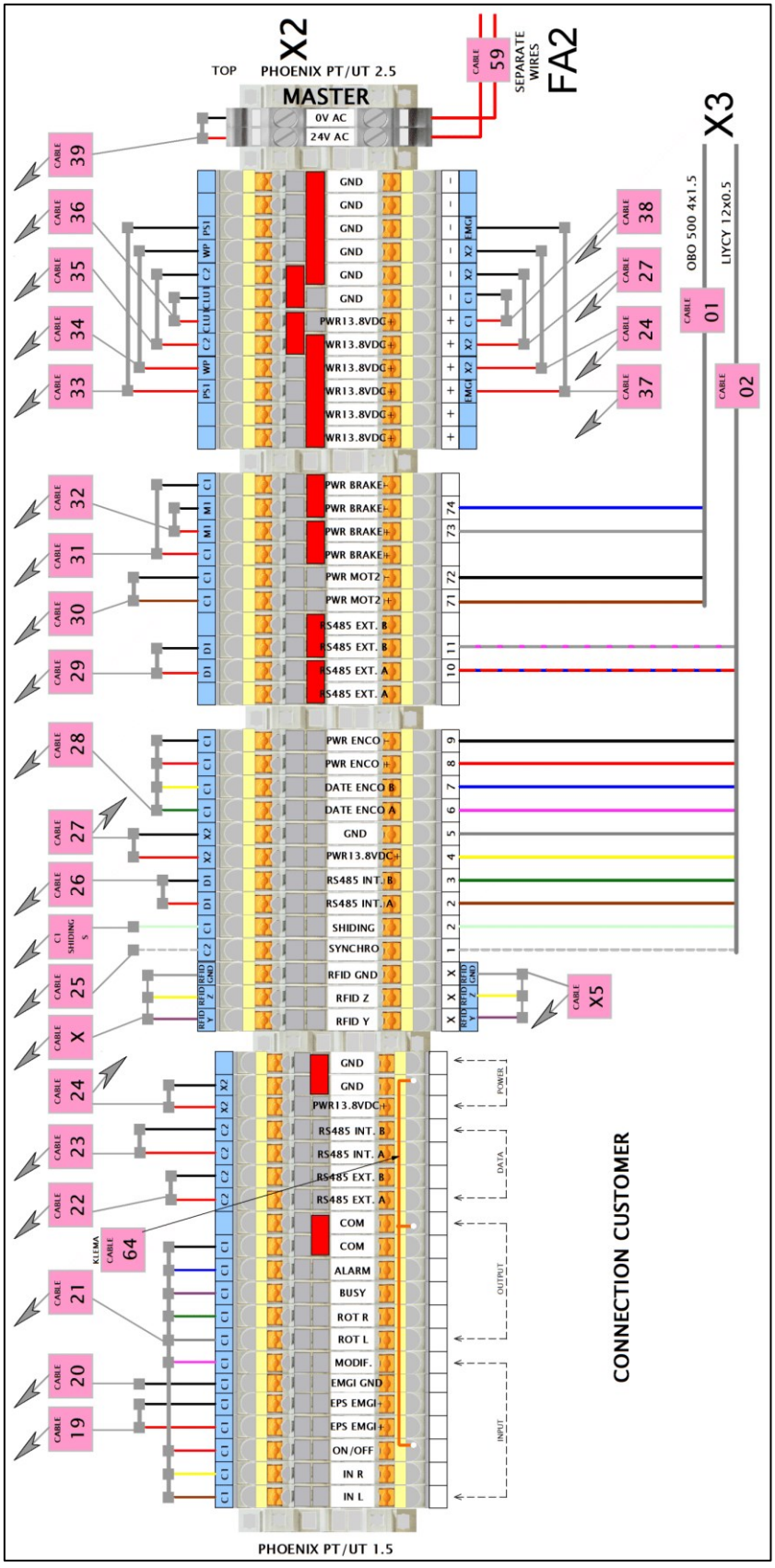
9.2.2. SLAVE turnstile

9.3. 230VAC TURNSTILE POWER SUPPLY

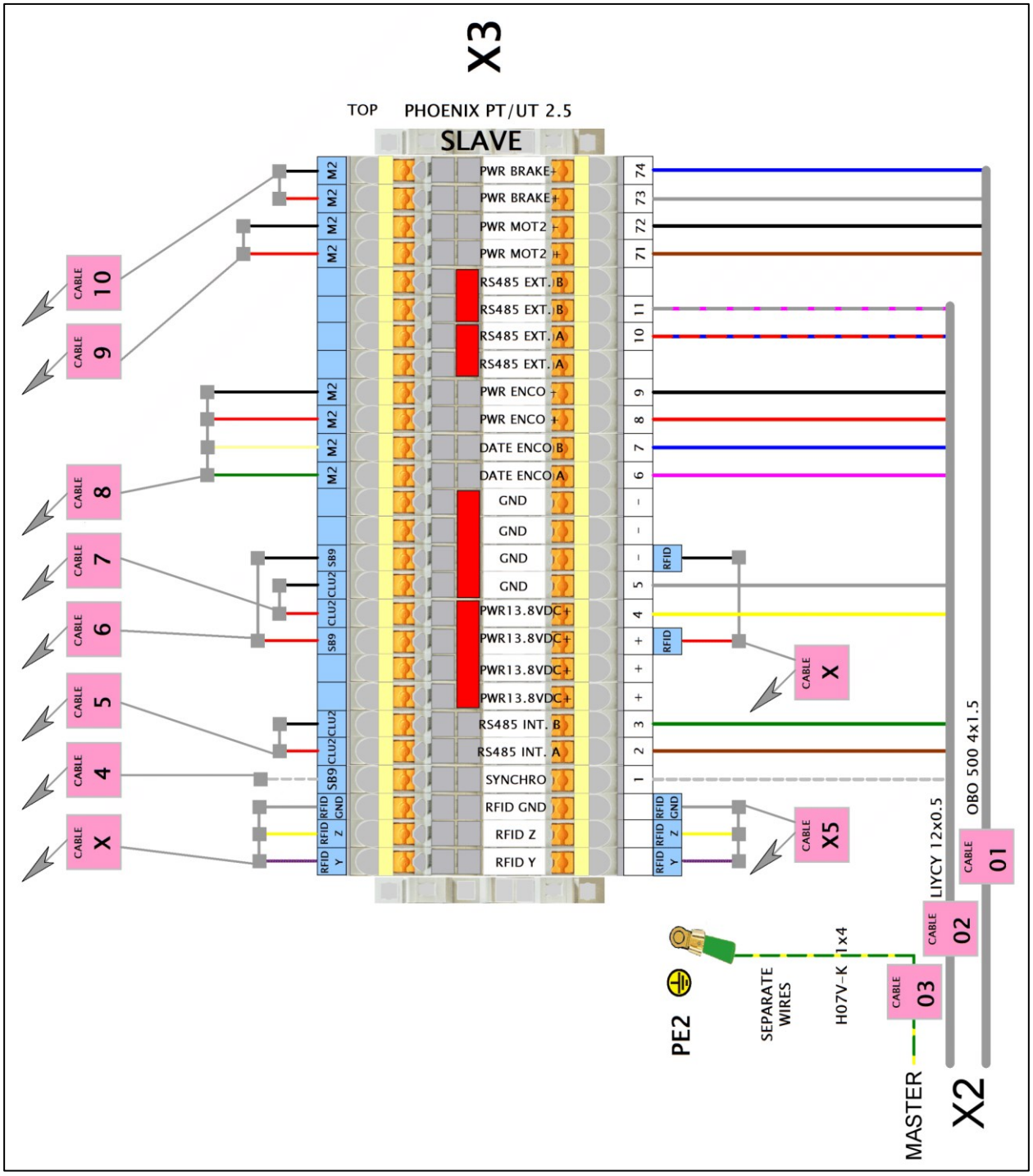


9.4. THE MASTER / SLAVE INTERCONNECTING TERMINAL BLOCK

9.4.1. MASTER terminal block (X2)

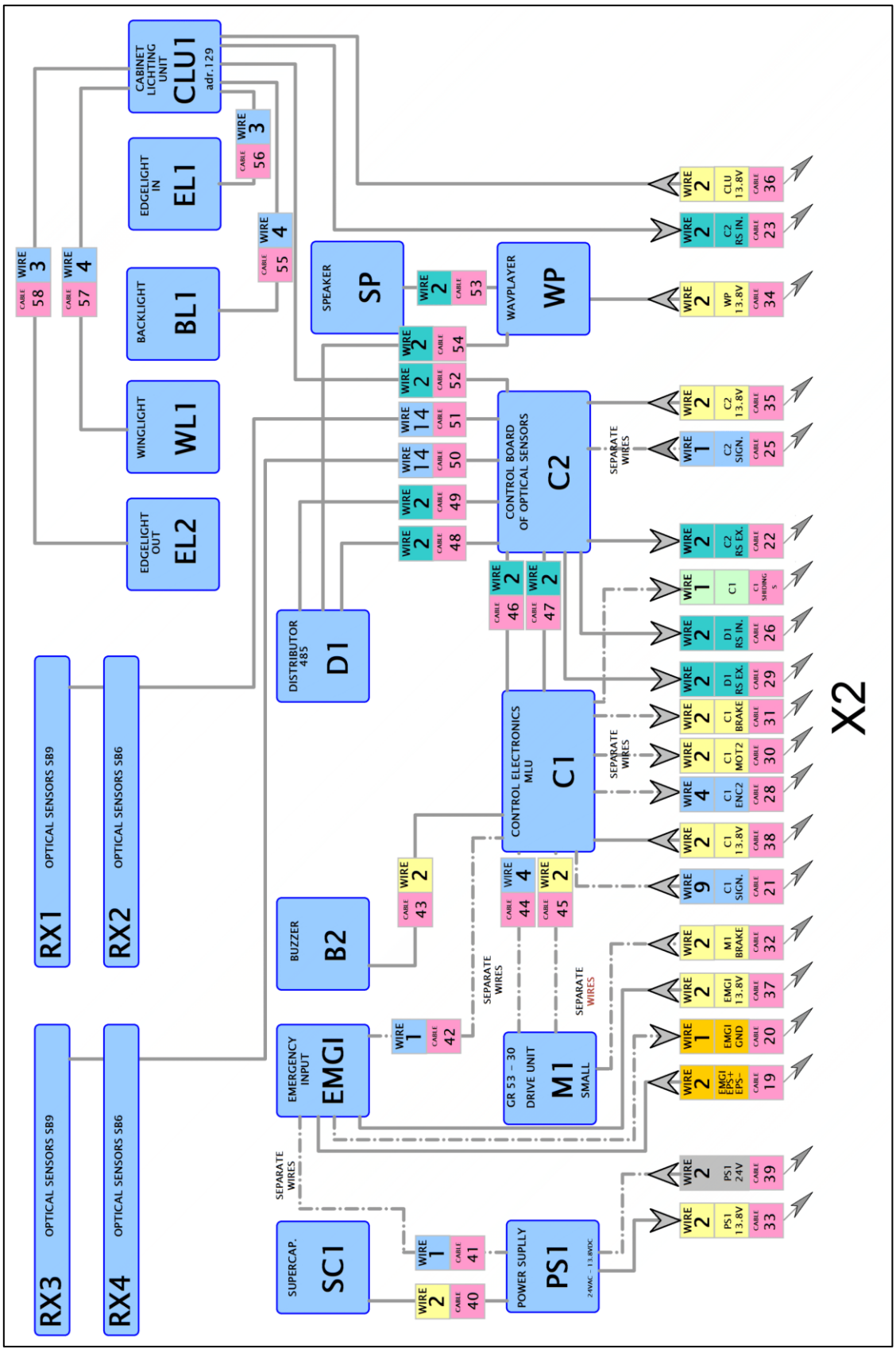


9.4.2. SLAVE terminal block (X3)

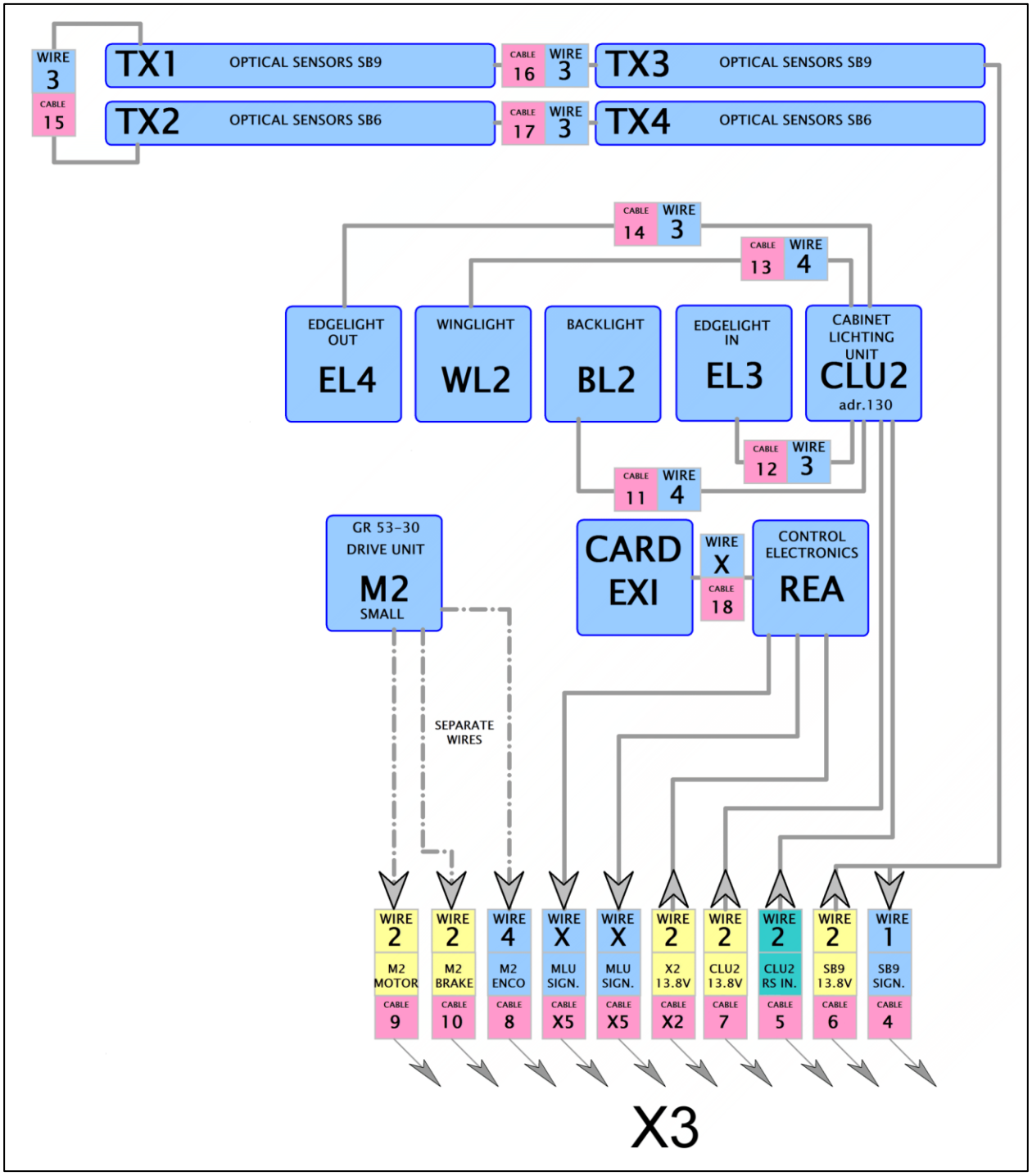


9.5. CABLE DIAGRAM

9.5.1. MASTER cable diagram



9.5.2. SLAVE cable diagram



9.6. SPECIFICATIONS AND MARKINGS OF CABLES

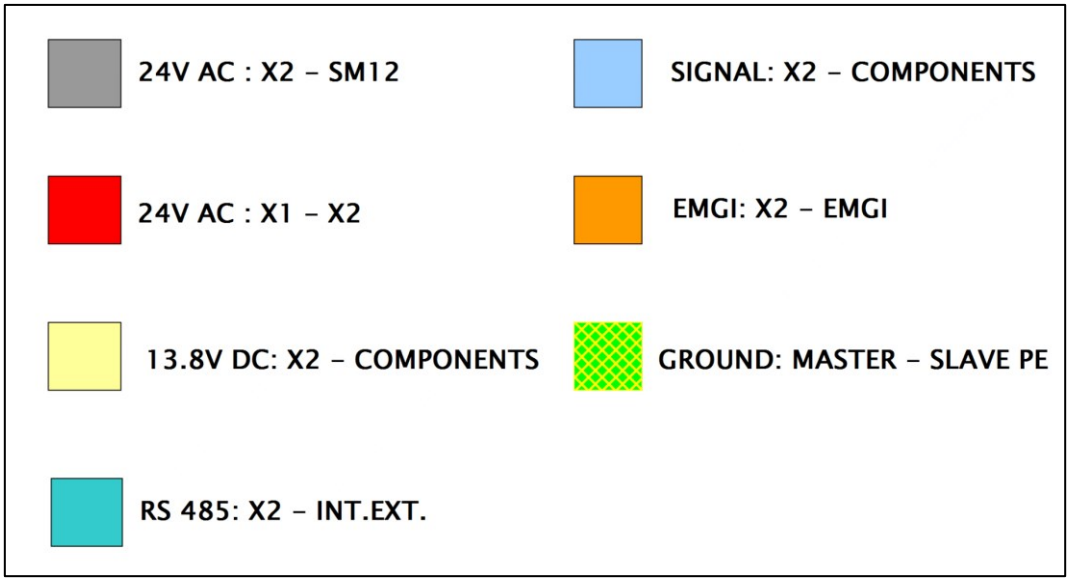
9.6.1. MASTER cables specification card

CABLE 01	OBO 500 4x1.5	CABLE 33	H07V – K 2x1x2.5	CABLE 50	AWG 28 – 14 WIRE
CABLE 02	LIYCY 12x0.5	CABLE 34	CYH 2x0.5	CABLE 51	AWG 28 – 14 WIRE
CABLE 03	H07V-K 1x4 PE	CABLE 35	CYH 2x0.5	CABLE 52	CYH 2x0.35
CABLE 19	CYH 2x0.5	CABLE 36	CYH 2x1	CABLE 53	CYH 2x0.35
CABLE 20	LIYV 1x0.5	CABLE 37	CYH 2x0.5	CABLE 54	CYH 2x0.35
CABLE 21	LIYV 9x1x0.5	CABLE 38	CYH 2x1.5	CABLE 55	LIYY 4x0.25
CABLE 22	CYH 2x0.35	CABLE 39	H07V – K 2x1x2.5	CABLE 56	LIYY 3x0.5
CABLE 23	CYH 2x0.35	CABLE 40	CYH 2x1	CABLE 57	LIYY 4x0.25
CABLE 24	CYH 2x1	CABLE 41	LIYV 1x0.5	CABLE 58	LIYY 3x0.5
CABLE 25	LIYV 1x0.5	CABLE 42	LIYV 1x0.5	CABLE 59	H07V – K 2x1x2.5
CABLE 26	CYH 2x0.35	CABLE 43	LIYV2x1x0.25	CABLE 60	H07V – K 2x1
CABLE 27	CYH 2x1	CABLE 44	LIYV 4x1x0.5	CABLE 61	H07V – K 2x1
CABLE 28	LIYV 4x1x0.5	CABLE 45	H05V – K 2x1x1	CABLE 62	H05VV – F 3G 1.5 B
CABLE 29	CYH 2x0.35	CABLE 46	CYH 2x0.35	CABLE 63	H07V – K 2x1x2.5
CABLE 30	H05V – K 2x1x1	CABLE 47	CYH 2x0.35	CABLE 64	LIYV 1x0.5
CABLE 31	H05V – K 2x1x0.5	CABLE 48	CYH 2x0.35	CABLE 65	H07V-K 1x2.5 PE
CABLE 32	LIYV 2x1x0.5	CABLE 49	CYH 2x0.35	CABLE 66	H07V-K 1x2.5 PE

9.6.2. SLAVE cables specification card

CABLE 01	OBO 500 4x1.5	CABLE 10	LIYV 2x1x0.5
CABLE 02	LIYCY 12x0.5	CABLE 11	LIYY 4x0.25
CABLE 03	H07V – K 1x4	CABLE 12	LIYY 3x0.5
CABLE 4	LIYY 3x0.5	CABLE 13	LIYY 4x0.25
CABLE 5	CYH 2x0.35	CABLE 14	LIYY 3x0.5
CABLE 6	LIYY 3x0.5	CABLE 15	LIYY 3x0.5
CABLE 7	CYH 2x0.5	CABLE 16	LIYY 3x0.5
CABLE 8	LIYV 4x1x0.5	CABLE 17	LIYY 3x0.5
CABLE 9	H05V – K 2x1x1	CABLE 18	W8x0.22+2x0.75

9.6.3. Cable markings



10. TROUBLESHOOTING

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

10.1. CHECKING ERROR STATES AFTER TURNING ON THE POWER SUPPLY

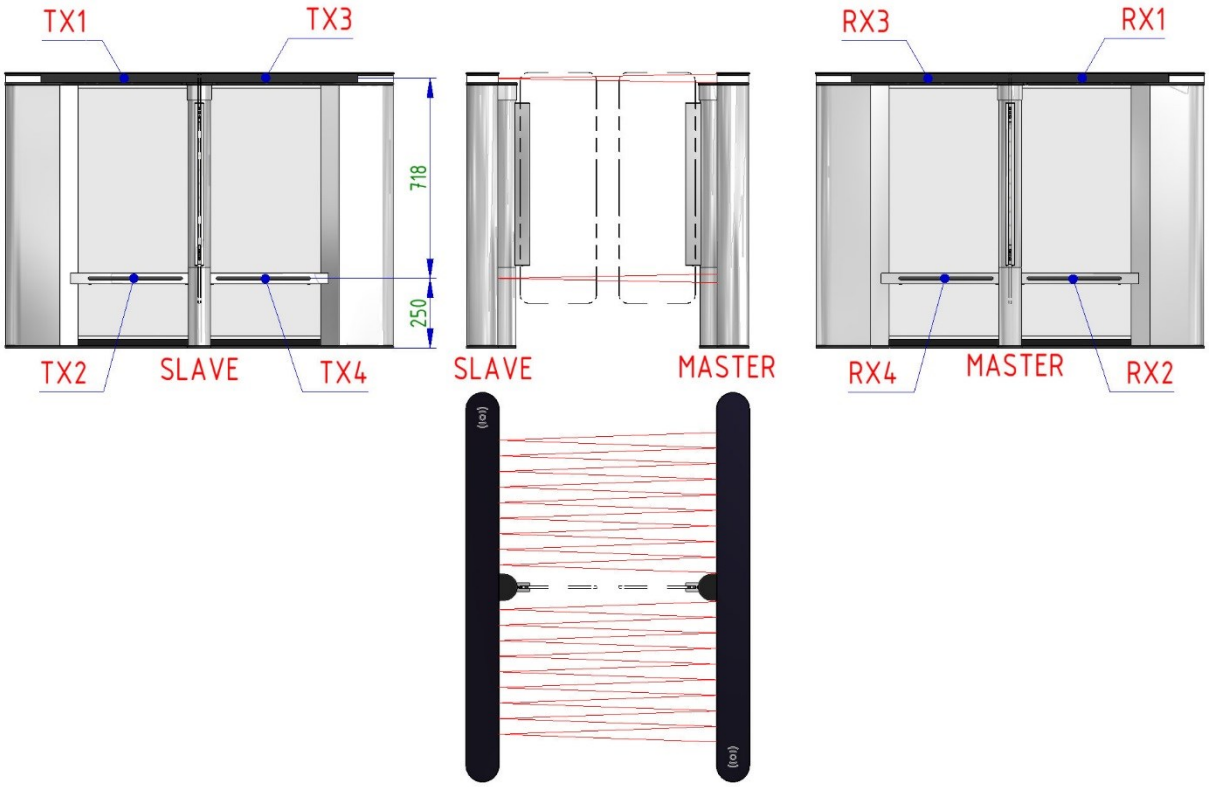
- Check the error status via display on MLU10 and TCOMServer application

See manual **TComServer_instructions_for_use**.

10.2. CHECKING THE OPTICAL SENSORS

The set of bars with 36 optical sensors serves for detection of passage of persons through the turnstile. It is composed of transmitter bars **T** located on the SLAVE turnstile and receiver bars **R** located on the MASTER turnstile. Receiver bars are connected to the **C2** sensors control electronics. Transmitter bars **T** are connected to power supply voltage in the X3 terminal block. The MIDDLE turnstile has transmitters on one side, and receivers on the other side.

10.2.1. Layout of the optical sensors



10.2.2. Inspection – general sensor function

Check sensor test on MLU 10 display. See the error in TCOMServer diagnostics (**TComServer_instructions_for_use**).

10.2.3. TComServer_instructions_for_use

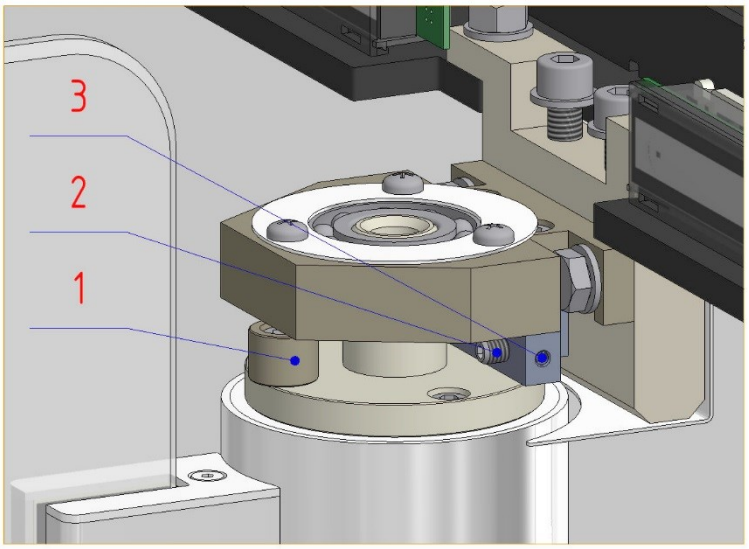
- Check if green LEDs are blinking on all four transmitting sensor bars **T**, which signals connection of power supply voltage. The blinking signals the synchronization is correct. If LED is lit up, it means the signaling cable is interrupted or the oscillator is malfunctioning.
- Check if green LEDs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

10.2.4. Checking via the TCONF application

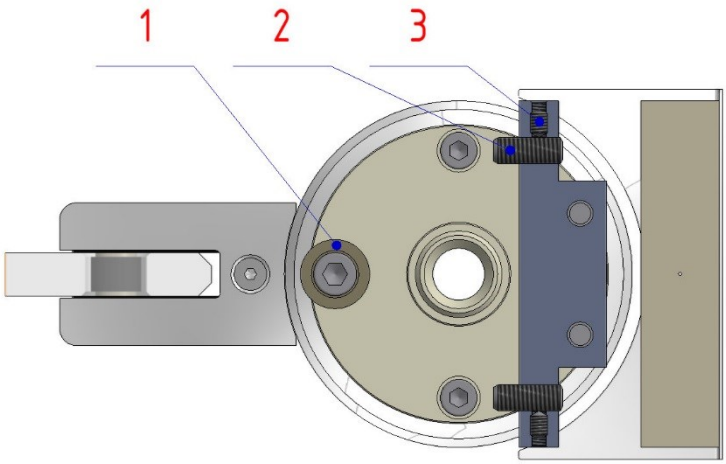
See manual **TComServer_instructions_for_use**.

10.2.5. Checking and adjustment 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.

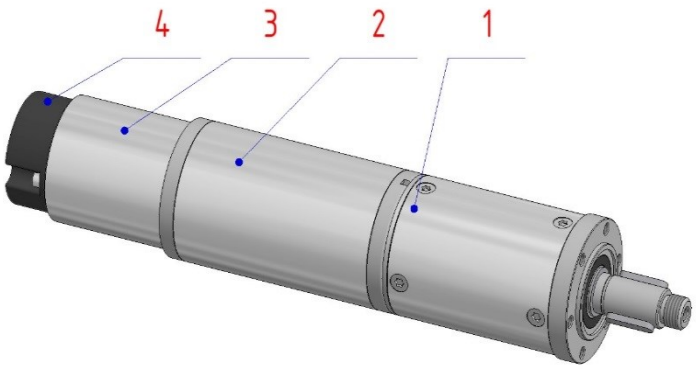
7. In case the turnstile is anchored inaccurately, we must follow the principle that the glass always stops in the middle of the path between both end stoppers. If we change only one end stopper, the wing stops in the home position by half the path of the changed stopper. If we change both stoppers in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

10.3. 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).

10.3.1. Description of the drive unit

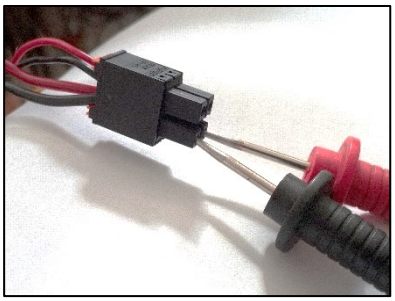


1. Planetary gearbox
2. Electromotor
3. Electromechanical brake
4. Speed and position sensor (magnetic encoder)

10.3.2. Checking the electromotors

- Disconnect the power supply.
- Pull out the MASTER connector from MLU 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.

10.3.3. 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.

10.4. 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 MLU electronics and send both to the manufacturer	Using the TCONF application. (TCOMSERVER)	☐
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.	MLU10 display must reflect every sensor behavior	☐
17	Checking individual optical sensors	Check all sensors using the diagnostic tool in the TCONF application	☐
18	Checking the internal 485 line communication	Check the communication of all devices on the internal line using the **TDIAG** diagnostic program.	☐
19	Installation of up-to-date firmware	**After consulting the manufacturer** install the firmware latest released FW for your device	☐
20	Perform implicit configuration	The condition is updating of the TCONF application	☐
21	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.	☐
22	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-LC
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 … uploaded.*
20. *Implicit configuration performed.*
21. *Red LED does not signalize any error after initialization – OK.*
22. *Checking the logs report – logs did not register any error – OK.*
23. *All turnstile functions verified by the TURNSTILE TESTER and the malfunction did not occur – OK.*

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

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

CLAIM REPORT FORM

Product label information:

Name – type:

Serial number:

Information on the control electronics (MLU 5):

Serial number:

Your request:

Customer:

Address:

Contact person:

Telephone:

E-mail:

Date:

Cominfo, a.s.
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