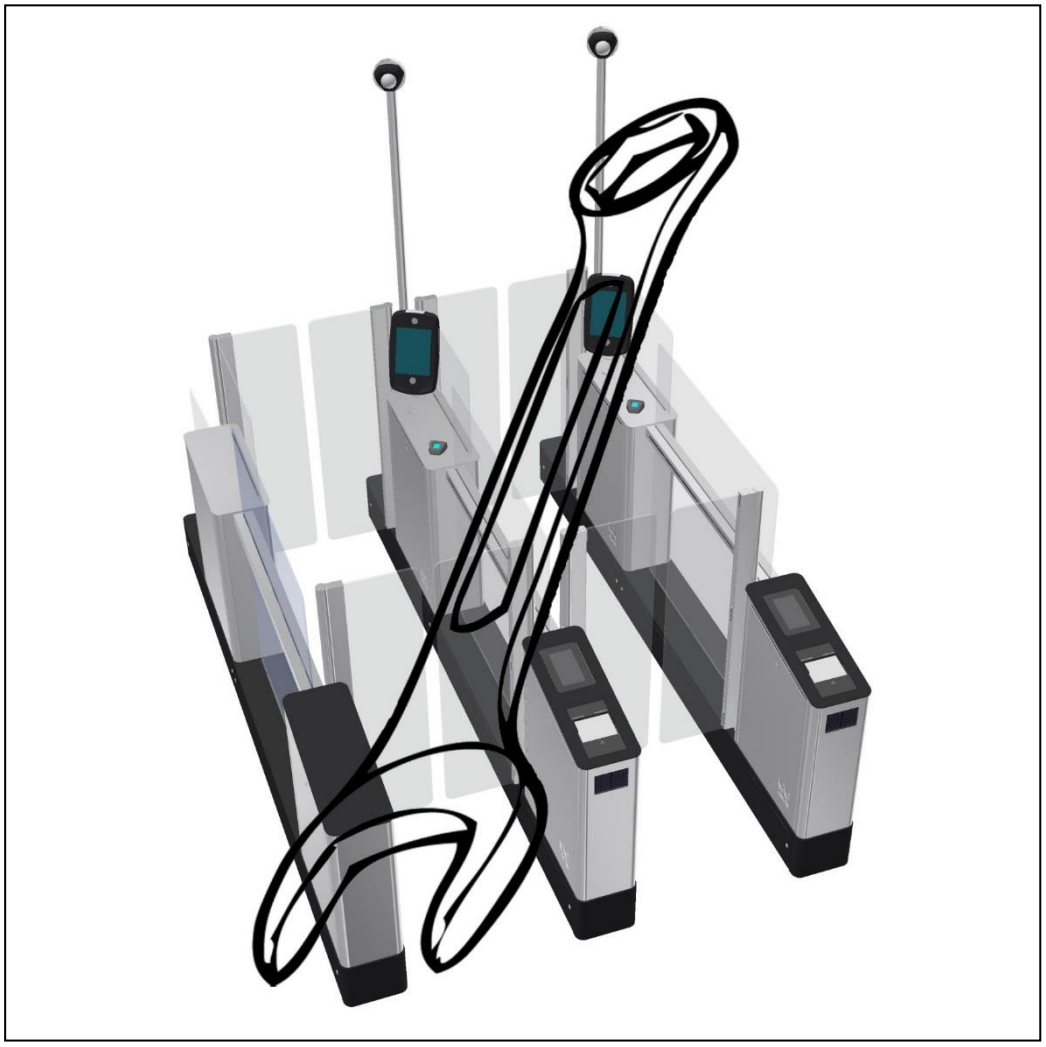


INSTALLATION INSTRUCTIONS FOR TURNSTILE TYPE:

e-Gate

(with MLU10 electronics)

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 **e-Gate** 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 the **MLU10** electronics.

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

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

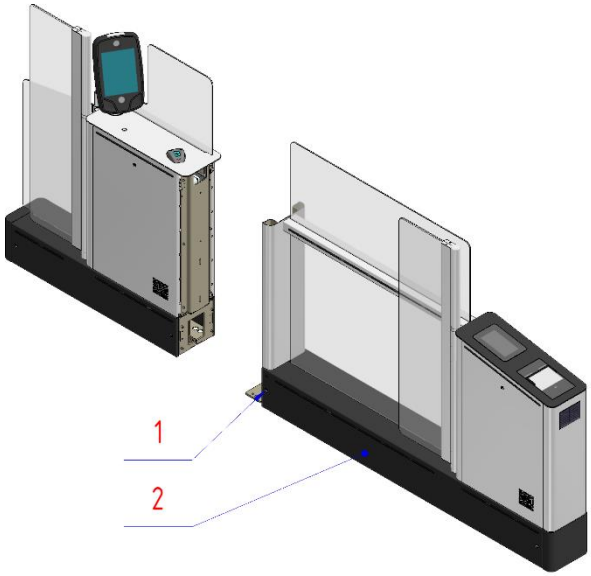
Turnstile is packed in a transport wrapping. Transport the turnstile to the place of destination in its transport boxing using a forklift. When handling the turnstile, pay increased attention with regard to the safety of persons and potential damage of the turnstile.

Turnstile is divided in two parts for transport reasons: **IN** and **OUT**. The procedure of connecting both parts is described in the chapter *Connecting the IN and OUT parts of the turnstile*.

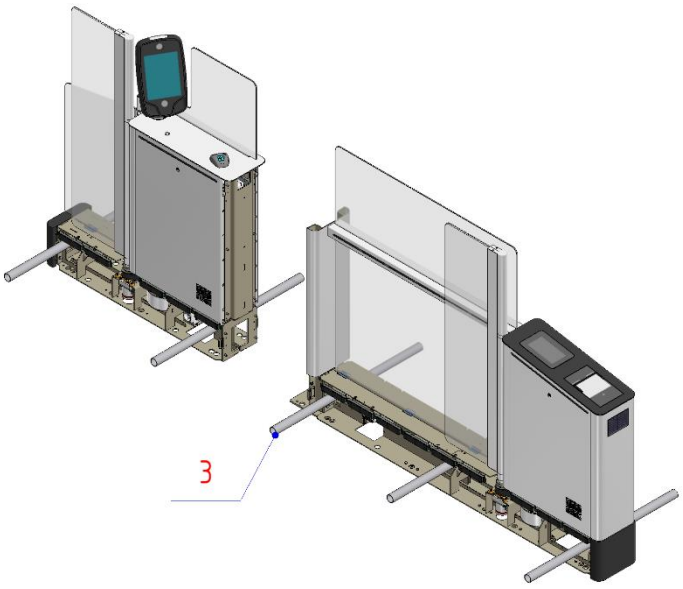
After unwrapping, take the turnstile to a predetermined place. At least four persons should cooperate when manipulating the turnstile.

TURNSTILE HANDLING PROCEDURE:

- After unlocking all the locks (pos.1) dismount all the bottom covers (pos.2). All locks on the turnstiles have a unified key.



- Insert suitable pipes into all the holes (⌀44) in the bottom frames. Using these pipes, move the turnstile to designated place.



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

2.1. TURNSTILE WEIGHTS

Turnstile	Weight
e-Gate-SM-IN (Side – Master)	**192 kg**
e-Gate-SM-OUT (Side – Master)	**145 kg**
e-Gate-SS-IN (Side – Slave)	**180 kg**
e-Gate-SS-OUT (Side – Slave)	**128 kg**
e-Gate-M-IN (Middle)	**228 kg**
e-Gate-M-OUT (Middle)	**175 kg**

- the weight is valid for turnstiles without optional accessories
- weight includes standard glass wings of 1400 mm height for 650 mm passage

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.

Displayed third-party integrations serve for illustrative purposes only

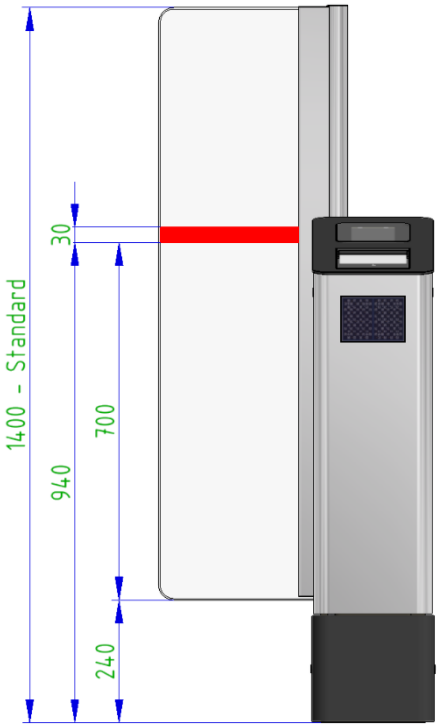
3.1. DIMENSIONS FOR ANCHORING

CAPTIONS FOR THE FIGURES AND THE TABLE:

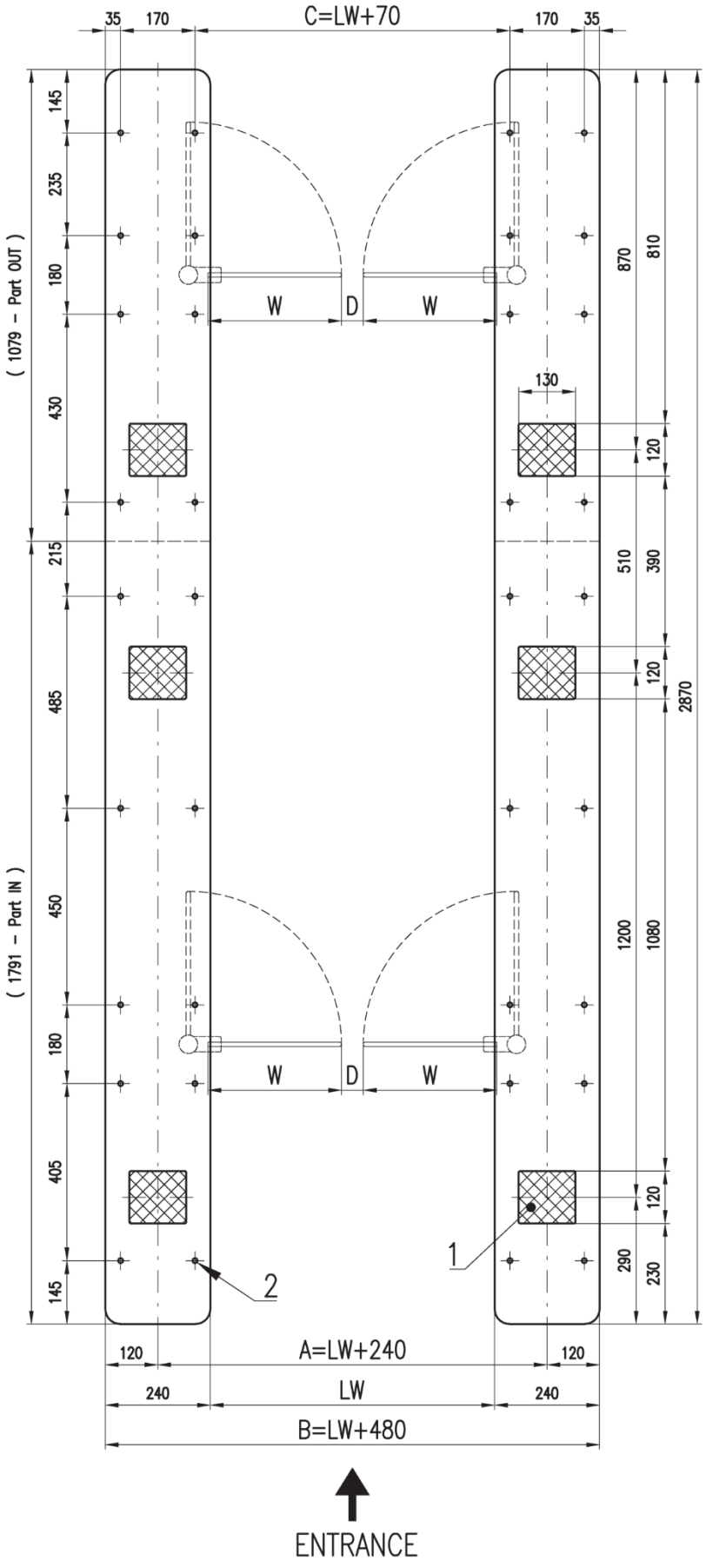
1. Holes for 120x130mm supply leads (cross-hatched)
2. Holes for M8 anchoring bolts (18x for one turnstile)

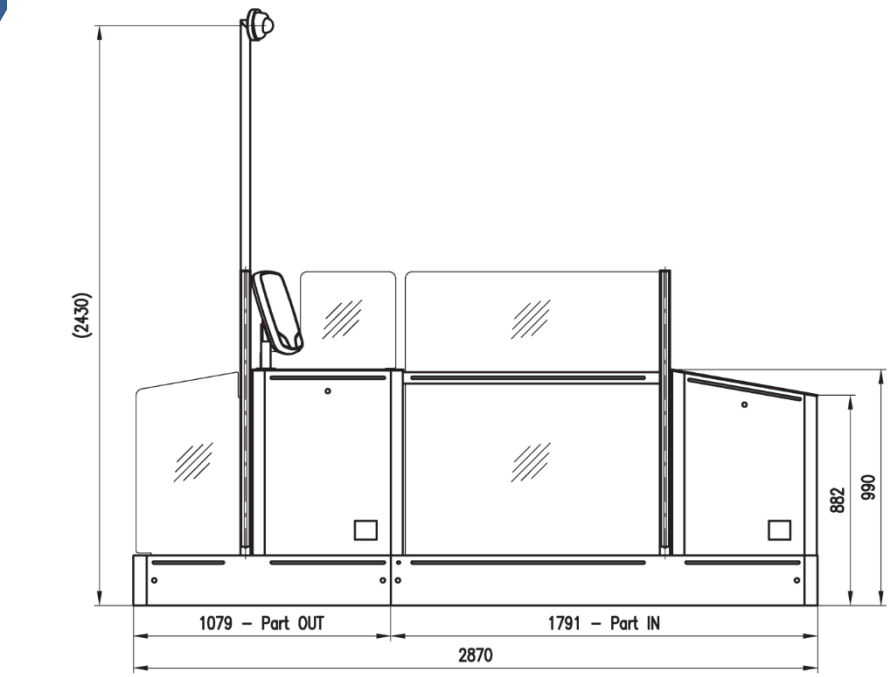
A Turnstile axial pitch
B Total dimension of two turnstiles forming one passage gate
C Internal pitch of anchoring holes
D Gap between the wings
W Width of the wing glass
LW Passage width

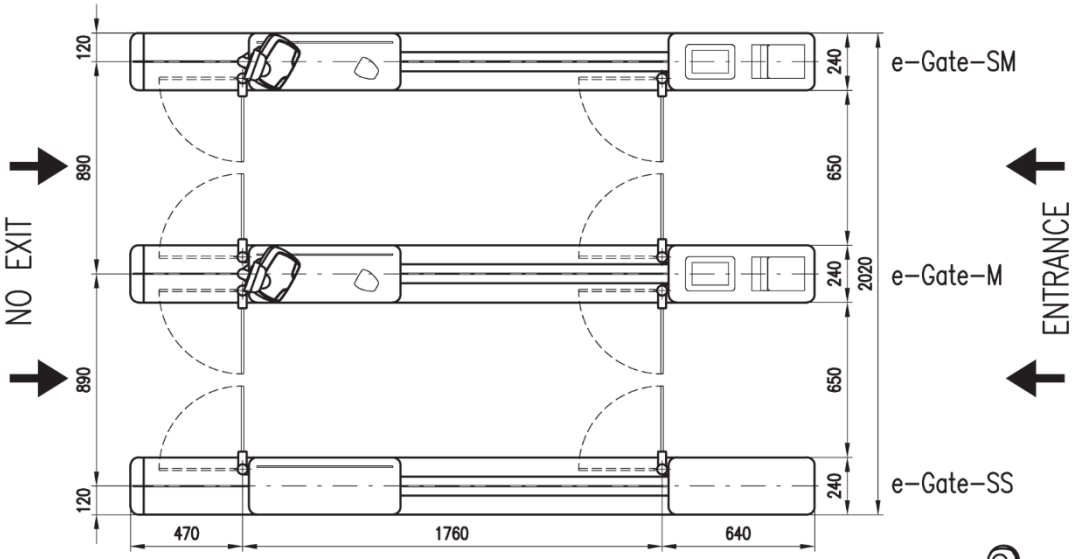
LW:	550	650	700	750	800
W	255	305	330	355	
D	50				100

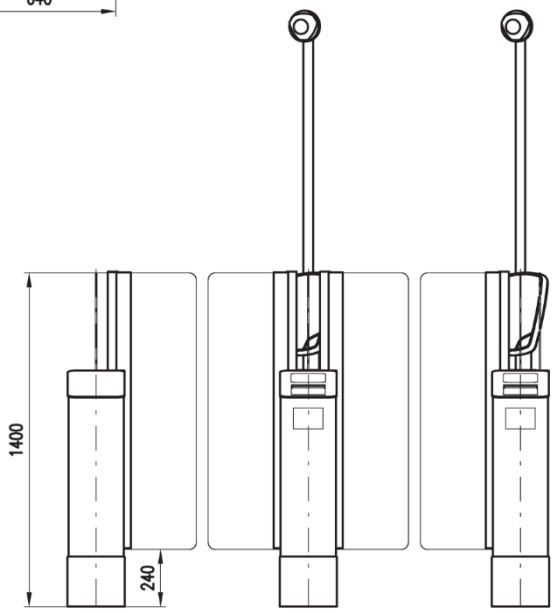


The width of glass wings is designed for each gate width so the edge of the glass wing in the open position does not interfere with the beam of any sensor. The glass must be clear without any labelling or other surface treatment in the area where the sensors are placed (red lines on the figure).


C=LW+70
35
170
170
35
145
235
180
430
215
485
450
180
405
145
(1079 – Part OUT)
(1791 – Part IN)
W
D
W
130
120
870
810
510
390
2870
1200
1080
290
230
1
2
120
A=LW+240
120
240
LW
240
B=LW+480
ENTRANCE


(2430)
882
990
1079 – Part OUT
1791 – Part IN
2870


120
890
890
120
240
650
240
2020
240
650
240
e–Gate–SM
e–Gate–M
e–Gate–SS
NO EXIT
ENTRANCE
470
1760
640


1400
240

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 MIDDLE turnstile type, it is necessary to differentiate the outer SIDE turnstiles in terms of internal electronic equipment:

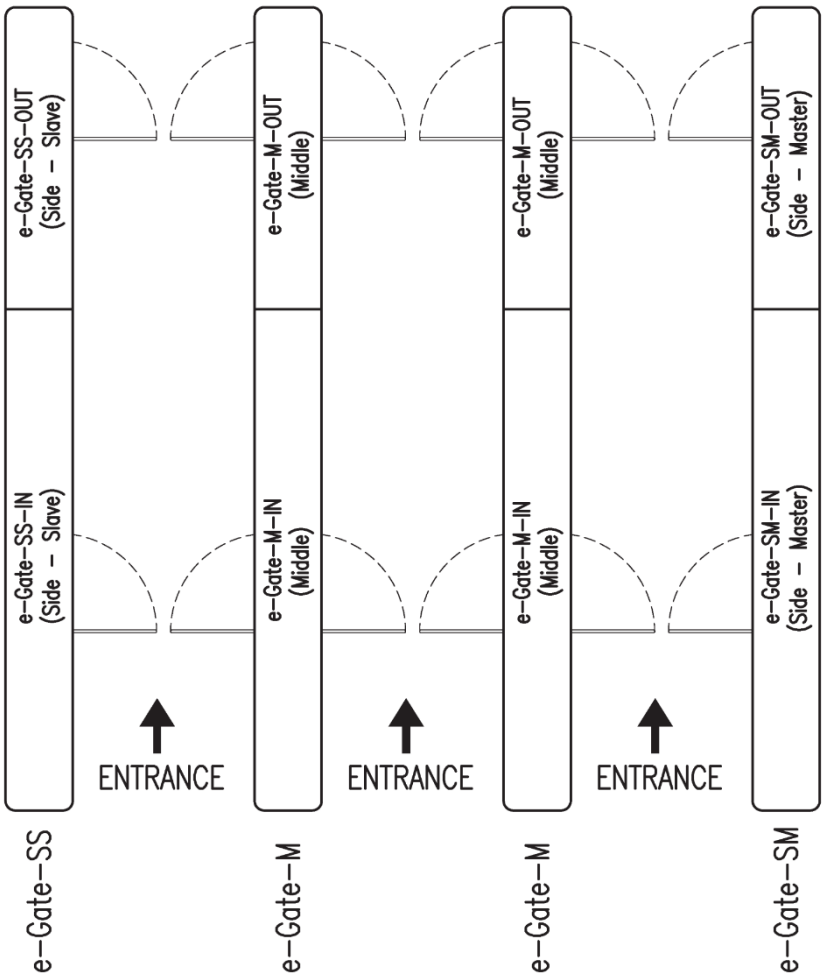
e-Gate SIDE-MASTER:

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

e-Gate 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 SIDE-MASTER or MIDDLE turnstile.

Example of turnstile arrangement for three gates:



Individual turnstile cabinets are numbered and it is necessary to obey the order according to the valid project documentation.

3.3. TURNSTILE COVER MARKINGS

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

PROCEDURE FOR REMOVING THE COVERS:

Covers: **A** / **B** / **F** / **G**:

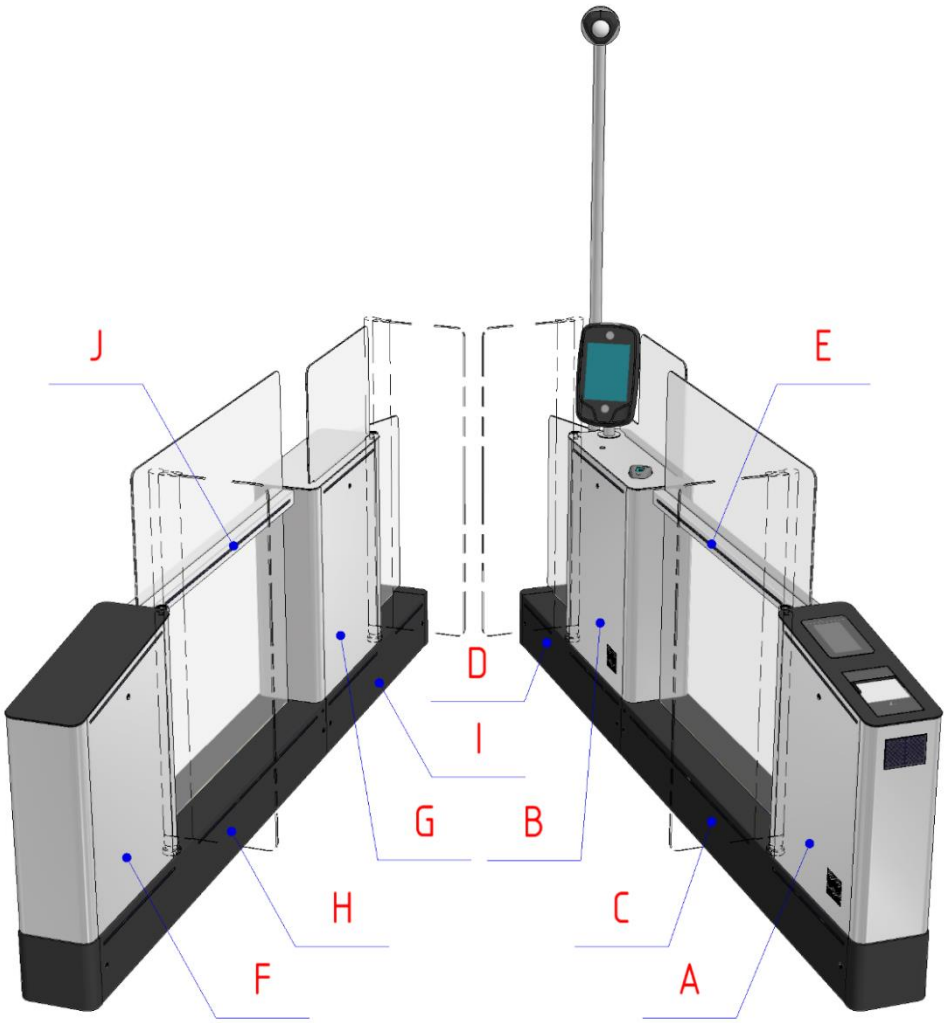
After unlocking the lock, slightly tilt the upper part of the cover away from the turnstile and remove the cover by pulling it upwards. Disconnect the ventilation connectors which are part of the covers **A B**.

Covers: **C** / **D** / **H** / **I**:

After unlocking the two locks, carefully slide the cover away from the turnstile. Pay extra attention when sliding out the cover to prevent damaging the surface finish of the cover.

Covers: **E** / **J**:

Remove the three M5x8 bolts from the bottom side of the cover and slide the cover away from the turnstile.



All locks on the turnstiles have a unified key.

3.4. DESCRIPTION OF ACCESS TO THE ANCHORING HOLES

The anchoring holes can be accessed after removing all bottom covers of the turnstile (cover: **C / D / H / I**).

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

The control electronics is always located in the MASTER turnstile.

Cover A:

- Control electronics – C1
- User terminal **XU**

Cover C:

- The MASTER turnstile interconnecting terminal block – **X2/B**

Cover H:

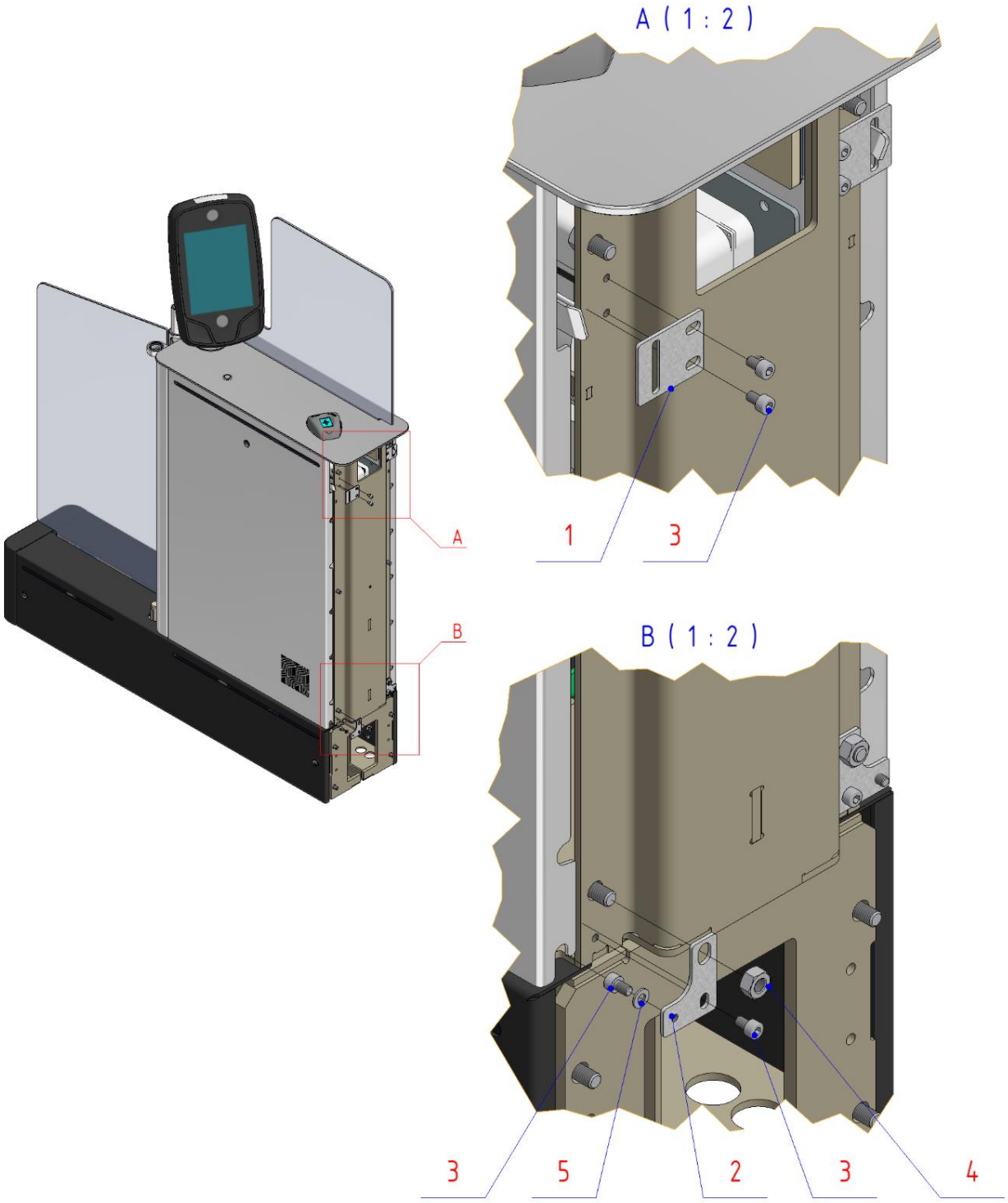
- The SLAVE turnstile interconnecting terminal block – **X3**

Cover B:

- The main power terminal block – **X1/A**
- PC
- UPS Backup Power Supply

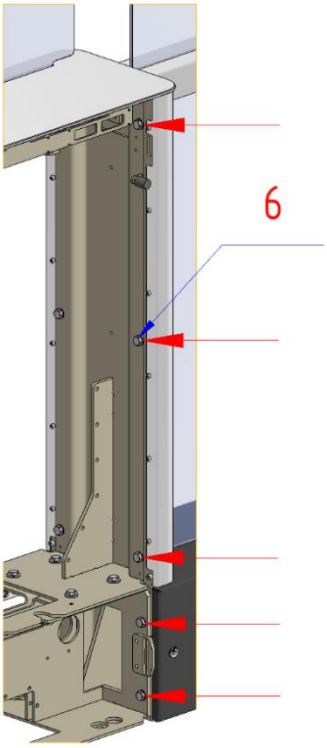
3.6. CONNECTING THE IN AND OUT PARTS OF THE TURNSTILE

1. Remove both side covers **B** and **G** on the **OUT** part.
2. Remove all the parts that are used only for turnstile transport (pos.1, 2, 3, 4, 5).



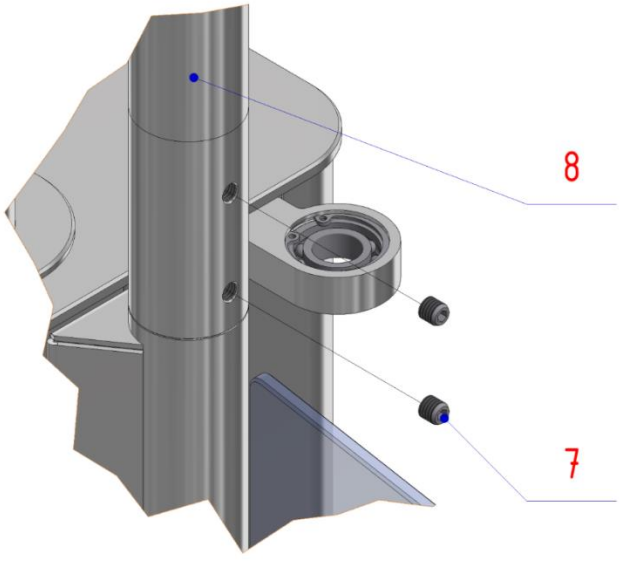
3. Remove both bottom covers **D** and **I** on the **OUT** part.

4. Move parts **IN** and **OUT** together and connect them using ten M8x16 bolts with a washer (pos.6).



Be careful when moving and connecting the turnstile parts together to avoid damaging the connectors or pinching the cables between the connected parts of the turnstile.

5. Attach the camera column (pos.8) to the **OUT** part using two M8x8 bolts (pos.7).



6. Interconnect the **IN** and **OUT** parts with four connectors and connect the cables of other devices into the respective places.

3.7. DESCRIPTION OF ACCESS TO THE OPTICAL SENSORS

- The upper optical sensors (Receivers) can be accessed after removing the covers **A** / **B** / **E**.
- The upper optical sensors (Transmitters) can be accessed after removing the covers **F** / **G** / **J**.
- The bottom optical sensors (Receivers) can be accessed after removing the covers **C** / **D**.
- The bottom optical sensors (Transmitters) can be accessed after removing the covers **H** / **I**.

3.8. DESCRIPTION OF ACCESS TO THE DRIVE UNIT AND WING STOPPERS

The drive unit and wing stoppers can be accessed after removing the bottom side covers (**C** / **D** / **H** / **I**) from the entry side of the turnstile.

3.9. DESCRIPTION OF THE INSTALLATION

3.9.1. 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

3.9.2. 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

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

- **MLU10 control electronics - see manual:** *MLU10 service manual*

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

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

- **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)

3.9.4. General description of the installation

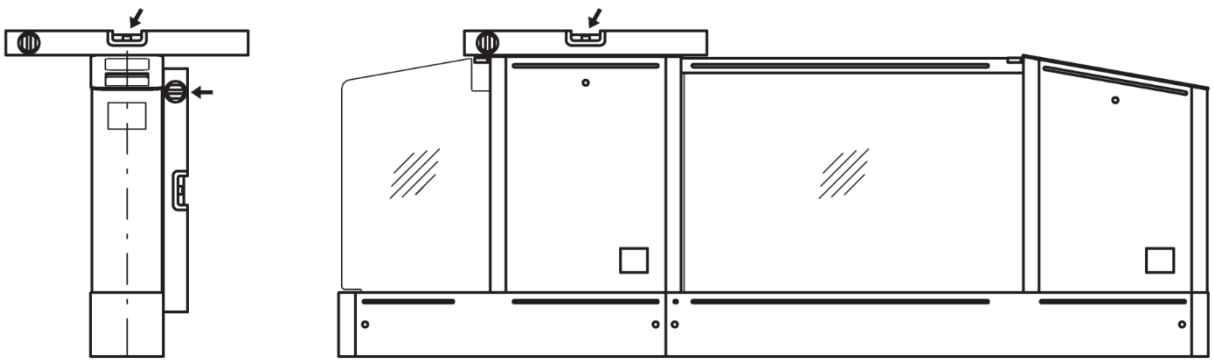
The area of installation must be free from clutter and perfectly even before you start installing. Base for anchoring has to be solid enough so that stability of the turnstile is ensured. In case of large unevenness of the ground, use special bolsters. These bolsters are made with regard to the actual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

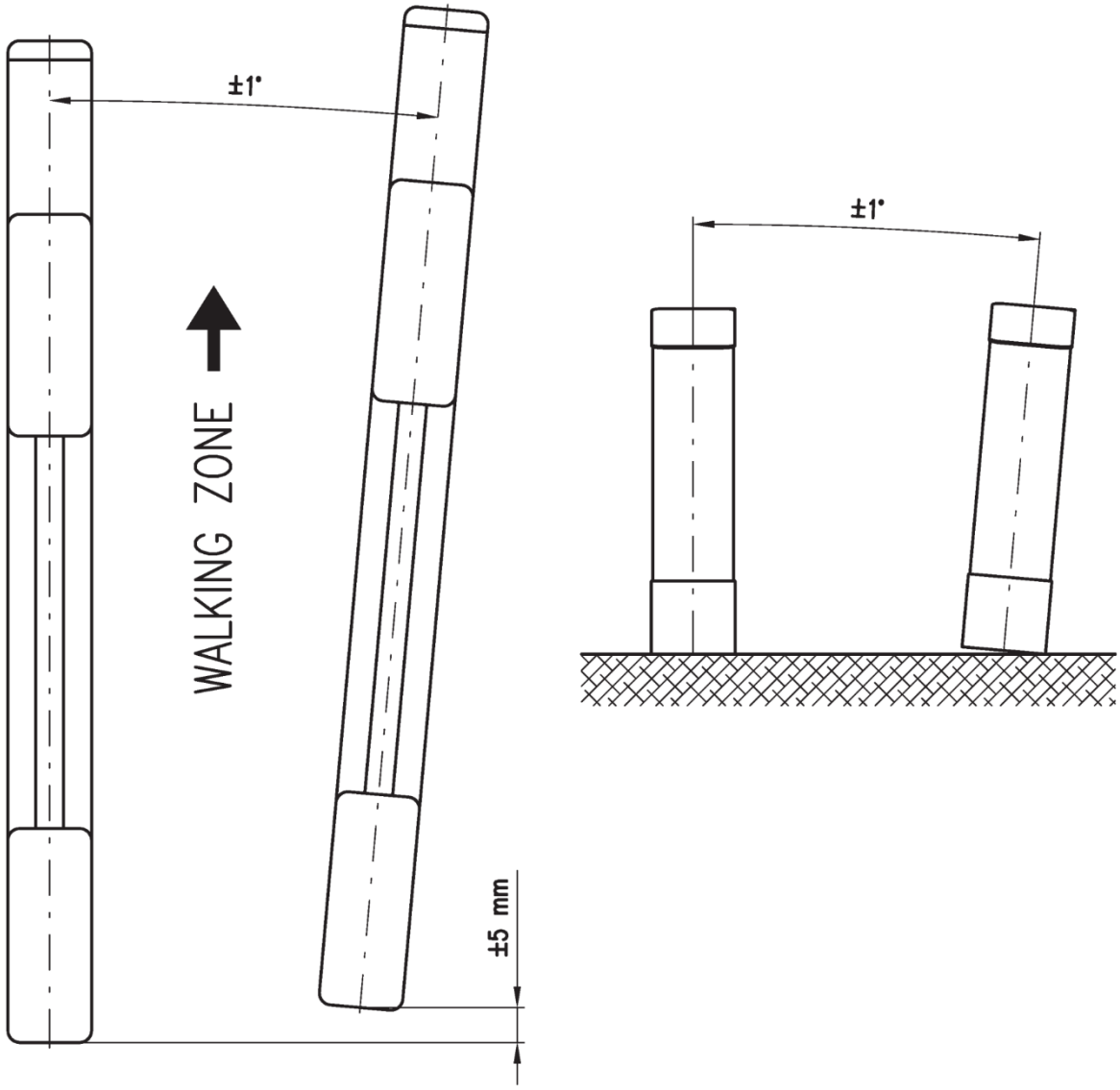
Description of the installation:

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.

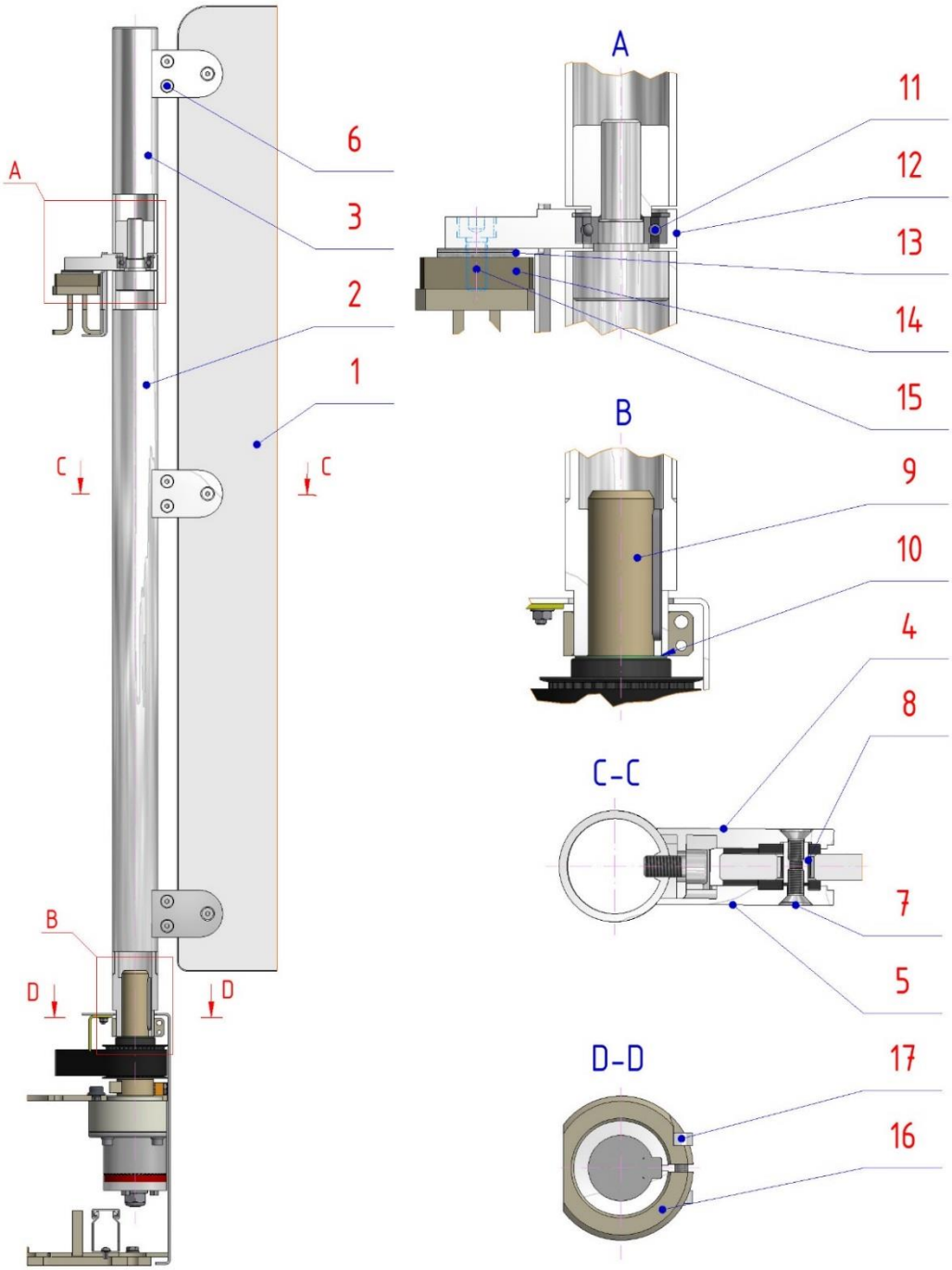
3.9.5. Attaching the wings

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

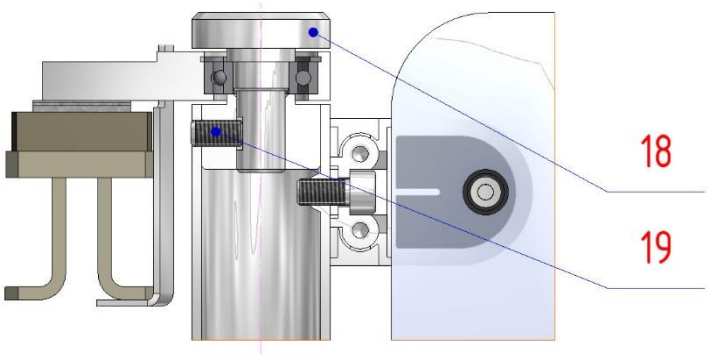
The glass wings (pos.1) are attached to the stainless-steel tube to the glass holders. For wing heights of 1200 to 1800mm, the bottom wing tube (pos.2) and upper wing tube (pos.3) with three glass holders are used. For wing heights of 975 to 1200, only the bottom tube with two glass holders is used and the upper tube is replaced by a blinding plug with a pin (pos.18) secured with a M8x16 bolt (pos.19).

The glass holders consist of a fixed part (pos.4) which is a part of the wing tube and a loose part (pos.5). By default, these holders are mounted in the turnstile gate so that the fixed parts (pos.4) are on the entry side.

A wing for glass height of 1200-1800mm



A wing for glass height of 975-1200mm



DESCRIPTION OF MOUNTING THE WING TUBES

The bottom tube (pos.2) is mounted on the shaft of the wing brake (pos.9). The spacers (pos.10) are used to adjust the correct position of the bottom tube in relation to the upper wing holder (pos.12). These spacers are 0.5 and 1mm thick.

The upper wing holder (pos.12) with bearing (pos.11) is mounted on the upper part of the tube (pos.2). The upper wing holder is attached to the turnstile frame with two M8x16 bolts (pos.15) through spacers (pos.13) and a block (pos.14). These spacers (pos.13) are 0.5 / 1 / 2mm thick.

The upper tube (pos.3) is mounted on the bottom tube pin (pos.2).

After adjusting the wing tubes, tighten the bottom clamping ring (pos.16) with two M5x16 bolts (pos.17).

The bottom and upper tubes are always paired and numbered for individual turnstiles and must not be interchanged.

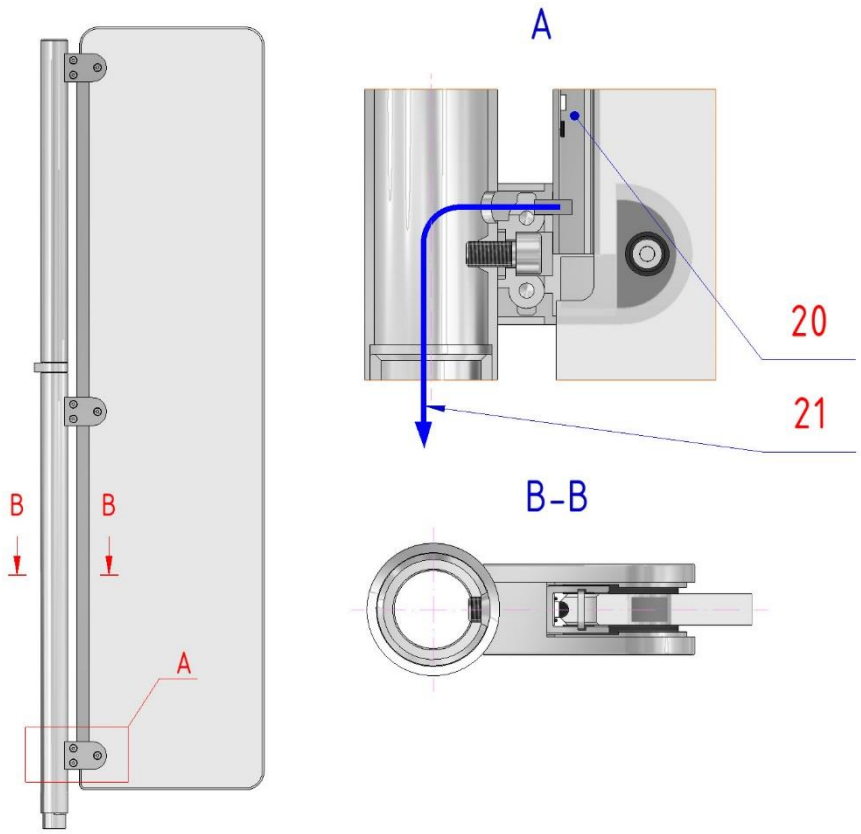
DESCRIPTION OF MOUNTING THE GLASS WING

At least two persons should cooperate when mounting the glass wing.
The loose and fixed parts of the glass holders are paired and must not be interchanged.

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

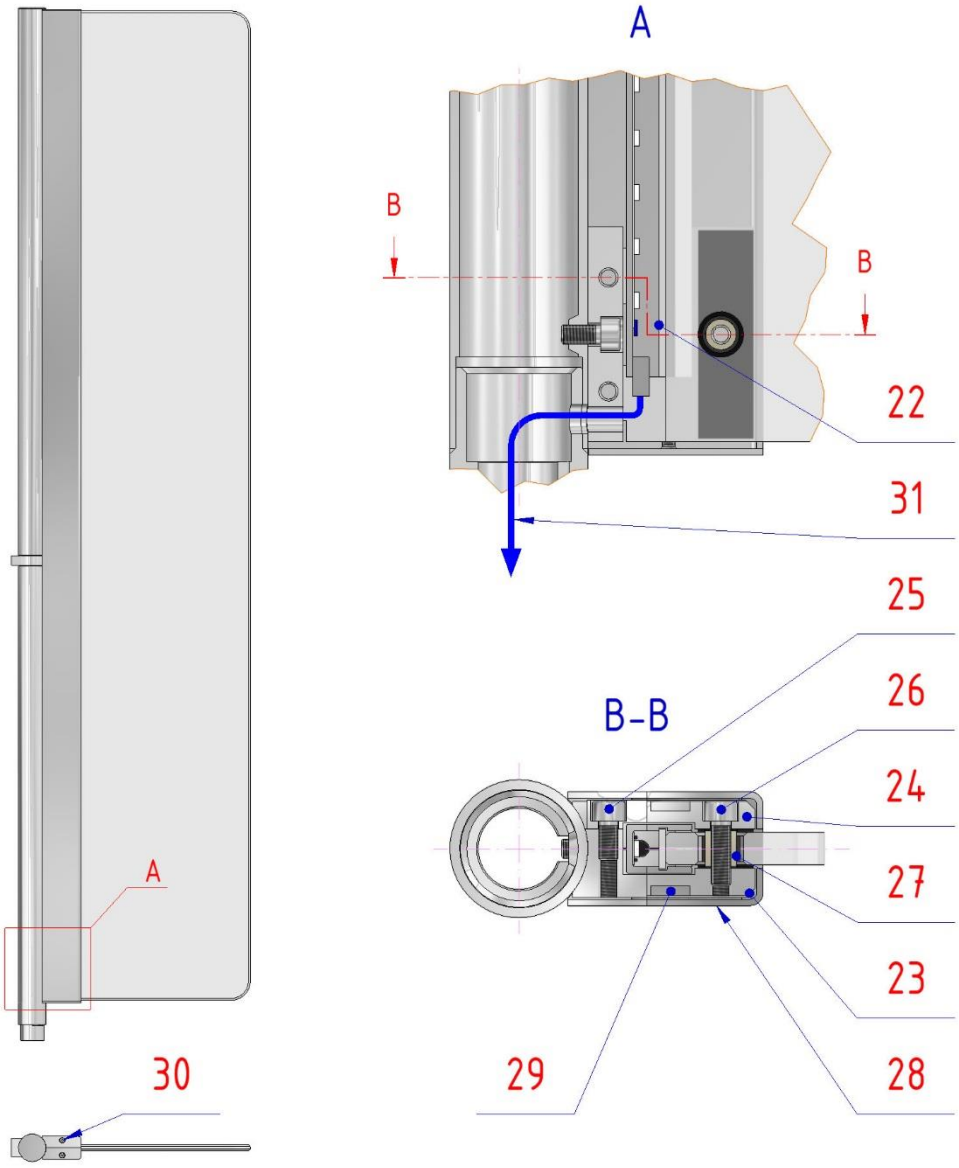
1. Remove all the M6x14 (pos.6) and M6x16 bolts (pos.7) from the side of loose parts of glass holders (pos.5). Remove the loose parts of the glass holders (pos.5).
2. Check that all holders include rubber inserts used for contact with glass.
3. In cooperation of two persons mount the glass wing (pos.1)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

A WING WITH WING LIGHT – Optional accessory



Mounting the wing with Wing Light is identical to the standard wing. Before mounting the glass, place the LED strip into the holders (pos.20). The cables (pos.21) are led through the shaft of the wing brake (pos.9) which is hollow in this case.

WING WITH COVERED GLASS HOLDERS WITH WING LIGHT OPTION – Optional accessory



1. Remove the M4x8 (pos.30) bolts from the bottom side first, then from the upper side.
2. Remove the glass holders covers (pos.28). The covers are attached to the glass holders with magnets (pos.29). Steel plates ale glued to the cover in the area where the magnets are.
3. Remove all the M6x12 (pos.25) and M6x20 (pos.26) bolts. Remove the loose parts of the glass holders (pos.24).
4. Place the LED strip (pos.22) into the holders now if the Wing Light is included.
5. Place the glass wing into the holders (pos.23) in cooperation of two persons.

6. While one person slightly lifts the glass and sets it in position, the other person places the pin (pos.27), which must be fitted with a rubber tube from the factory, to the second hole from the bottom edge of the glass. Lightly screw the loose part of the holder (pos.24) to the fixed part (pos.23) using the M6x12 (pos.25) and M6x20 (pos.26) bolts.

7. Insert the pin (pos.27) into the other holes and lightly attach the other loose parts of the holders (pos.24).

8. While one person slightly lifts the glass and sets it in position, the other person tightens all the bolts (pos.25 and 26).

9. Attach the holder covers (pos.28) so that the steel plates are placed in the area where magnets are (pos.29).

10. Screw in the M4x8 (pos.30) bolts from the top side first, then from the bottom side.

11. The cables (pos.31) are led through the shaft of the wing brake (pos.9) which is hollow in this case.

3.9.6. 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.

Adjustment procedure:

1. Remove the covers according to the chapter *Description of access to the drive unit and wing stoppers*.

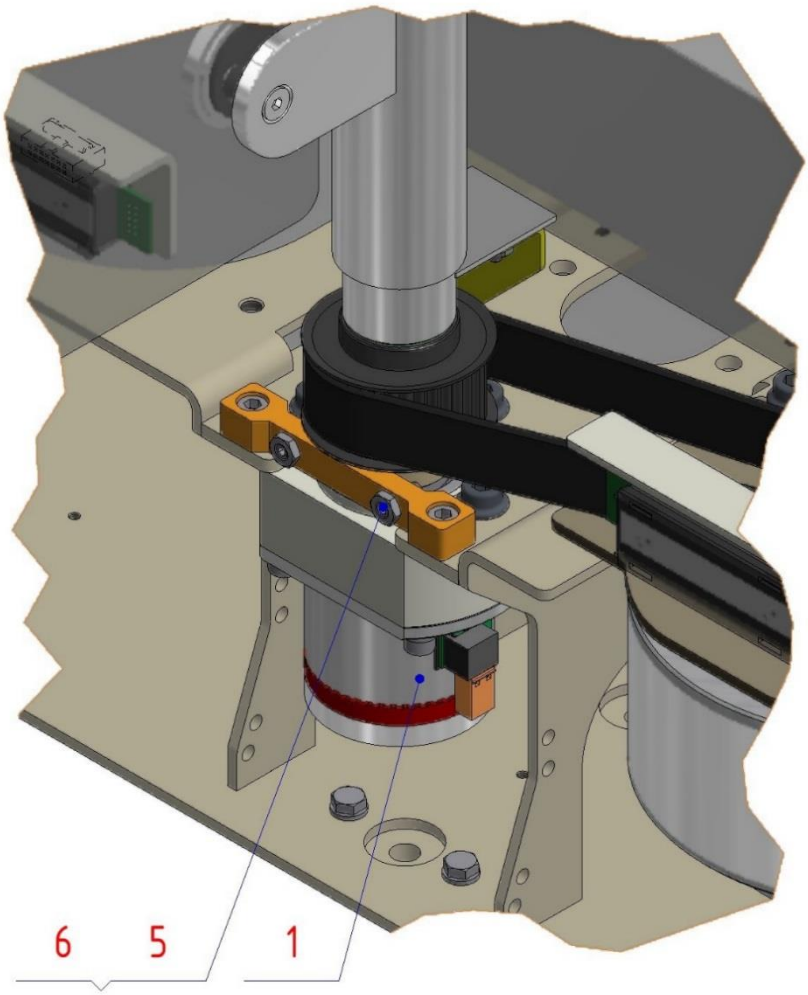
2. Start with checking if bolt connections (pos.2) of the wing brake (pos.1) are not loose. Also check the bolt connections (pos.3) of the stop block (pos.4) which is part of the wing brake. If you discover that any of the screws is loose, tighten it with appropriate hex key before starting the process of adjusting the wing home position.

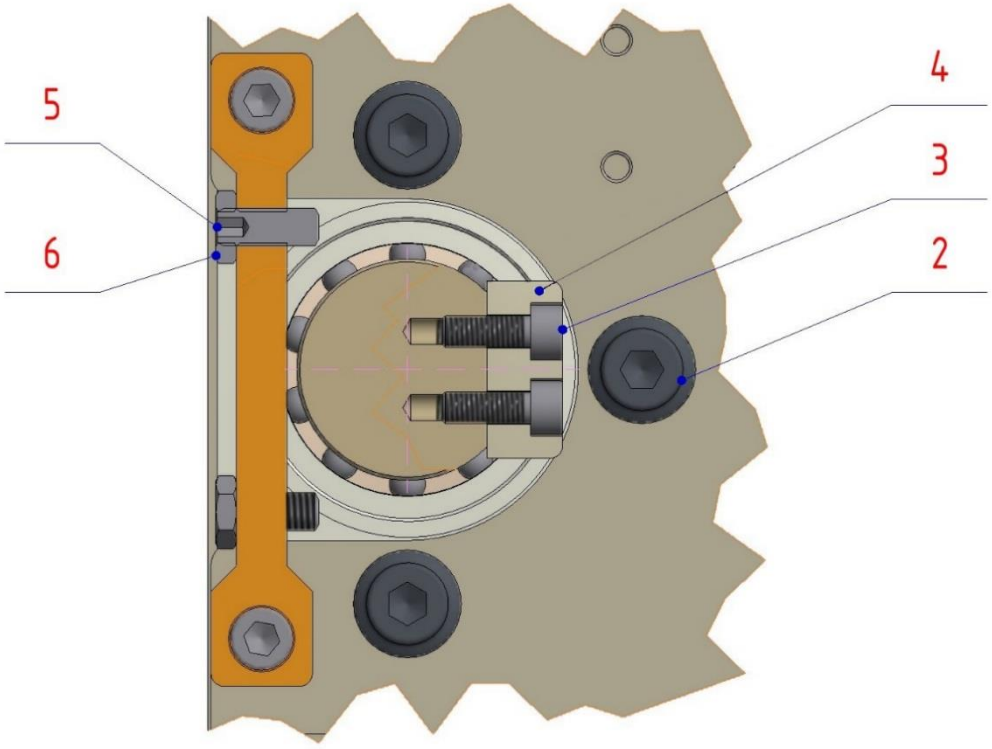
3. Loosen both M6 nuts (pos.6) before adjusting the adjusting the stopper.

4. By gently turning both M6x16 bolts (pos.5) adjust end positions of the wings so that when the wing stopper (pos.4) gets to the stop bolts (pos.5), 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 nuts (pos.6) and check both end positions of the wing again.

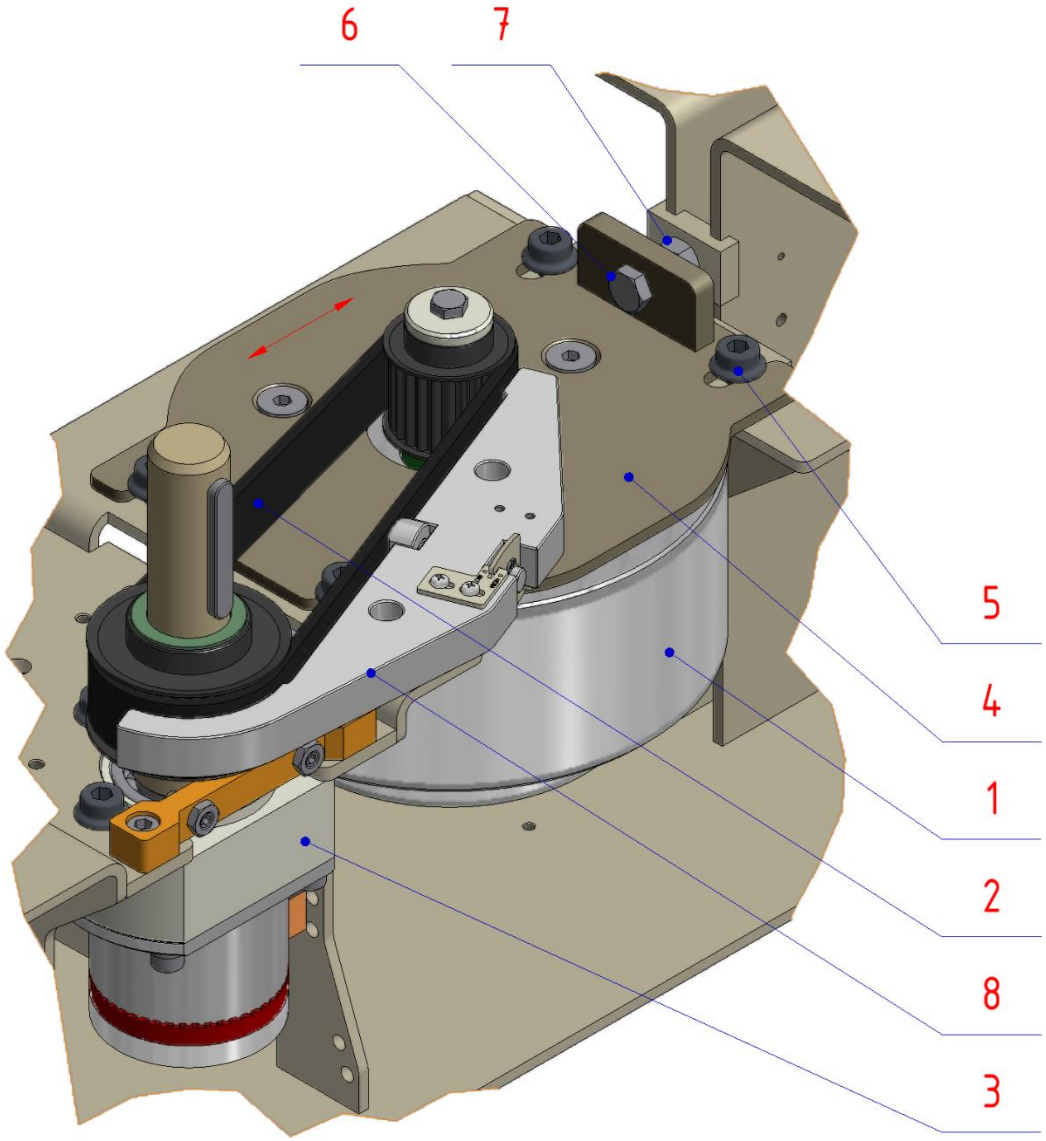
6. The home position of the wings is set to the middle of the path between individual stoppers. The position can be further adjusted using the TCONF application, regardless of adjustment of the stoppers. The setting is done by the *Position middle* MDD motor parameter. The computer must be connected to the internal communication line 485 with power supply switched on.


6
5
1


5
6
4
3
2

3.9.7. Checking and adjusting the drive unit

The drive unit of the turnstile consists of the MDD 168 motor (Magnetic direct drive) (pos.1) equipped with a driving pinion, tooth belt (pos.2) and wing brake with a large pulley (pos.3). The MDD 168 motor is firmly connected with a tensioner (pos.4) that is connected through a “floating” (adjusting) system the to the turnstile frame by RIPP M8x16 bolts (pos.5). In order to achieve the correct transfer of torque from the motor to the turning wing mounted on the wing brake, it is necessary to set the correct preload of the belt.

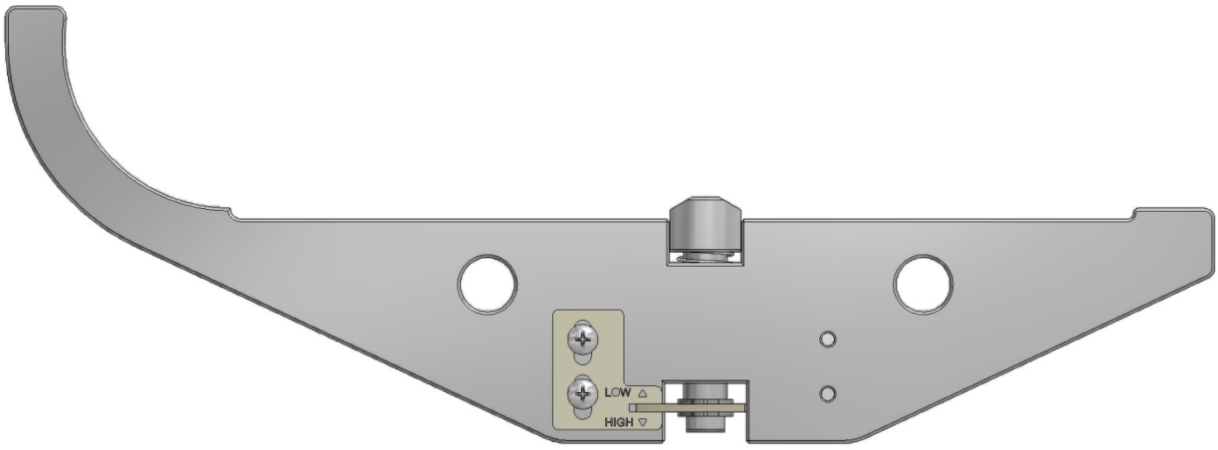


Adjustment procedure:

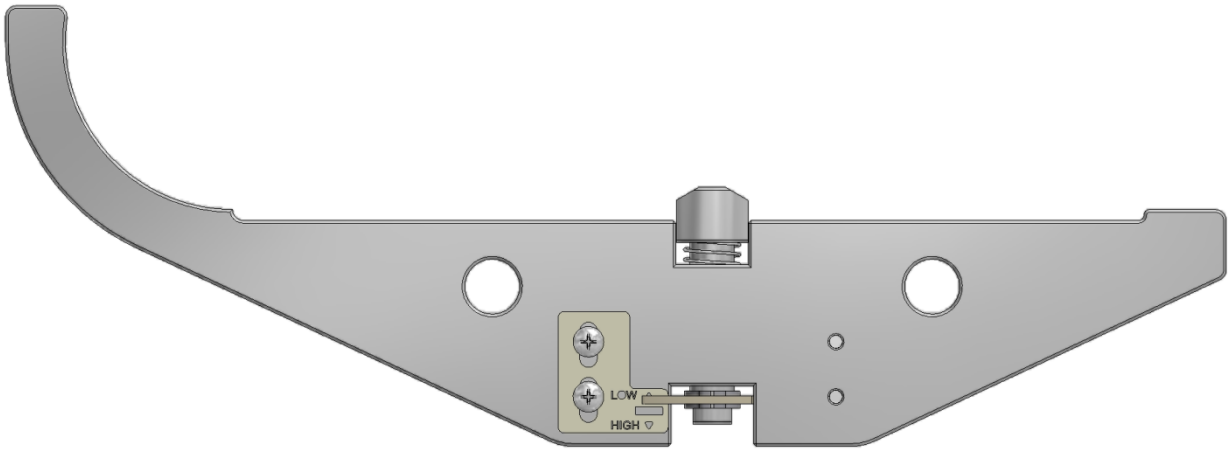
1. Remove the covers according to the chapter *Description of access to the drive unit and wing stoppers*.

2. Loosen the M8 counter nut (pos.7) and measure the belt preload using the BELT CONTROL device (pos.8). Place the curved part of the measuring device on the large pulley and the attach the flat surface the small pulley. There is a movable draw bar with a needle that shows the belt tension value on the gauge:

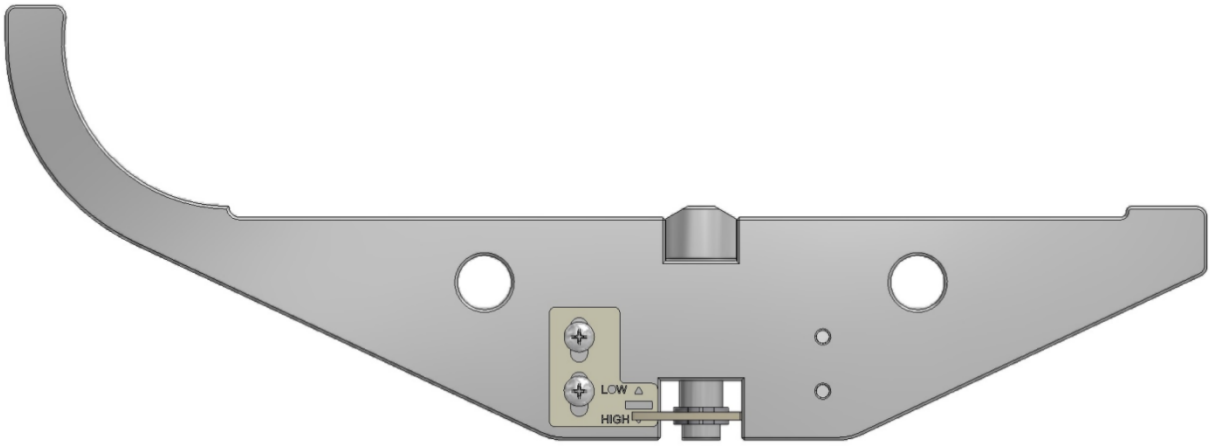
✓ The belt is tensioned to the desired value – the needle is centered on the zero value:



✗ The belt is tension is too low – the needle is under the zero value:



✗ The belt is tension is too high – the needle is above the zero value:



3. To adjust the belt tension, use the M8x35 tensioning bolt (pos.6). By gently turning in clockwise direction the axial distance is being increased which results in higher belt tension. By turning in anti-clockwise direction the axial distance is being decreased which results in lower belt tension.

4. It is always necessary to recheck the tension level with the BELT CONTROL device after adjusting the tightening / loosening of the tensioning bolt. Repeat the operation until the needle is in the required zero position.

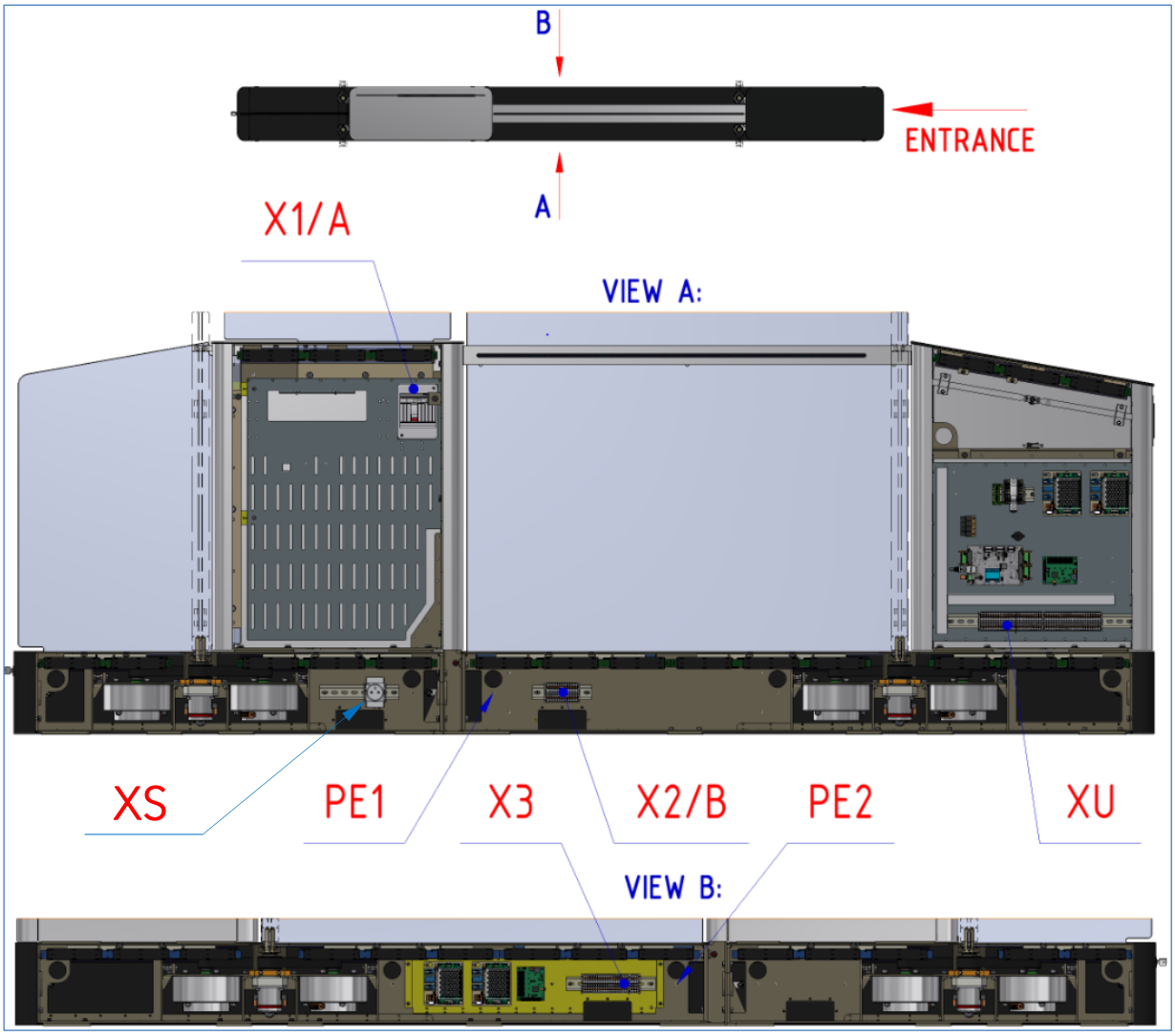
5. After adjusting the belt tension, first tighten the M8 counter nut (pos.7). Then tighten all RIPP M8x16 bolts (pos.5). Start the drive unit, let it run for about 5 mins and then check the preload again. If the values match, the belts have correct preload.

Take care of proper storage of BELT CONTROL device.
It is forbidden to do any adjustments to the BELT CONTROL device.

4. ELECTRICAL CONNECTION OF THE TURNSTILE

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

4.1. LOCATION OF CONNECTING AND INTERCONNECTING TERMINAL BLOCKS



X1/A - **230VAC** (or **110VAC**) main power terminal block
X2/B - The MASTER turnstile interconnecting terminal block
X3 - The SLAVE turnstile interconnecting terminal block
XU - USER terminal block
XS - Plug socket for interconnecting the IN and OUT parts of the MASTER turnstile
PE1 - The MASTER turnstile interconnecting earthing terminal block
PE2 - The SLAVE turnstile earthing terminal block

Layout of all turnstile devices is described in the *Layout of the devices in the turnstile.*

4.2. CONNECTION PROCEDURE

4.2.1. Connecting the power supply

CONNECTION TO THE MAINS POWER SUPPLY MAY ONLY BE PERFORMED BY AN AUTHORIZED PERSON WITH THE APPROPRIATE QUALIFICATIONS.

THE SUPPLY VOLTAGE MUST MEET ALL THE REQUIREMENTS LISTED IN THE *TURNSTILE POWER SUPPLY* **CHAPTER.**

THE CONNECTION MUST ALWAYS BE MADE WHEN THE POWER SUPPLY IS SWITCHED OFF AND SECURED AGAINST TURNING ON.

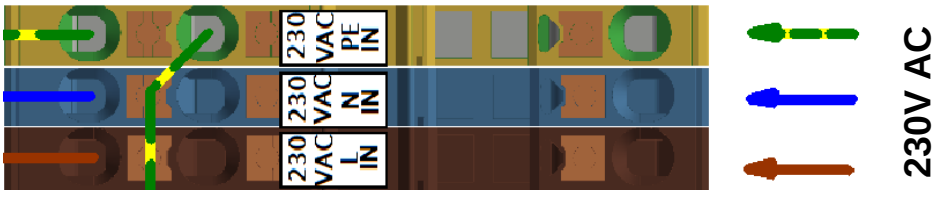
IF THE TURNSTILE IS EQUIPPED WITH BACKUP UPS POWER SUPPLY, IT IS NECESSARY TO DISCONNECT IT.

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.

- **By default, the turnstile is made for power supply of: 230VAC.**
- **Turnstile can also be made for 110VAC power supply.**

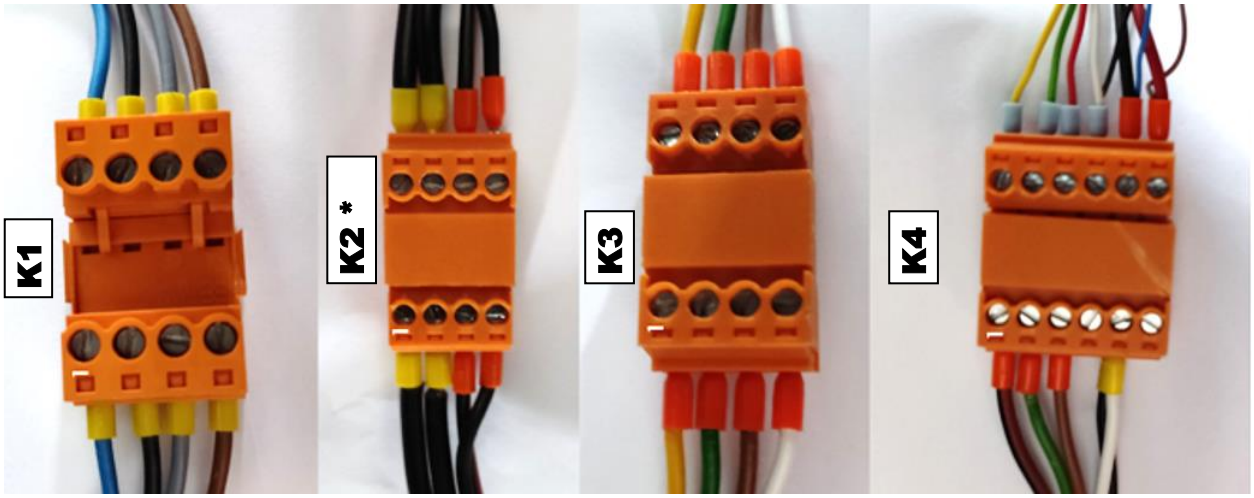
Connect the supply voltage to the X1A terminal in the OUT part of the MASTER turnstile according to following figure.



4.2.2. Interconnecting the IN and OUT parts of the MASTER turnstile

THE MASTER TURNSTILE CONNECTORS

- The **IN** and **OUT** parts of the **MASTER** turnstile are interconnected by four **K1-K4** connectors.
- Only three DIFFERENT connector types are used for interconnection.
- The identical **K2 and K3** connectors are equipped with code locks to avoid interchanging.
- Connect the turnstile parts with connectors according to the following figure.



- How individual wires are connected is described in the chapter *Wiring of the interconnecting connectors of the turnstile parts*.

Note*: If the turnstile is not equipped with a **VTL2** fan, only two wires are routed through the **K2** connector.

INTERCONNECTING THE PROTECTION CIRCUIT BY PE WIRES

- **Pay special attention to the connection of the protective PE wire to the interconnecting earthing terminal PE1.**
    - The interconnecting earthing terminal **PE1** is marked with the following symbol
    - Connect the green-yellow wire from the **X1A** terminal of the **OUT** part of the turnstile to the interconnecting earthing terminal **PE1** in the **IN** part of the turnstile.
    - Before connecting it is necessary to disconnect and then reconnect the green-yellow wire, which is led out in the **IN** part of the turnstile to the **ESC1** earthing bridge.

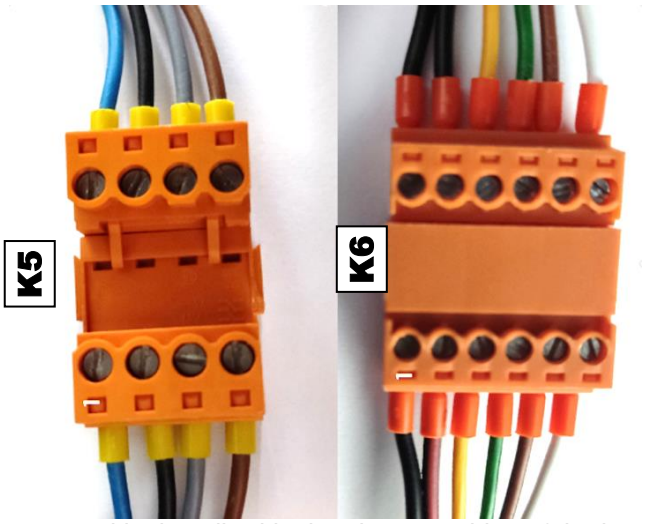
CONNECTING THE POWER SUPPLY OF IN AND OUT PARTS OF THE TURNSTILE

- The **IN** part of the turnstile is powered through a 230V **XS** socket located on the DIN rail in the **OUT** part of the turnstile.
    - Insert the plug of the loose cable in the **IN** part of the turnstile into the **XS** socket in the **OUT** part of the turnstile.

4.2.3. Interconnecting the IN and OUT parts of the SLAVE turnstile

THE SLAVE TURNSTILE CONNECTORS

- The SLAVE turnstile is interconnected through two K5 and K6 connectors.
- DIFFERENT connector types are used for interconnection.
- Connect the turnstile parts with connectors according to the following figure.



How individual wires are connected is described in the chapter *Wiring of the interconnecting connectors of the turnstile parts*.

4.2.4. Interconnecting the MASTER and SLAVE turnstile.

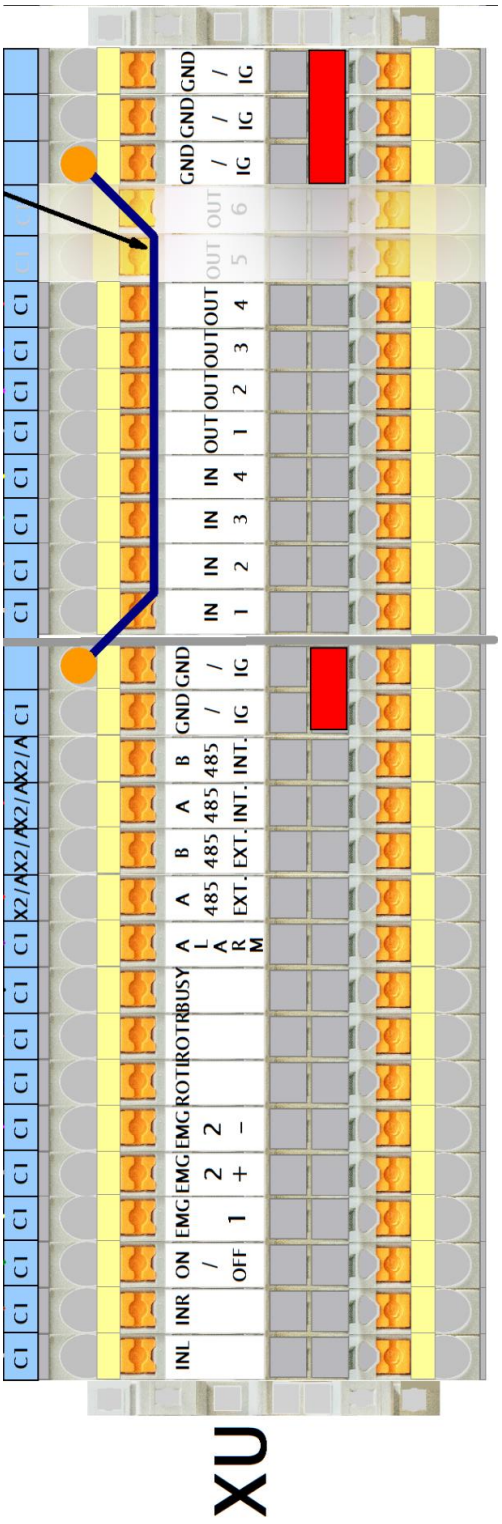
IT IS ALWAYS NECESSARY TO ONLY USE CABLES PROVIDED BY THE COMINFO COMPANY FOR INTERCONNECTING TURNSTILES.

- Connect the supplied six-core Cable **nr. 01** to the **X2/B** terminal in the **MASTER** turnstile according to the wire colorings in the *X2/B MASTER interconnecting terminal block wiring diagram*.
- Connect the second end of the cable **nr. 01** to the **X3** terminal in the **SLAVE** turnstile according to the wire colorings in the *X3 SLAVE interconnecting terminal block wiring diagram*.
- Connect the supplied three-core Cable **nr. 02** to the **X2/B** terminal in the **MASTER** turnstile according to the wire colorings in the *X2/B MASTER interconnecting terminal block wiring diagram*.
- Connect the second end of the cable **nr. 02** to the **X3** terminal in the **SLAVE** turnstile according to the wire colorings in the *X3 SLAVE interconnecting terminal block wiring diagram*.

- **Pay special attention to the connection of the protective PE wire.**

4.2.5. Connecting the superior control system of the turnstile

- All the necessary input and output control signals are leading to the **XU** user terminal in the **MASTER** turnstile.



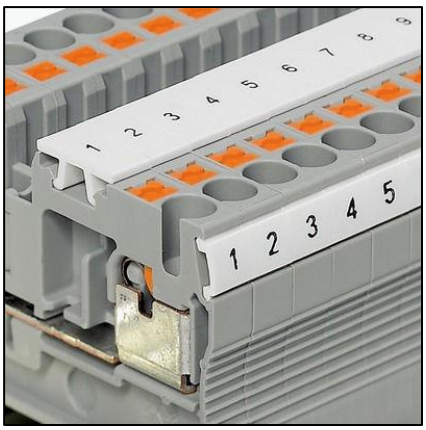
- When performing the connection, follow the *DESCRIPTION OF THE TURNSTILE CONNECTION*.
- Description of control signals functions is described in the *Description of controlling the turnstile by status signals* chapter.

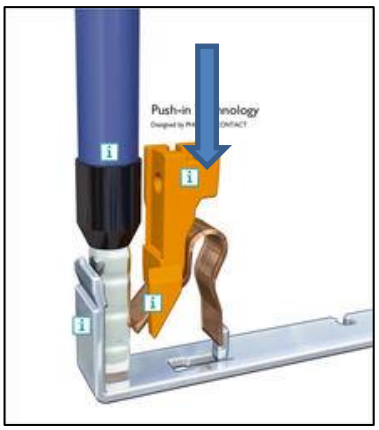
4.3. DESCRIPTION OF CONNECTION OF TERMINAL BOXES AND CRIMP CONNECTORS

- 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.
- Apart from the screw terminals, the following systems with flexible spring clamps are used:

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

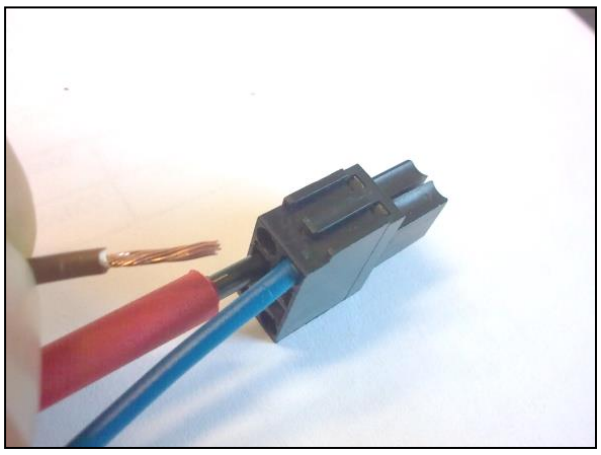
- Usage: Terminal blocks **– X1/A, X1/B, X2/A, X2/B, X3, XU**.
- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with any tool as shown on the figure.

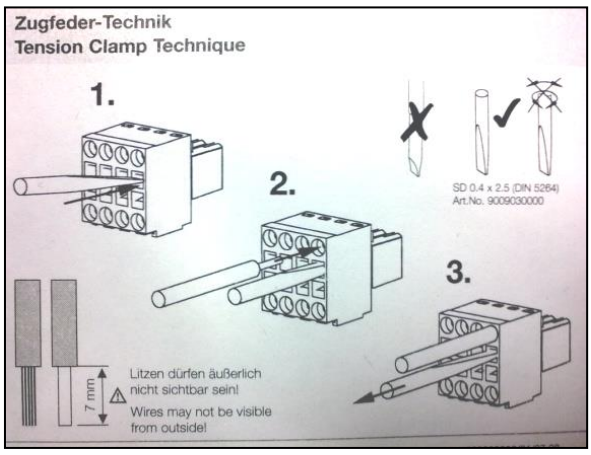




<u>Weidmüller</u> connector with flexible clamps:

- Usage: RS 485 **D1** Distributor
- 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.



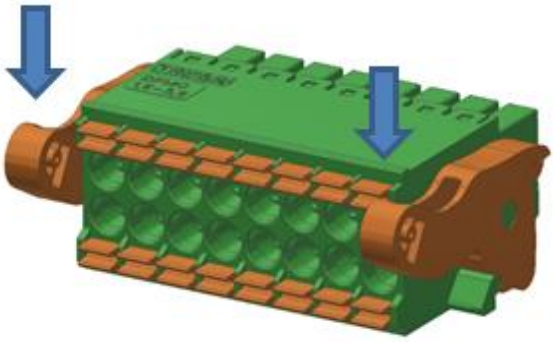


<u>Weidmüller</u> connector with flexible push-in clamps:

- Usage: MDD168 drive unit **M1, M2, M3, M4**.
- 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.

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

- Usage: connectors **K2, K3, K4** on the MLU10 control electronics.
- The connector is also used to connect the Turnstile tester.
- 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.
- The lock is automatically secured after inserting the connector into the electronics.
- After pressing the lock with a finger according to the arrows in the picture, the connector is automatically released.



5. PUTTING THE TURNSTILE INTO OPERATION

5.1. CHECKING THE TURNSTILE BEFORE PUTTING IT INTO OPERATION

- With the supply voltage switched off, check the correct adjustment of the drive mechanics.
  - Check the adjustment of the wing stoppers according to the chapter *Checking and adjusting the wing end stoppers*.
  - Check the drive unit belt tension according to the chapter *Checking and adjusting the drive unit*
- 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.

- RPS-200-12C **PS1, PS2, PS3, PS4** power supply
  - green power LED is on
- MLU10 **C1** control electronics
  - green power LED is on
  - orange LED RUN processor is blinking
- Control electronics of optical signalization **CLU1, CLU2***
  - green power LED is on
  - green communication LED is on
- Sensor bars of the **TX1** – **TX9** transmitters.
  - green synchronization LED is blinking
- Sensor bars of the **RX1**-**RX9** receivers
  - green power LED is on
- Signal expander **SE****
  - green communication LED is blinking

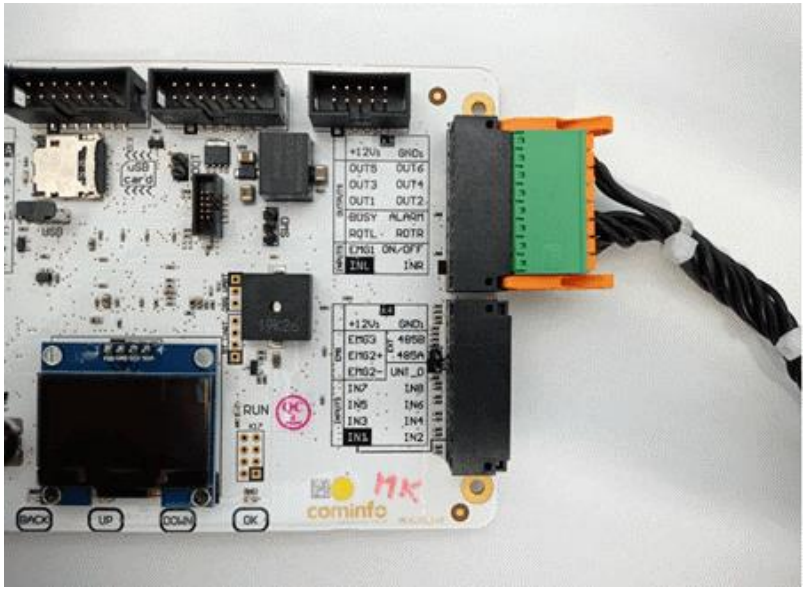
If the signalization is different, follow the instructions for the relevant electronics.

* The **CLU** control electronics is used only in case the turnstile is equipped with the Wing Light optical signalization.

** The signal expander **SE** is used only in case it is necessary to increase the number of inputs and outputs of the MLU10 control electronics.

5.4. TESTING ALL THE TURNSTILE FUNCTIONS WITH THE TURNSTILE TESTER

- Before connecting the superior system, we verify all the turnstile functions using the *Turnstile Tester MLU10* control panel.
- The tester is connected directly into the MLU10 electronics.
- We disconnect the **K3** connector from the electronics and connect the controller connector according to the following figure:



- Perform the test according to the chapter *CONTROLLING BY STATUS SIGNALS.*
- Usage of the *Turnstile Tester* is described in a separate manual.

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

- The turnstile is controlled by a separate MLU10 electronics which allows configuration and adjustment of the turnstile behavior 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.
- **The e-Gate turnstile is configured according to customers specific requirements out of the factory.**
- **In case of different requirements, it is necessary to contact the manufacturer COMINFO.**

6. DESCRIPTION OF THE TURNSTILE CONNECTION

6.1. CONNECTING THE INTERNAL POWER SUPPLIES

- Four **MEANWELL RPS-200-12C** power supplies 230VAC input 12VDC/16.7A output, are used in the turnstile.
- The power supplies are powered through **FA1** B16A circuit breaker, **X1A** terminal block, **FA2** B10A circuit breaker and **X1/B** terminal block.
- The power supplies outputs are protected by a 5x20 F16A fuse located in the fuse holder on the respective terminal block.
- The output voltage of each gate's power supply is connected to the common **GND** potential.
- The **GND** potential must not be connected to **GND** potential of other gates.
- The **GND** potential must not be connected with the protective circuit, nor with the superior system potential.

6.1.1. Main power supply PS1

- The 230VAC power supply is connected to the **X1/B** terminal block. The 12VDC output is connected to the **X2/A** terminal block.
- The **PS1** power supply is powering following devices:
  - **C1** – MLU10 control electronics
  - **M1** – MDD168 drive unit with **ZB1** brake on the entry side of the MASTER turnstile
  - **CLU1** – master turnstile optical signalization electronics
  - **DLL1** – Digital Lane Light located on the entry side of the master turnstile
  - **VTL1** – Ventilator (used when there is high power loss of optional accessories)
  - **VTL2** – Ventilator (used when there is high power loss of optional accessories)
  - **SE** – Signal expander (optional accessory)

6.1.2. PS2 power supply

- The 230VAC power supply is connected to the **X1/B** terminal block via **X3, X2/B** terminal block.
- The 12VDC output is connected to the **X3** terminal block.
- The **PS2** power supply is powering following devices:
  - **M2** – MDD168 drive unit with **ZB2** brake on the entry side of the SLAVE turnstile
  - **CLU2** - SLAVE turnstile optical signalization electronics
  - **TX1-9** – sensor bars of the transmitters
  - **TX10** – separate middle sensor – transmitter

6.1.3. PS3 power supply

- The 230VAC power supply is connected to the **X1/B** terminal block, the 12VDC output is connected to the **X2/A** terminal block.
- The **PS3** power supply is powering following devices:
  - **M3** – MDD168 drive unit with **ZB3** brake on the exit side of the MASTER turnstile

6.1.4. PS4 power supply

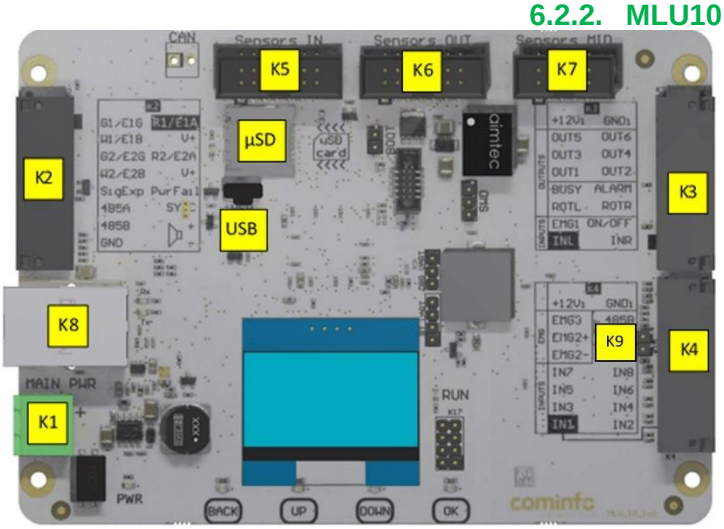
- The 24VAC power supply is connected to the **X1/A** terminal block via **X3, X2/B** terminal block.
- The 13.8VDC output is connected to the **X3** terminal block.
- The **PS4** power supply is powering following devices:
  - **M4** – MDD168 drive unit with **ZB4** brake on the entry side of the SLAVE turnstile

6.2. CONNECTING THE MLU10 CONTROL ELECTRONICS

6.2.1. Description of the MLU10 electronics

- The control electronics is designed for universal controlling of all COMINFO turnstiles.
- Specifications of the **MLU10** electronics:
  - Service display for monitoring states and errors
  - RJ45 connector for ETHERNET connection
  - Two independent RS485 communication lines
  - Connectors for direct connection of sensor bars manufactured by COMINFO
  - Digital inputs and outputs for connecting internal devices manufactured by COMINFO
  - 12 modifiable user inputs
  - 10 modifiable user outputs
  - Inputs for universal connection of FIRE (EPS) signal
  - Acoustic signalization buzzer
  - Implemented Wav player with direct speaker connection
  - SD card for saving and collecting data
  - **Galvanically isolated power supply of inputs and outputs**

6.2.2. MLU10 connectors layout



- K1 - 13.8VDC power supply connector
- K2 - internal circuits connector
- K3 - main connector of control signals
- K4 - extending connector of control signals
- K5 - Sensors IN connector for sensor bars
- K6 - Sensors OUT connector for sensor bars
- K7 - Sensors MID connector for sensor bars
- K8 - RJ45 – ETHERNET connector
- K9 - Jumper
- USB - service connector (only for purposes of the manufacturer – do not connect any devices)
- µSD - micro SD card slot

6.2.3. Description of connection of the MLU10 electronics connectors:

- Only connectors necessary to control the e-Gate turnstile are connected to the electronics.
- No other connectors or wires can be connected to the electronics without consulting the manufacturer.
- Connecting the signals according to markings on the PCB terminals of the **MLU10** electronics.

CONNECTOR	DESCRIPTION	CONNECTION
Connector K1		
MAIN PWR	13.8VDC power supply	X2/A terminal block
Connector K2		
RS485A DATA INT.	internal communication line channel A	485 D1 distributor
RS485B DATA INT.	internal communication line channel B	485 D1 distributor
SYNC	sensor synchronization signal	X2/A terminal block
PwrFail	Loss of power supply signal	output O1 of the SM12 power supply
SP speaker symbol	direct connection of a speaker	8ohm speaker
V+	press sensor/backlight master +	PS1/BL1
G1/E1G	press sensor/backlight master -	PS1/BL1
R1/E1A	press sensor/backlight master sig.A	PS1/BL1
W1/E1B	press sensor/backlight master sig.B	PS1/BL1
V+	press sensor/backlight slave +	X2 terminal block
G2/E2G	press sensor/backlight slave -	X2 terminal block
R2/E2A	press sensor/backlight slave sig.A	X2 terminal block
W2/E2B	press sensor/backlight slave sig.B	X2 terminal block
Connector K3		
+12Vi	isolated power supply of inputs and outputs	not connected
GNDi/IG	isolated power supply of inputs and outputs	XU terminal block
INL	preset input	XU terminal block
INR	preset input	XU terminal block
ON/OFF	preset input	XU terminal block
EMG1	preset input	XU terminal block
ROTL	preset output	XU terminal block
ROTR	preset output	XU terminal block
BUSY	preset output	XU terminal block
ALARM	preset output	XU terminal block
OUT1-OUT4	modifiable outputs	XU terminal block
OUT5-OUT6	extensional outputs (on request to manufacturer)	not connected
Connector K4		
+12Vi	isolated power supply of inputs and outputs	connector K4
GNDi/IG	isolated power supply of inputs and outputs	connector K4
RS485A DATA EXT.	internal communication line channel A	485 D1 distributor
RS485B DATA EXT.	internal communication line channel B	485 D1 distributor
EMG2+/EMG2-	EMERGENCY voltage input	XU terminal block
EMG3	EMERGENCY specific input	not connected
IN1-IN4	modifiable inputs	XU terminal block
IN5-IN8	extensional inputs (on request to manufacturer)	not connected
UNI-0	input for manufacturer's needs only	not connected
Connector K5		
Sensors IN	top sensor bars	RX1 sensor bar
Connector K6		
Sensors OUT	bottom sensor bars	RX2 sensor bar
Connector K7		
Sensors MID	not used for E-GATE turnstile	not connected
Connector K8		
RJ connector	connector for ETHERNET connection	ready for PC connection

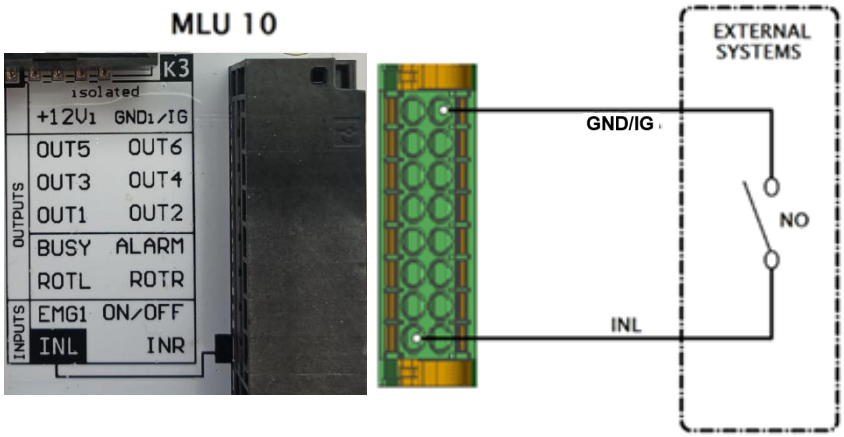
6.3. CONNECTING THE INPUT CONTROL SIGNALS

- **The +12Vi and GND/IG terminals are used EXCLUSIVELY for activation of inputs/outputs.**
- **The GND/IG potential must not be in any case connected to the GND potential of the turnstile power supplies (power supplies PS1-PS4).**

6.3.1. Connection by switching the contact without external potential

- The inputs are activated by applying the GND/IG potential.
- The GROUP parameter in TCONF application must be set to GND (factory setting).

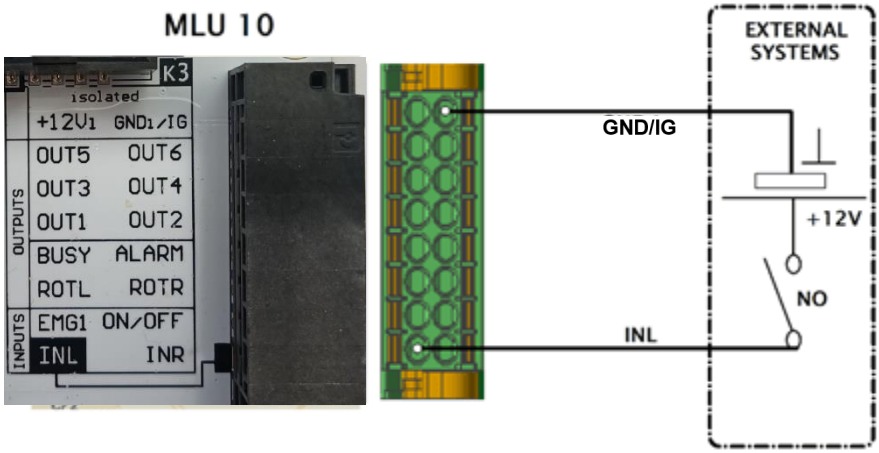
Example of connecting the INL control signal by switching the contact without external potential.



6.3.2. Connection by switching the contact with external potential

- The inputs are activated by applying the external potential with voltage up to +13.8VDC.
- The GROUP parameter in TCONF application must be set to +12V.
- We recommend consulting the connection with external potential with the manufacturer COMINFO.

Example of connecting the INL control signal by applying the +12V external potential.



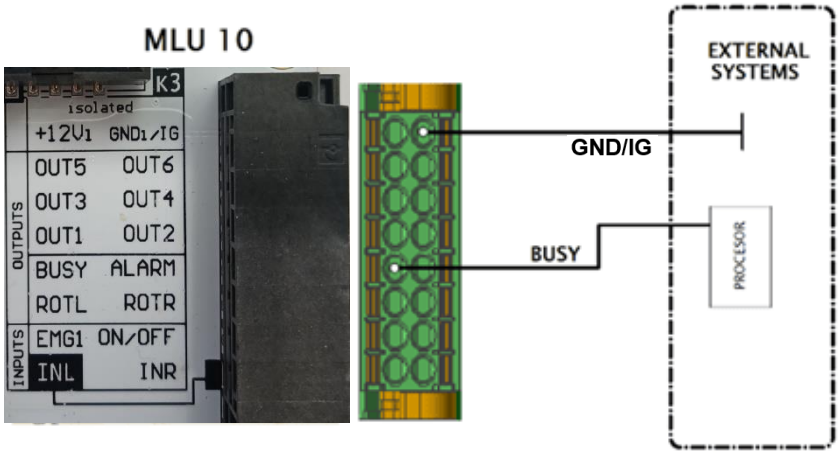
6.4. CONNECTING THE OUTPUT CONTROL SIGNALS

- **The +12Vi and GND/IG terminals are used EXCLUSIVELY for activation of inputs/outputs.**

6.4.1. Connection in the output contact mode - standard

- It is necessary to connect the GND of the superior system with GND/IG potential for correct function.

Example of connecting the BUSY output control signal in the output contact mode.

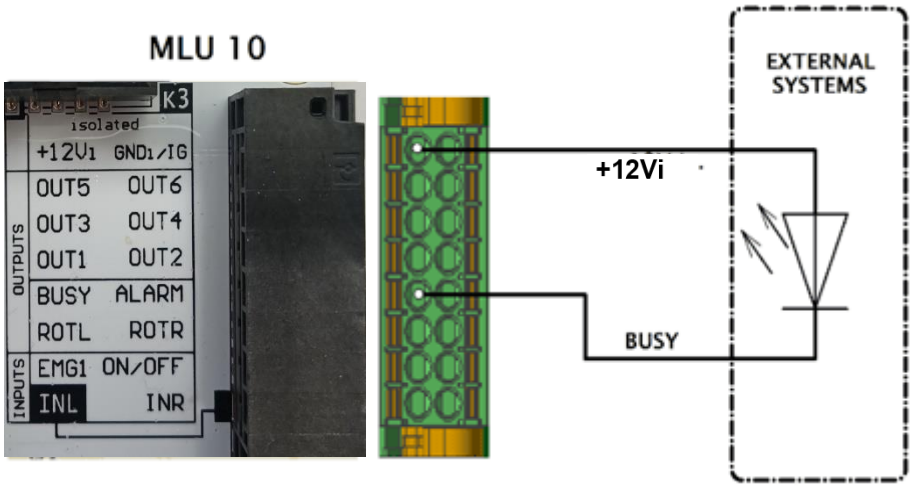


6.4.2. Connection in the 12VDC output potential mode

- This connection can be used with superior system with individual positive and negative terminal (optron).

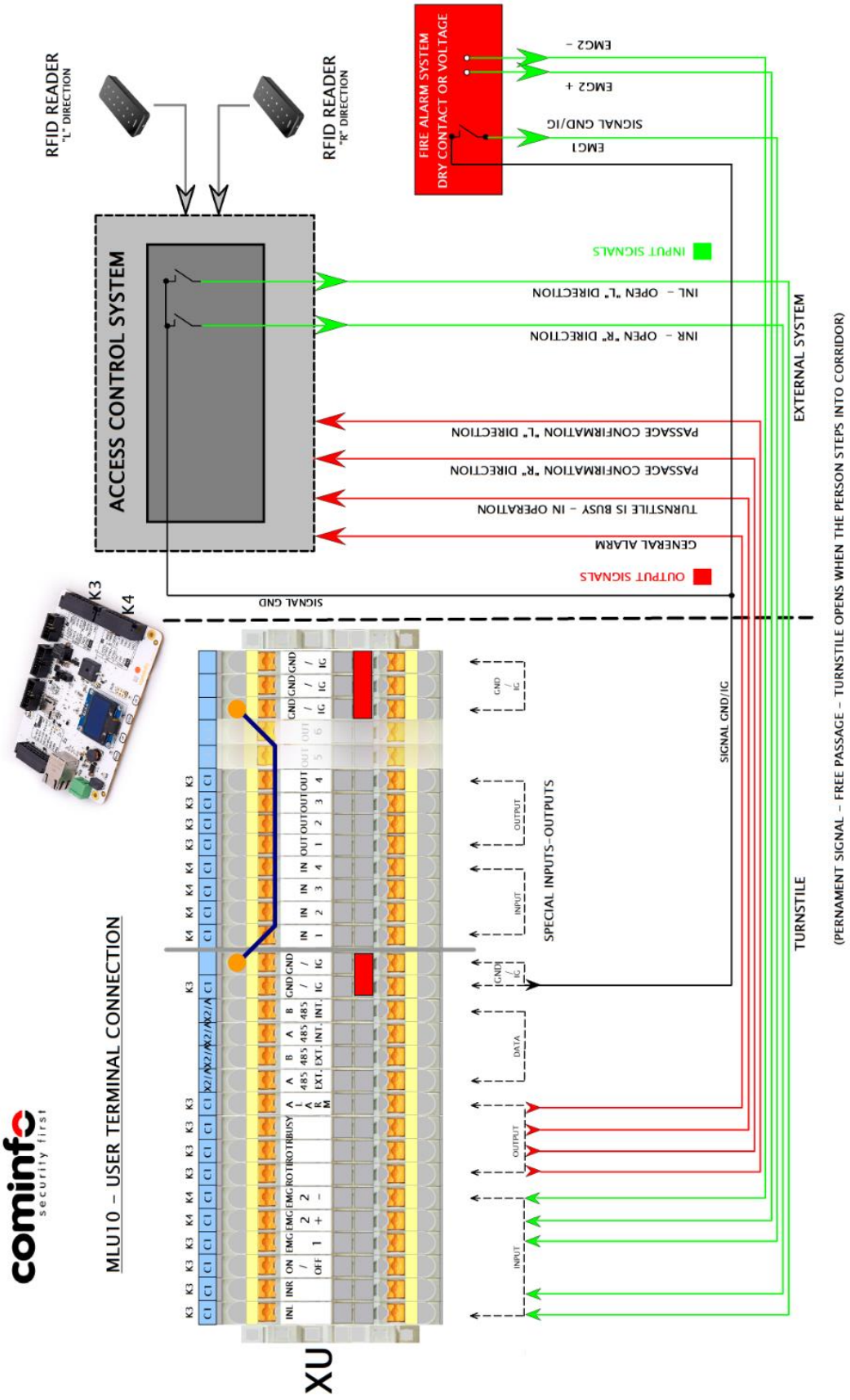
- We recommend consulting the connection in the output potential mode with the manufacturer COMINFO.

Example of connecting the BUSY output control signal in the 12VDC output potential mode.



6.5. CONNECTION FOR CONTROLING WITH SUPERIOR SYSTEM

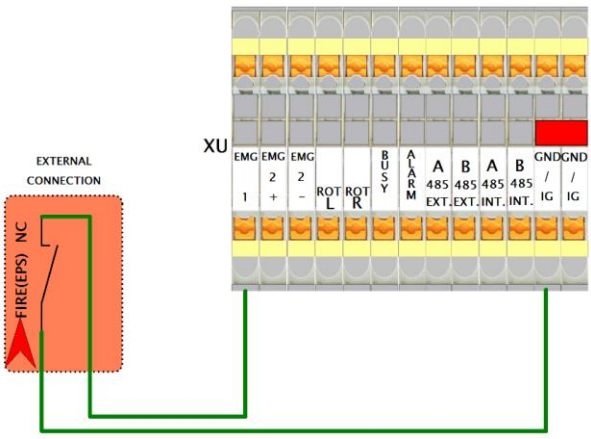
Standard connection diagram for controlling with superior system



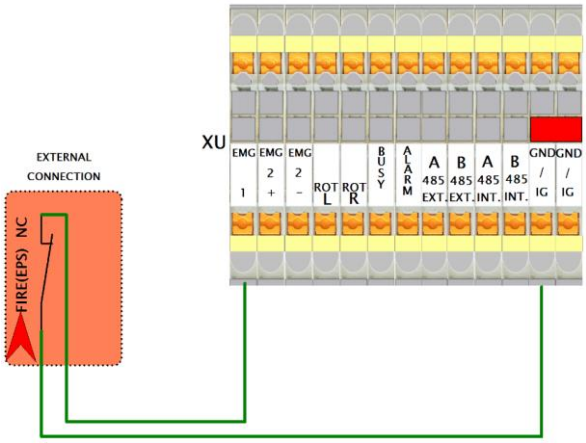
6.6. CONNECTION FOR CONTROLLING EMERGENCY (FIRE, EPS)

- It concerns a connection of the superior signal FIRE (EPS) of the fire alarm system, which processes signals from safety devices (fire detectors, etc.).
- The turnstile enables connection of all generally used signals of the FIRE(EPS) systems:
    - FIRE (EPS) signal - NO type contact, potential-free
    - FIRE (EPS) signal - NC type contact, potential-free
    - FIRE (EPS) signal - NO type contact, 24VDC potential
    - FIRE (EPS) signal - NC type contact, 24VDC potential
- The potential-free signal (EPS system relay) is connected to the **GND/IG** and **EMG1** terminals.
- The powered signal is connected to the **EMG2+** and **EMG2-** terminals.
- The NO/NC type contact is set in T-CONF application by setting the Emergency INPUT parameter to EMG1-NO or EMG1-NC.

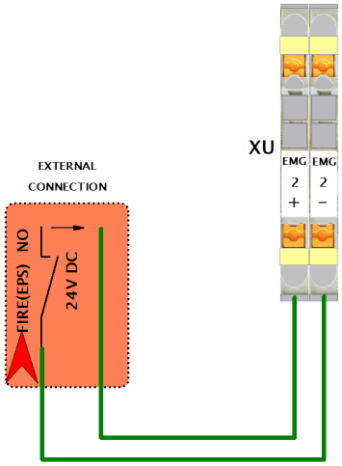
NO type contact, potential-free



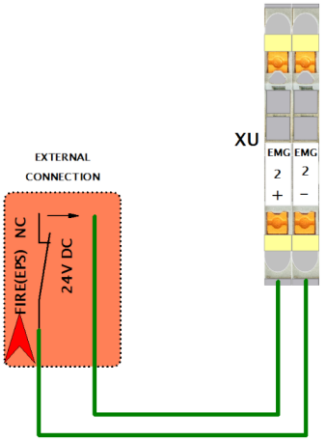
NC type contact, potential-free



NO type contact, 24VDC potential



NC type contact, 24VDC potential



6.7. CONNECTING THE DRIVE UNITS AND BRAKES

6.7.1. Description of drive units

- The **MDD168** drive units have their own electronics powered by the **RPS-200-12C** power supplies.
- Each drive unit is powered by individual **RPS-200-12C** power supply.
- The **MDD168** drive unit electronics are subordinate to the **MLU10** control electronics of the turnstile.
- Controlling is done through the internal communication line **RS 485 DATA INT**.
- The drive unit electronics performs following functions:
    - Controls the electronic commutation of the motor.
    - Using an absolute position sensor, it evaluates position and speed of the wing movement.
    - Monitors attempts for unauthorized passage by pushing the turnstile wing.
    - Stops the wing in the home and open position.
    - Switches the external electromagnetic tooth brake.
    - Sends the information about status and position of the turnstile wings to the **MLU10** electronics.
- Drive units are connected via a 16-pole connector.
- Electromagnetic tooth brakes are connected directly in the connector of the respective drive unit.

Note:
The e-Gate turnstile drive units are not equipped with electromagnetic friction brakes. In case the **Push Through** function is used, the braking is ensured by the motor countercurrent.

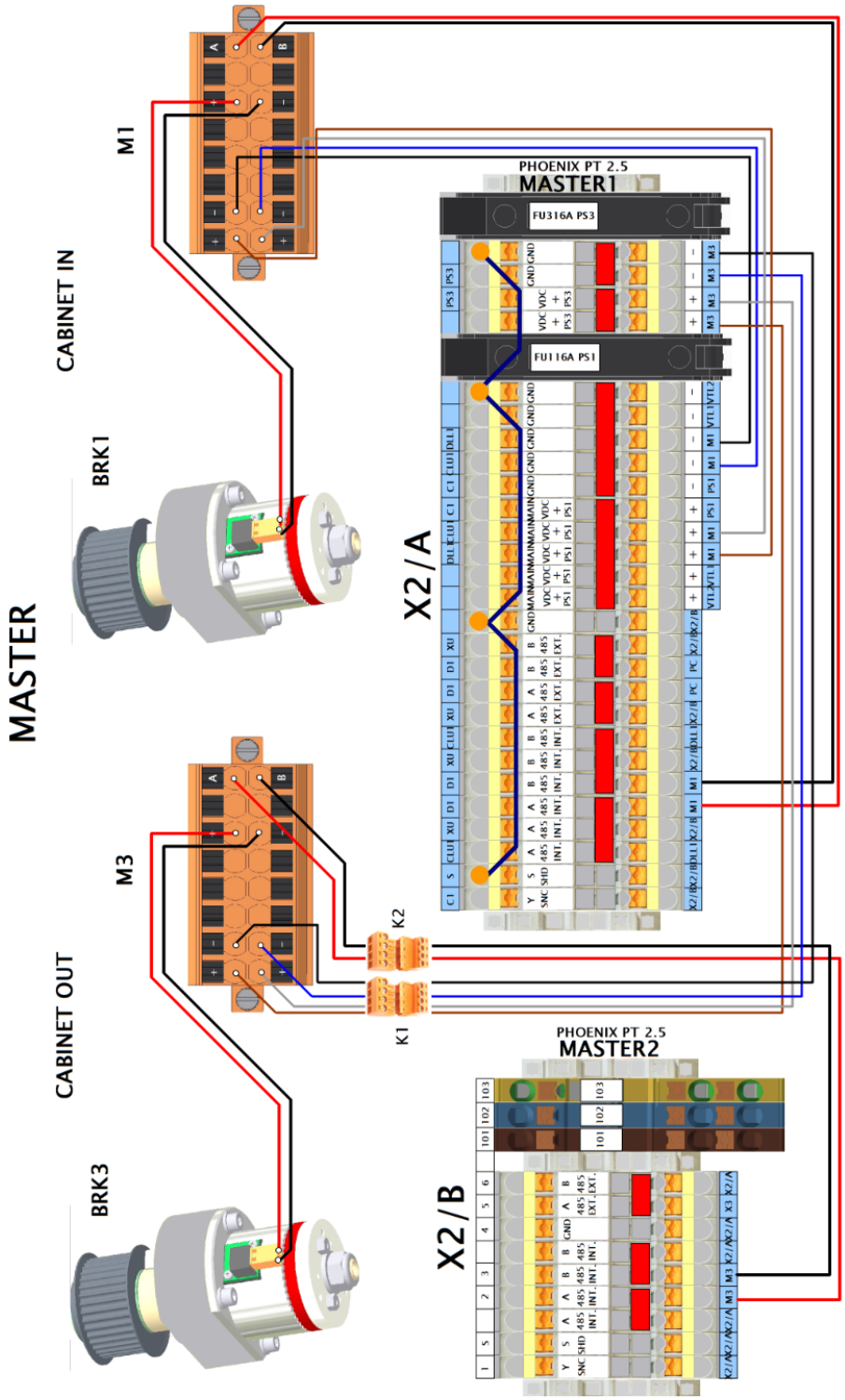
6.7.2. Connecting the drive units in the MASTER turnstile

CONNECTING THE M1 DRIVE UNIT

- The power supply and RS485 DATA INT communication line are connected to the **X2/A** terminal block.

CONNECTING THE M3 DRIVE UNIT

- The power supply is connected to the **X2/A** terminal block via **K1** connector. The RS485 DATA INT communication line is connected to the **X2/B** terminal block via **K2** connector.



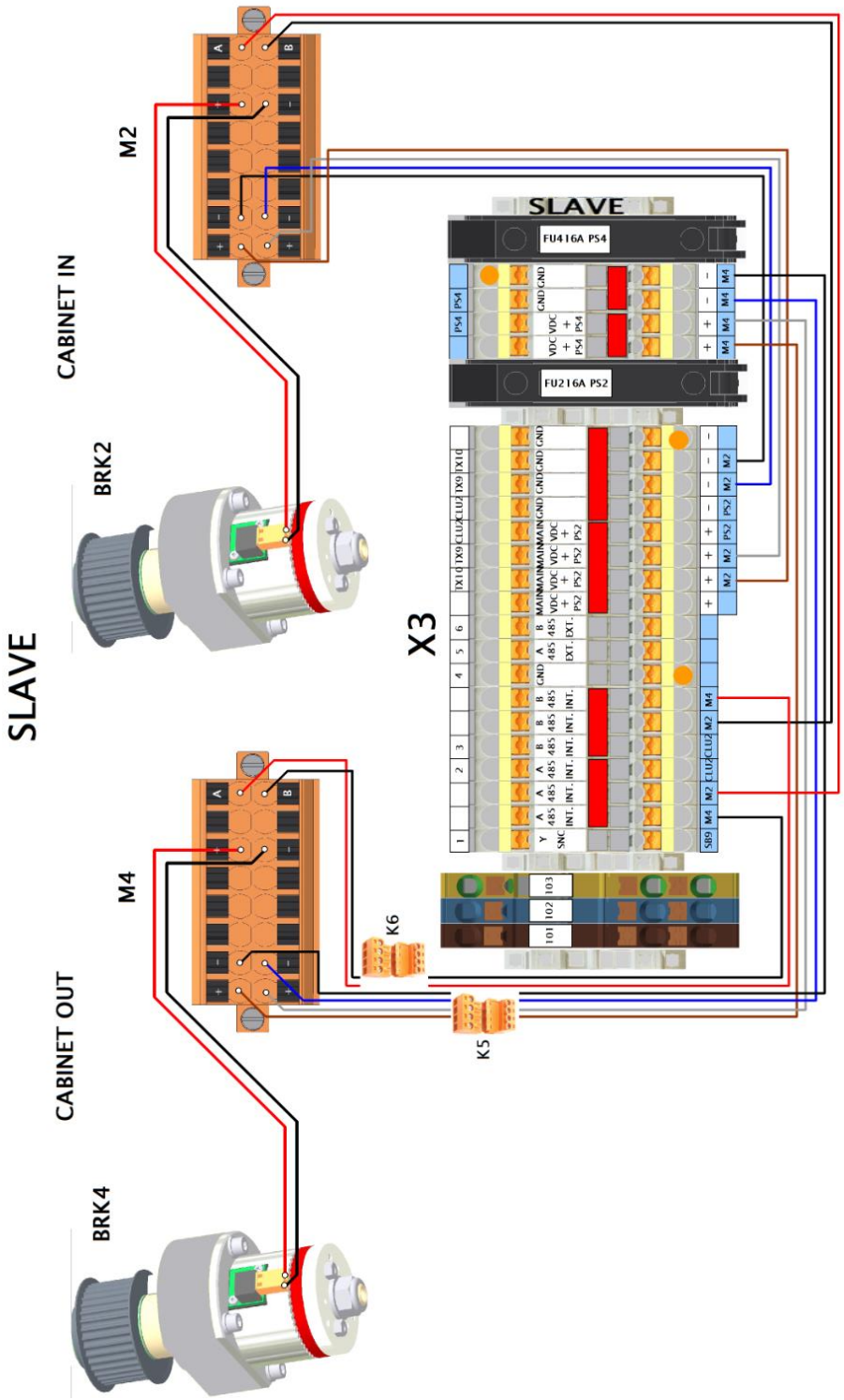
6.7.3. Connecting the drive units in the SLAVE turnstile

CONNECTING THE M2 DRIVE UNIT

- The power supply and RS485 DATA INT communication line are connected to the **X3** terminal block.

CONNECTING THE M4 DRIVE UNIT

- The power supply is connected to the **X3** terminal block via **K5** connector. The RS485 DATA INT communication line is connected to the **X3** terminal block via **K6** connector.



6.8. CONNECTING THE OPTICAL SENSORS

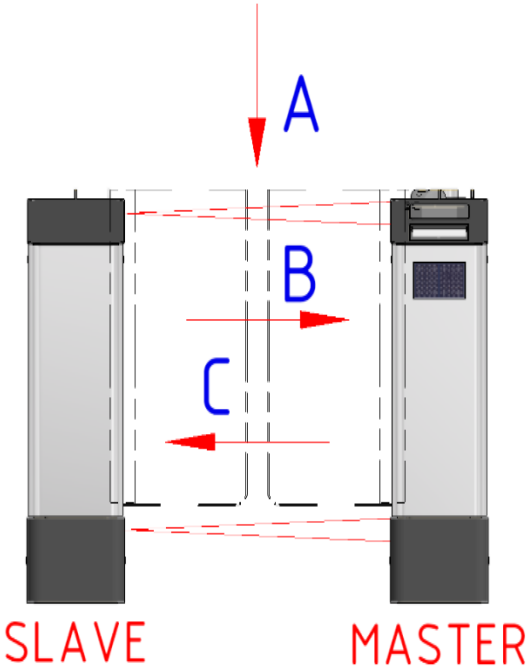
6.8.1. Description of the optical sensors

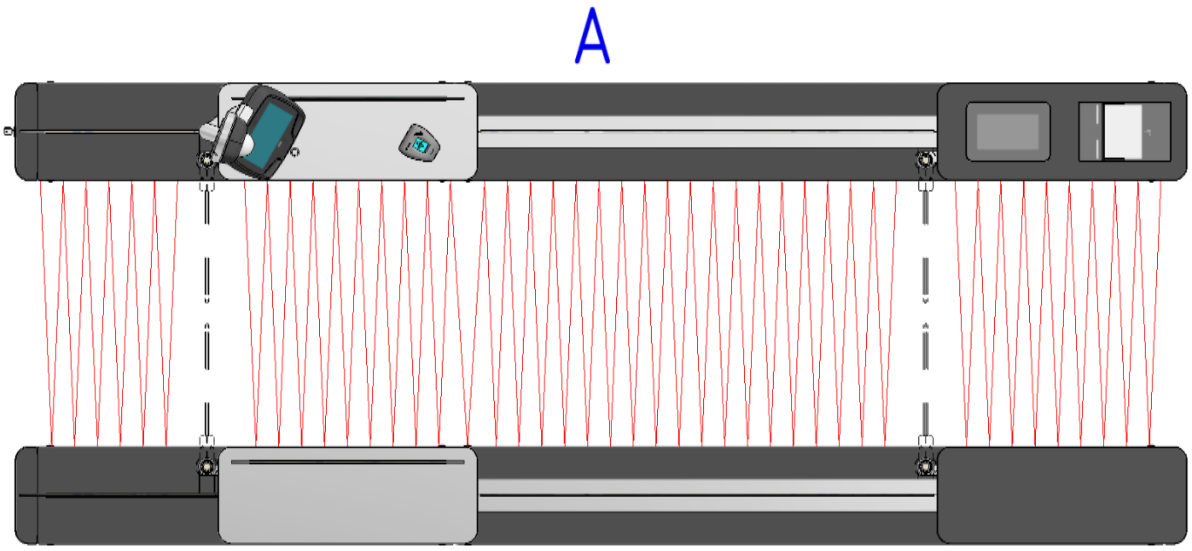
- Optical sensors are used to detect passages of persons through the turnstile.
- The turnstile is equipped with the optical sensors that are based on one-way light barrier principle (transmitter-receiver).
- The sensors use MULTIPLEX principle which is controlled by the **MLU10** electronics.
- Synchronization of the transmitters is ensured by the synchronization signal.
- The sensors are placed in the sensor bars of the **TX** transmitters and sensor bars of the **RX** receivers.
- Two types of sensor bars are used on the turnstile.
    - Sensor bars SB6 are equipped with six sensors.
    - Sensor bars SB9 are equipped with nine sensors.
- **The TX transmitter sensor bars are located in the SLAVE turnstile.**
- **The RX receiver sensor bars are located in the MASTER turnstile.**
- The MIDDLE turnstile has the transmitter sensor bars on one side and the receiver sensor bars on the other side.
- The turnstile is also equipped with one separate sensor located between the bottom ledges.
- There are a total of 79 pairs of sensors in the turnstile.

6.8.2. Usage of sensors according to their location in the turnstile.

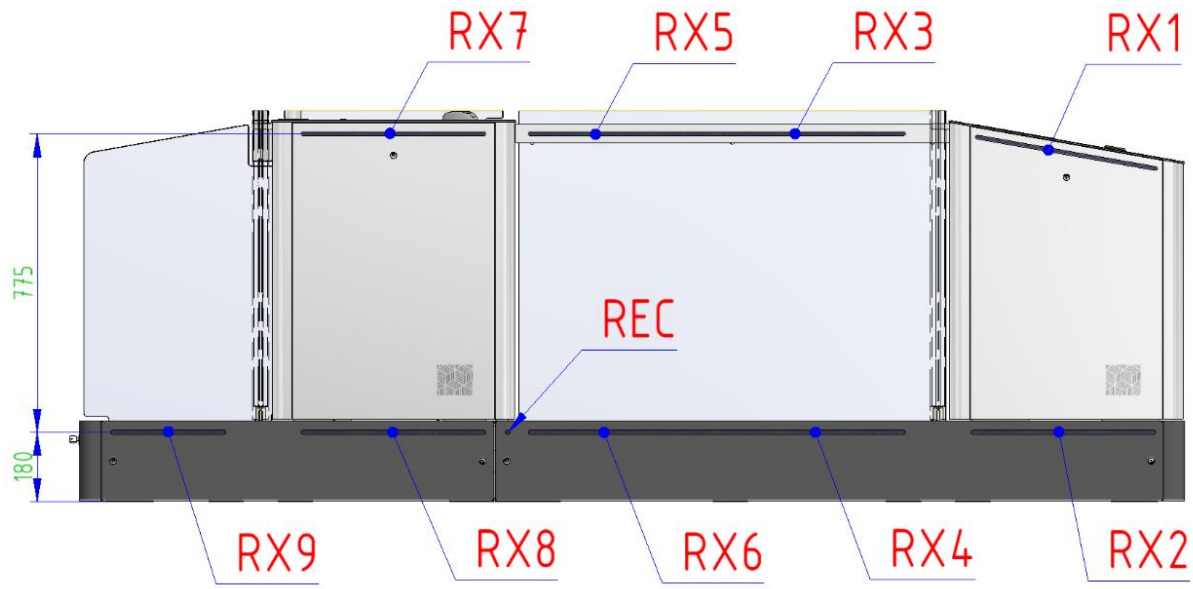
Sensor labels	Number of sensors
RX1 / TX1	SB9
RX2 / TX2	SB9
RX3 / TX3	SB9
RX4 / TX4	SB9
RX5 / TX5	SB9
RX6 / TX6	SB9
RX7 / TX7	SB9
RX8 / TX8	SB9
RX9 / TX9	SB6
RX10 / TX10	Separate sensor

6.8.3. Layout of the optical sensors

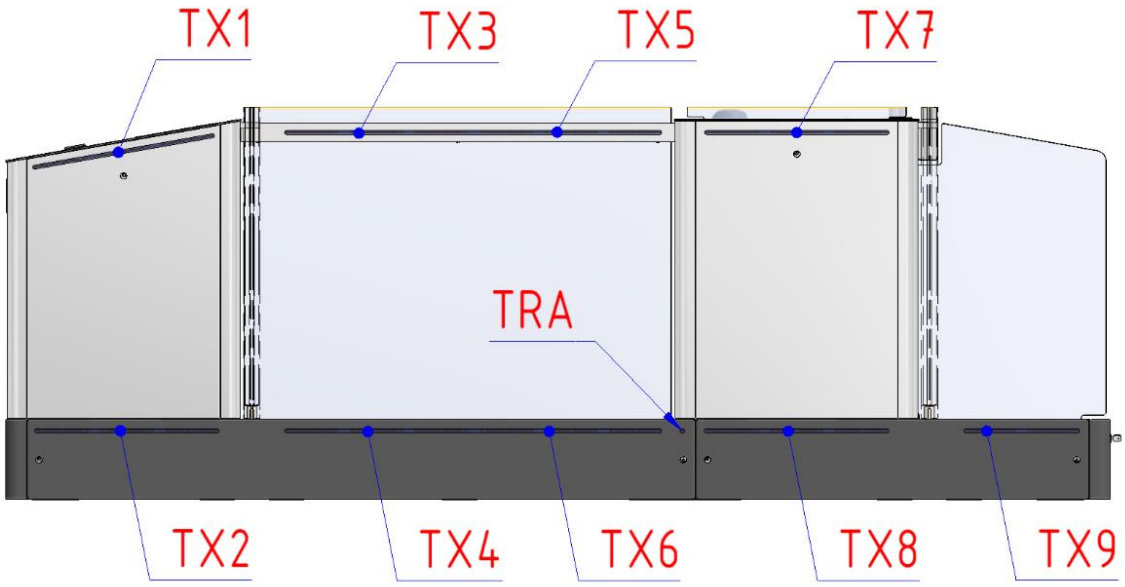




B (MASTER)



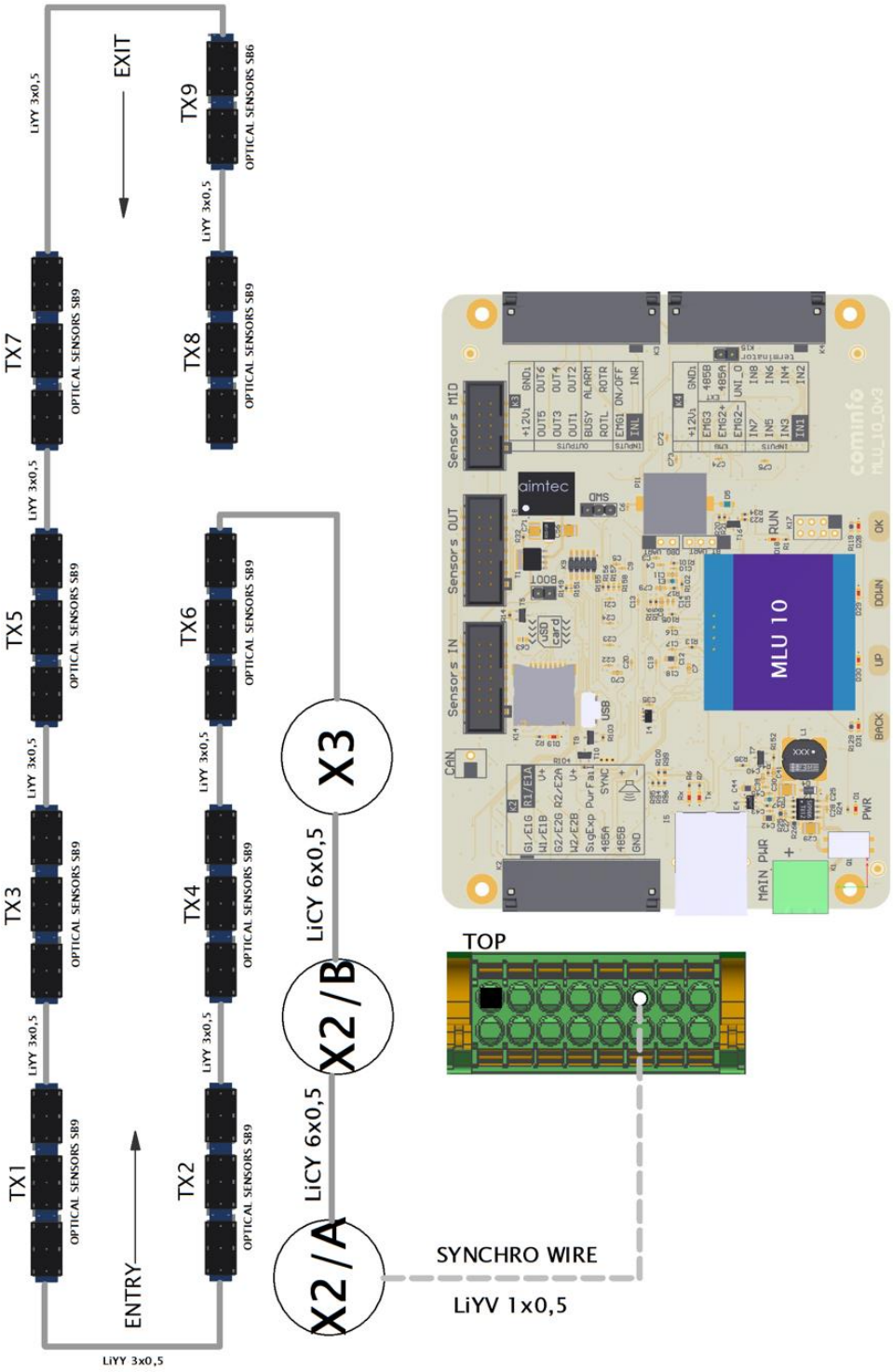
C (SLAVE)



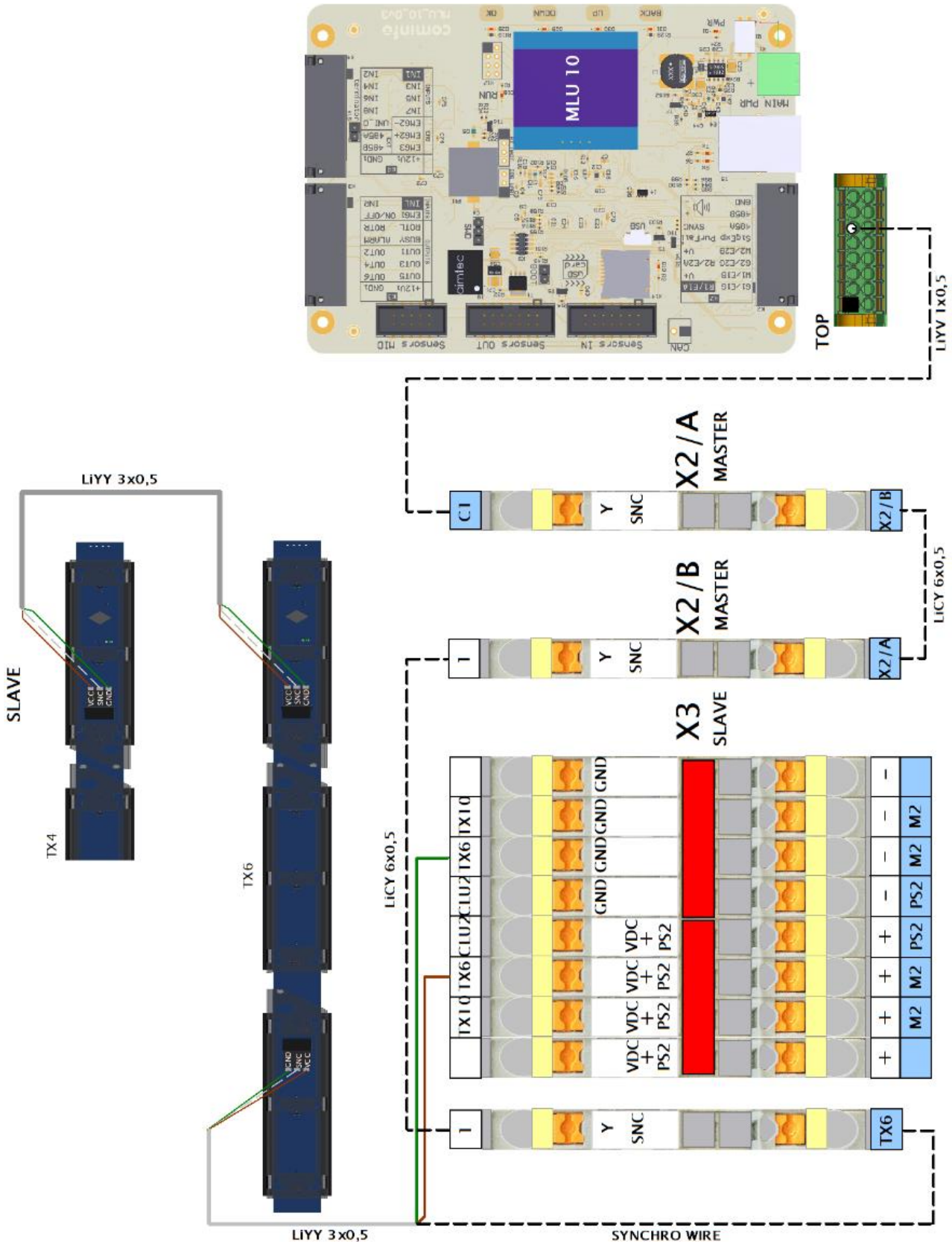
6.8.4. Connecting the TX transmitter sensor bars

- The **TX** transmitter bars are interconnected by a three-wire cable and connected to the **X3** terminal.
- They are powered by a 12VDC **PS2** power supply of the SLAVE turnstile.
- The synchronization signal from **K2** connector of **MLU10** electronics is connected through the **X3** terminal of the SLAVE turnstile, **X2/B** and **X2/A** of the MASTER turnstile.

CABLE DIAGRAM



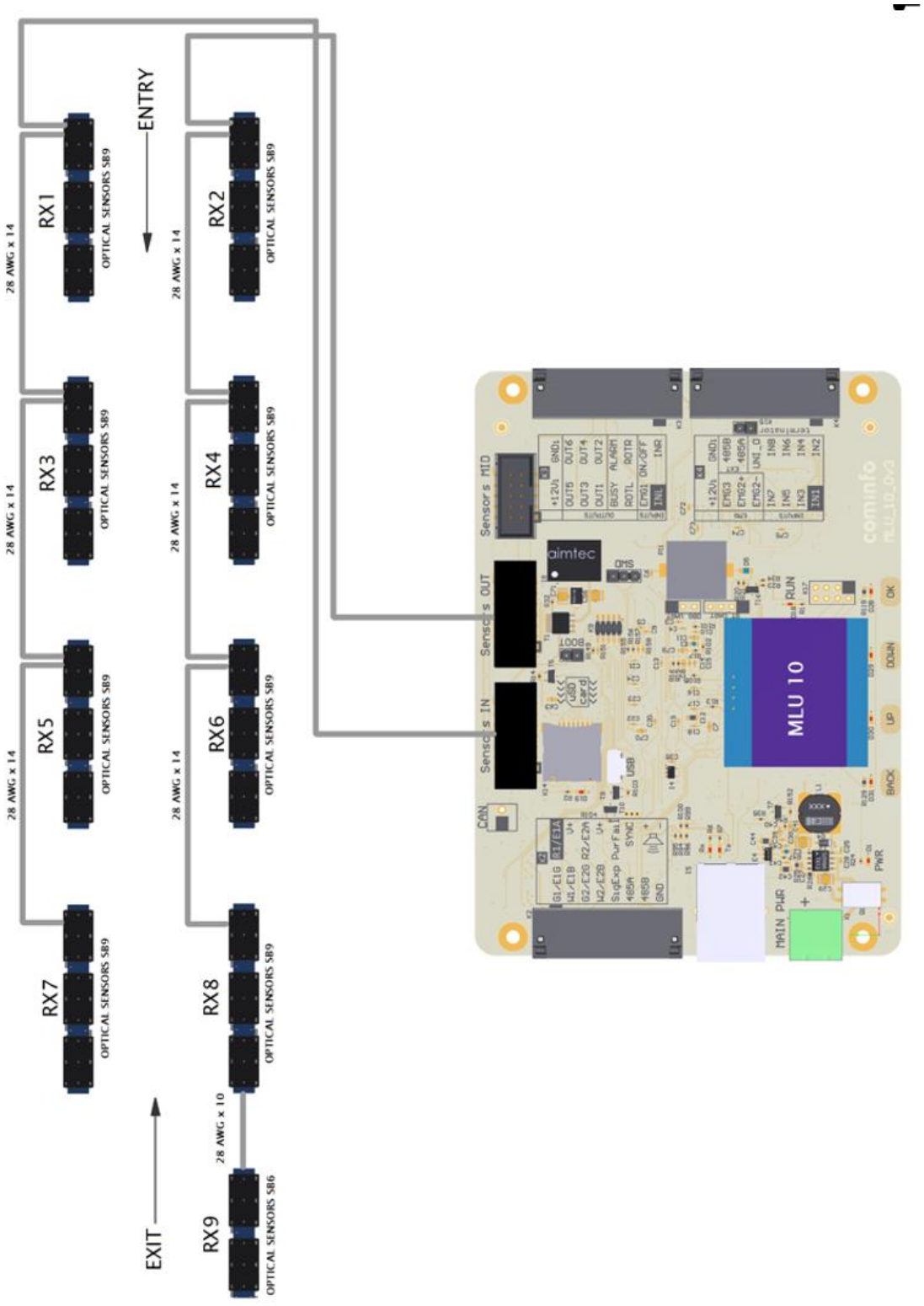
WIRING DIAGRAM



6.8.5. Connecting the RX receiver sensor bars

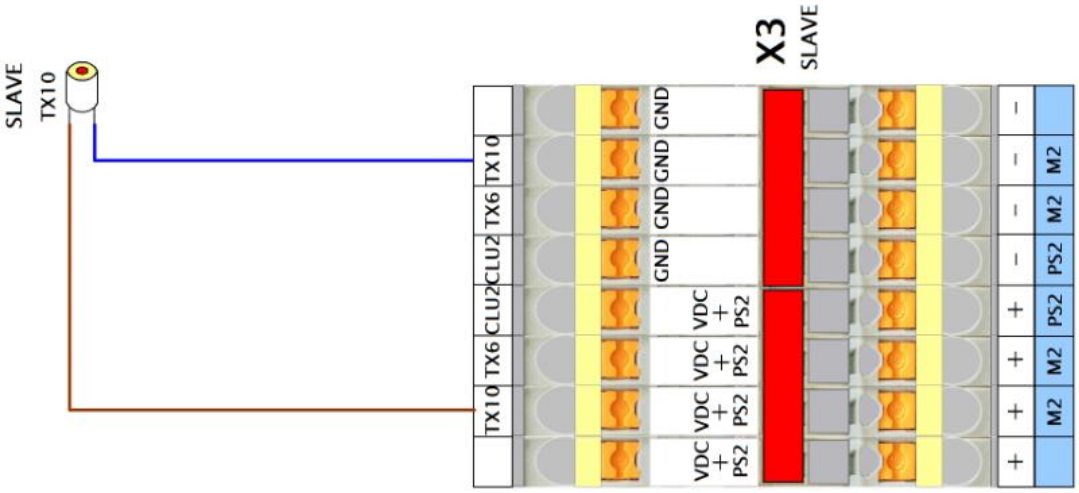
- The **RX** receiver bars are interconnected by a flat cable and connected to the **MLU10** electronics connectors.
- The top bars are connected to the **SENSORS IN** connector, the bottom bars to the **SENSORS OUT** connector.

CABLE DIAGRAM



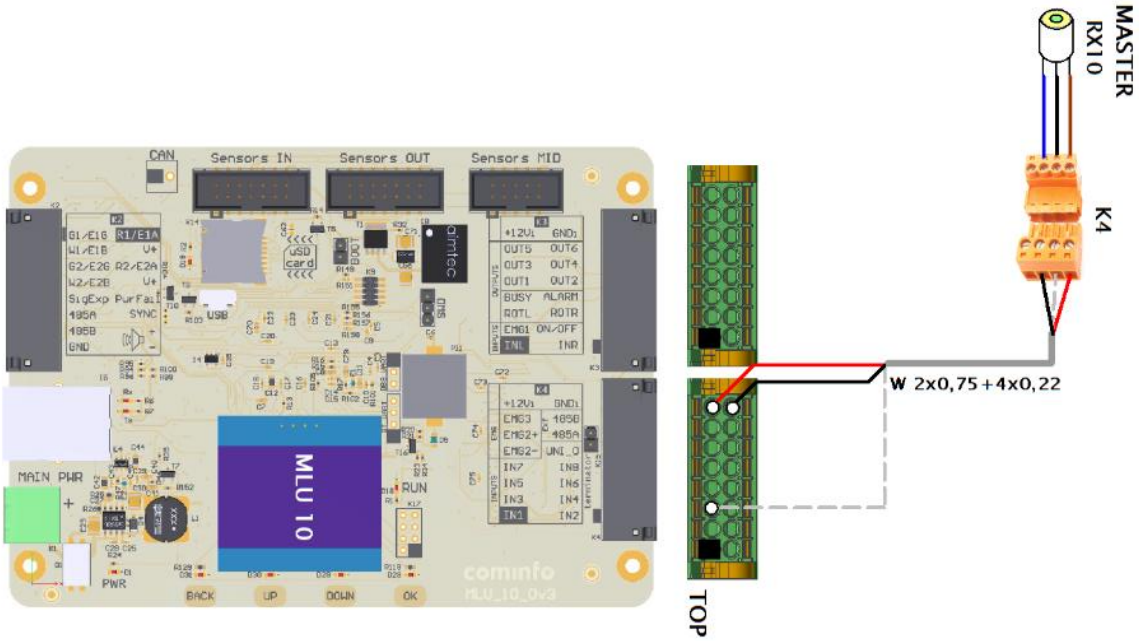
6.8.6. Connecting the separate sensor - transmitter

- The **TX10** transmitting sensor located in the SLAVE turnstile is powered by the **PS2** power supply via **X3** terminal.



6.8.7. Connecting the separate sensor - receiver

- The **TX10** receiving sensor located in the MASTER turnstile is connected to the **MLU10** electronics.
- Power from the isolated **MLU10** electronics power supply is connected to the **K3** connector of the electronics.
- The sensor output signal is connected to the **K4** connector of the electronics on the **IN5** input.
- The receiving sensor is connected to the **MLU10** electronics via the **K4** connector for interconnecting the turnstile parts.
  (wiring of the connector is described in the chapter *Wiring of the interconnecting connectors of the turnstile parts*).

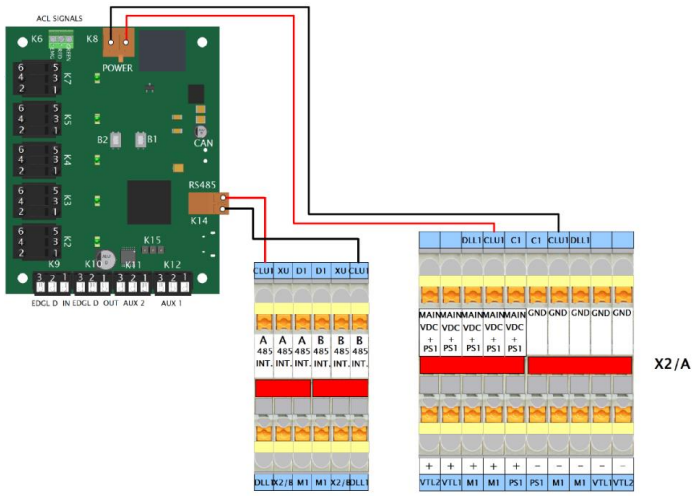


6.9. CONNECTING THE CLU – CABINET LIGHT UNIT (optional accessory)

- The **CLU** electronics is subordinate to the **MLU10** electronics and serves for connecting and controlling the optical signalization manufactured by COMINFO.
- In the e-Gate turnstile, the **CLU** electronics is only used to control the Wing Light.
- Each turnstile gate is equipped with the **CLU1**Master and **CLU2**Slave electronics.
- There are separate instructions for use of the *CLU (Cabinet Light Unit)* electronics.

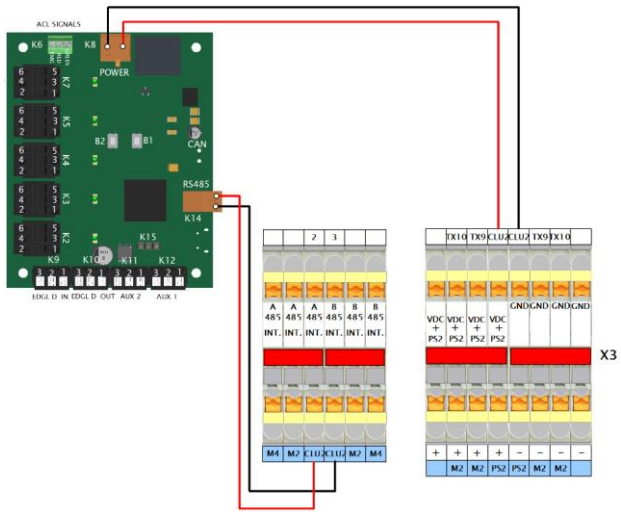
6.9.1. Connecting the CLU1 of the MASTER turnstile

- The **CLU1** Master electronics is powered from the MASTER turnstile **PS1** power supply through the **X2/A** terminal.
- The RS485 DATA INT communication line is connected through the **X2/A** terminal block.



6.9.2. Connecting the CLU2 of the SLAVE turnstile

- The **CLU2** Slave electronics is powered from the SLAVE turnstile **PS2** power supply through the **X3** terminal.
- The RS485 DATA INT communication line is connected through the **X3** terminal block.

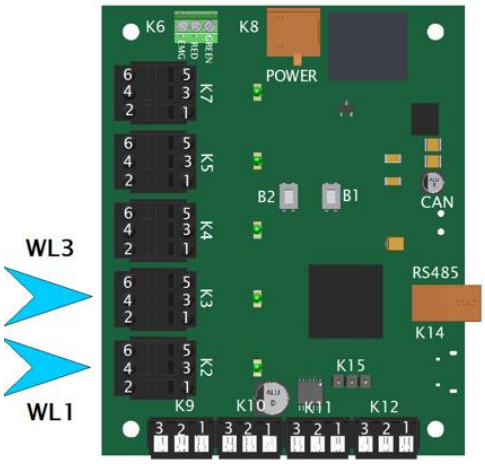


6.10. CONNECTING THE WING LIGHT (optional accessory)

- The illumination of the wings is done by LED strips that are connected to the **CLU** electronics through connector.
- The connector connection is shown on the following figure.

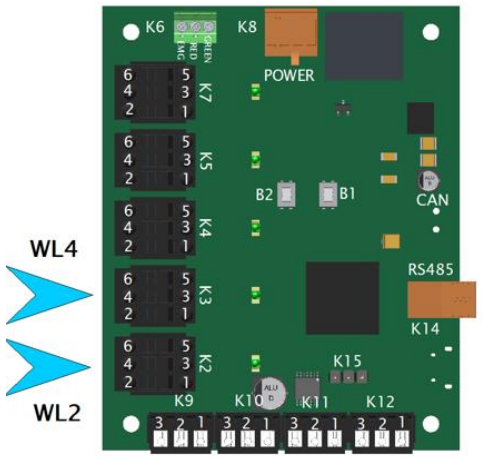
6.10.1. Connecting the WING LIGHT in the MASTER turnstile

- The **WL1** Wing Light of the right entry wing is connected to the **K2** connector on the **CLU1** electronics.
- The **WL3** Wing Light of the right exit wing is connected to the **K3** connector on the **CLU1** electronics.



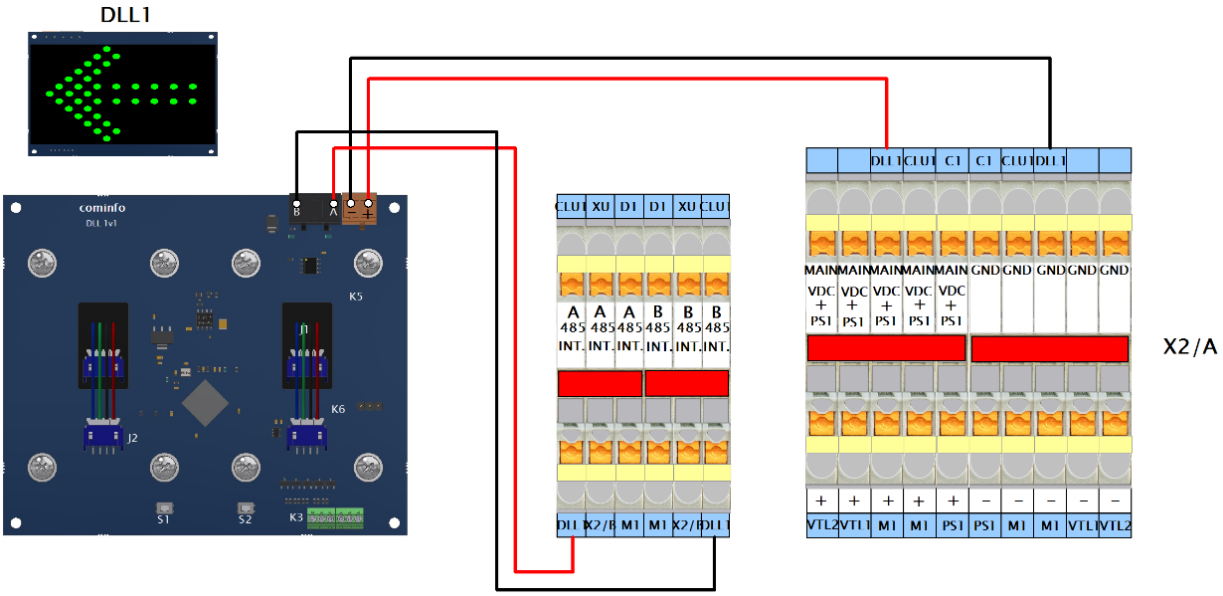
6.10.2. Connecting the WING LIGHT in the SLAVE turnstile

- The **WL2** Wing Light of the left entry wing is connected to the **K2** connector on the **CLU2** electronics.
- The **WL4** Wing Light of the left exit wing is connected to the **K3** connector on the **CLU2** electronics.



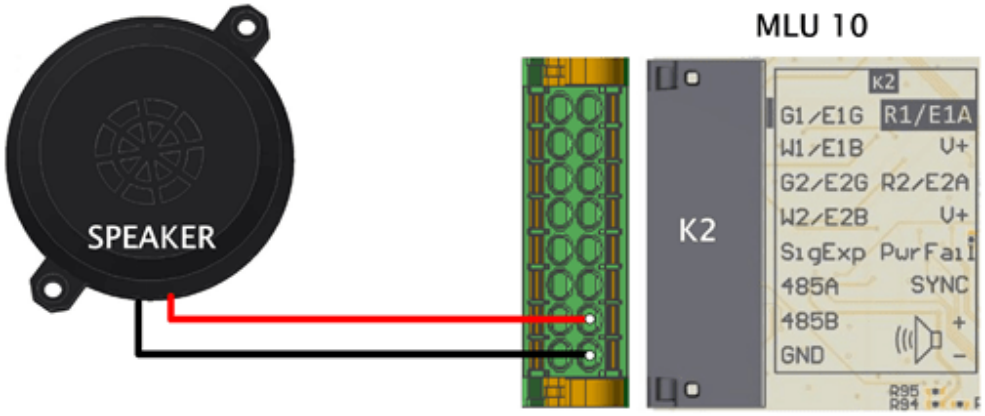
6.11. CONNECTING THE DIGITAL LANE LIGHT (optional accessory)

- Digital Lane Light is located on the right side of the entry gate corridor.
- Digital Lane Light is controlled by the **MLU10** electronics using the RS 485 DATA INT internal communication line.
- The **DLL1** Lane Light is connected to the **X2/A** terminal located in the MASTER turnstile.
- Connection of the **DLL1** to the **X2/A** terminal is shown on the figure below.



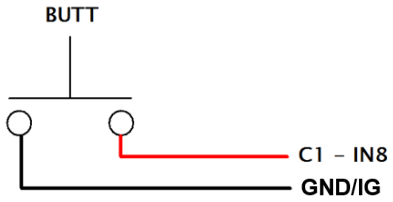
6.12. CONNECTING THE MLU10 SPEAKER (optional accessory)

- The MLU10 electronics has a Wav player with direct speaker connection implemented.
- The Wav player allows usage of any recorded sounds or spoken word for acoustic signaling.
- The **SP** speaker is connected to the **K2** connector on the **MLU10** control electronics located in the MASTER turnstile.



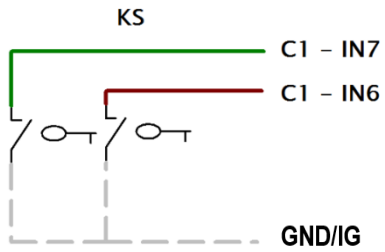
6.13. CONNECTING THE RESET BUTTON (optional accessory)

- The **BUTT** button is connected to the input **IN8** of the **C1** electronics via the **K4** connector for interconnecting the turnstile parts.
  (wiring of the connector is described in the chapter *Wiring of the interconnecting connectors of the turnstile parts*).



6.14. CONNECTING THE KEY CONTROLLER FOR OPENING THE WINGS (optional accessory)

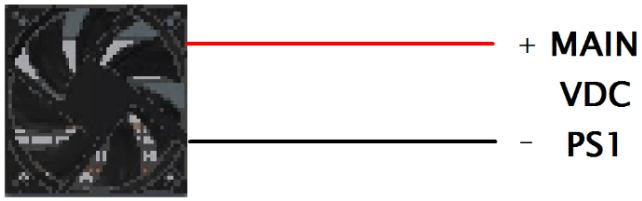
- The **KS** key controller is connected to the **IN6** and **IN7** inputs if the **C1** electronics via the **K4** connector for interconnecting the turnstile parts.
  (wiring of the connector is described in the chapter *Wiring of the interconnecting connectors of the turnstile parts*).



- The key controller has three positions with zero position in the middle (you can remove the key in the middle position).
- The right position of the controller activates opening of the ENTRY wings via IN6 input.
- The left position of the controller activates opening of the EXIT wings via IN7 input.

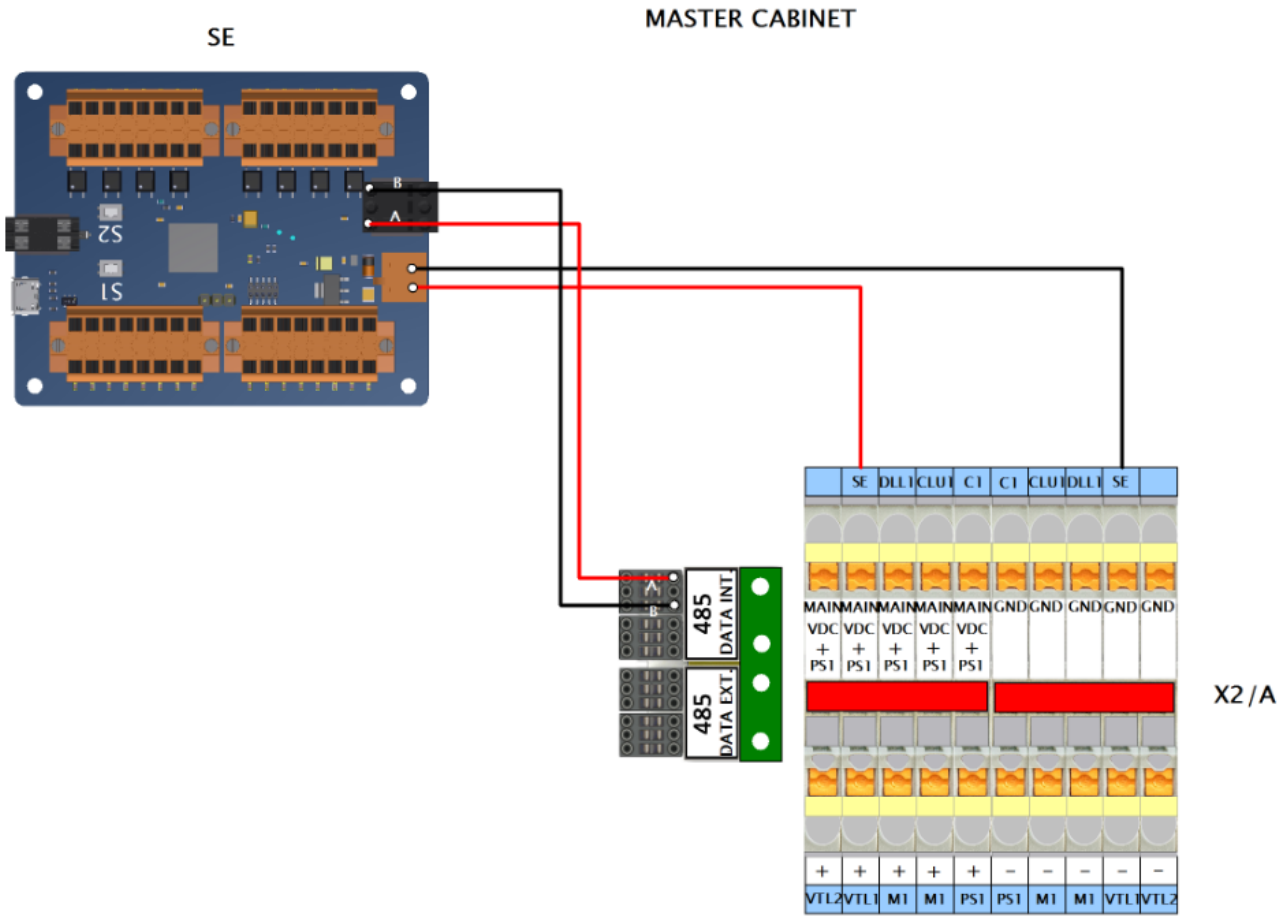
6.15. CONNECTING THE VENTILATORS (optional accessory)

- Both ventilators are powered by 12VDC from the **PS1** power supply through the **X2/A** terminal.
- The **VTL1** ventilator is connected directly to the **X2/A** terminal.
- The **VTL2** ventilator is connected to the **X2/A** terminal via the **K2** connector for interconnecting the turnstile parts. (wiring of the connector is described in the chapter *Wiring of the interconnecting connectors of the turnstile parts*).



6.16. CONNECTING THE SIGNAL EXPANDER (optional accessory)

- The **SE** Signal Expander is an input and output expansion module controlled by the MLU10 electronics.
- The power supply is connected to the **X2/A** terminal located in the MASTER turnstile.
- The RS485 DATA IN line control is connected to the RS485 DATA INT connector in **D1** distributor.
- The inputs and outputs of the signal expander are not routed to the **XU** terminal block and are connected directly into the signal expander connectors.



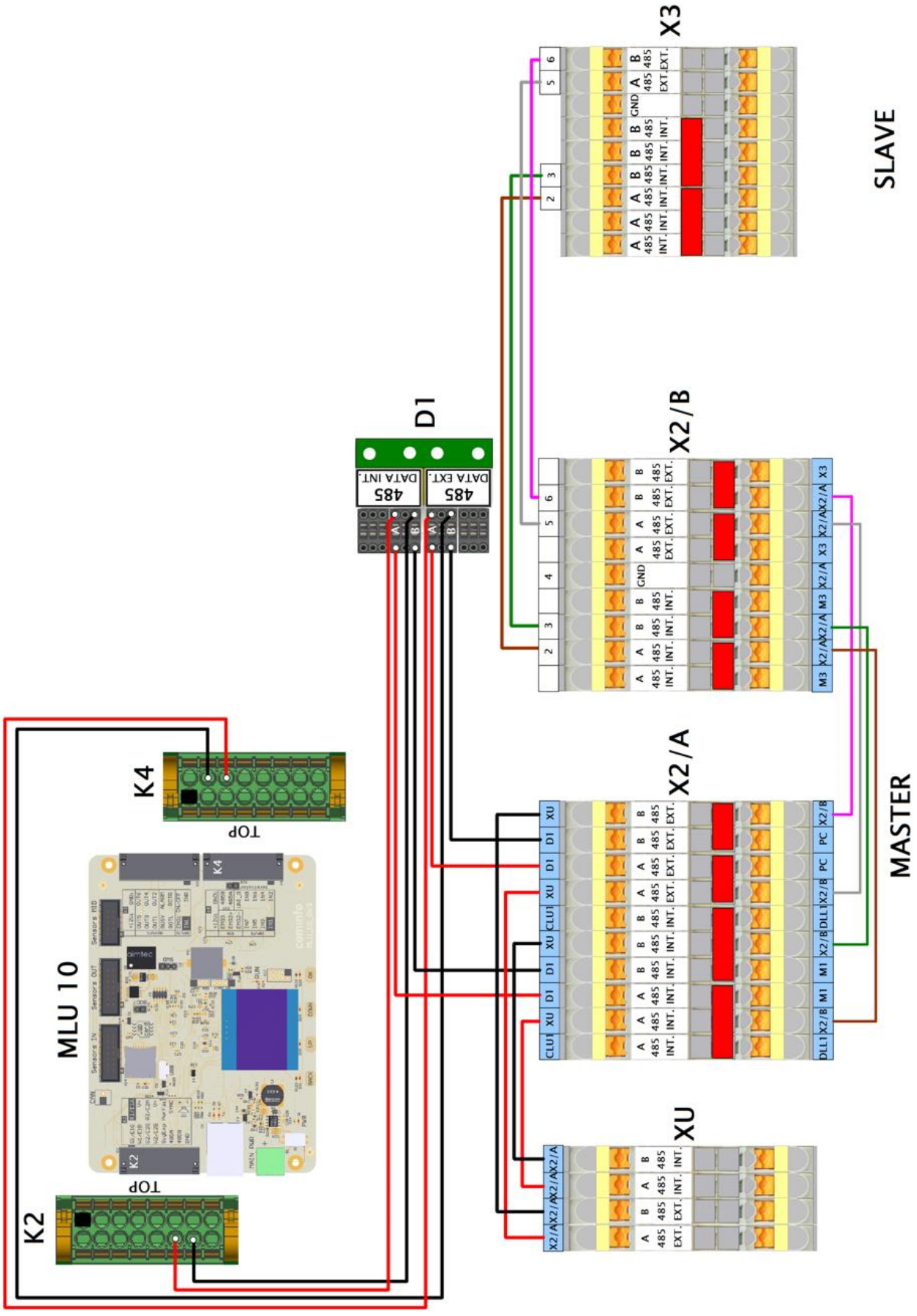
6.17. CONNECTING THE RS485 COMMUNICATION LINES

- Two communication lines RS 485 DATA INT and RS 485 DATA EXT are used to control the turnstile.
- The internal and external communication lines must not be connected in any case at any point.

6.17.1. Connecting the RS485 D1 DISTRIBUTOR

- Both communication lines are routed through the **D1** distributor which allows for fast service connection using free connectors.
- Internal communication line RS 485 DATA INT is routed from the **MLU10** electronics **K2** connector through the **D1** distributor to the **X2/A** terminal.
- External communication line RS 485 DATA EXT is routed from the **MLU10** electronics **K4** connector through the **D1** distributor to the **X2/A** terminal.
- Both communication lines are connected through the **X2/A** terminal to the **XU** user terminal block, the **X2/B** interconnecting terminal and by an interconnecting cable to the **X3** terminal block of the SLAVE turnstile.

WIRING DIAGRAM



6.17.2. Connecting the internal communication line RS485 DATA INT

- The internal communication line is used to connect internal devices, which is always done by the manufacturer.

- In the master turnstile, the following is connected to the internal RS485 DATA INT line via the **X2/A** terminal:
  - **M1** – MDD168 master drive unit
  - **CLU1** – master optical signalization electronics
  - **DLL1** – Digital Lane Light master
  - **SE** – signal expander (if the turnstile is equipped with Signal Expander.)

- In the SLAVE turnstile, the following is connected to the internal RS485 DATA INT. line via the **X3** terminal:
  - **M2** – MDD168 slave drive unit
  - **CLU2** – slave optical signalization electronics
  - **DLL1** – Digital Lane Light slave

Connecting the shielding of internal devices of the RS485 DATA INT line

- Shielding is not usually connected for internal devices.

- In case of high interference, shielding is only connected on one side of the MASTER-SLAVE cable.

- In the Master turnstile, shielding is connected on the **X2/B** terminal block to the **S SHD** terminal.

6.17.3. Connecting the external communication line DATA EXT.

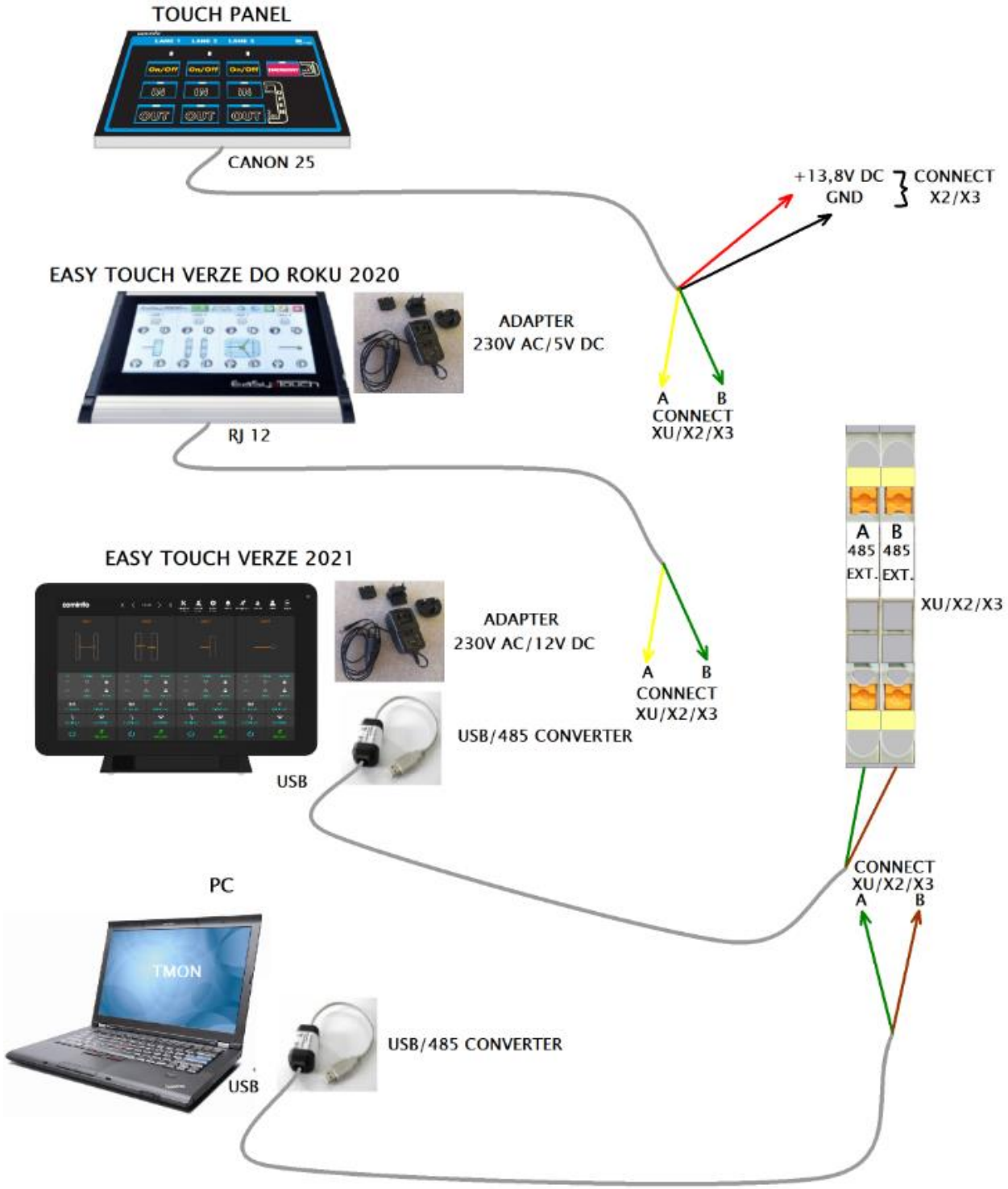
- The external communication line is used to connect the remote control, which is connected during the turnstile installation.
- External communication line is used in case of remote control by older COMINFO products or in case of joint control of turnstiles that are equipped with **MLU5** and **MLU10** electronics.
- The external communication line is used to connect the PC with T-CONF MLU5 application when configuring the Touch panel.

It is not possible to configure the turnstiles with MLU10 electronics through the external communication line.

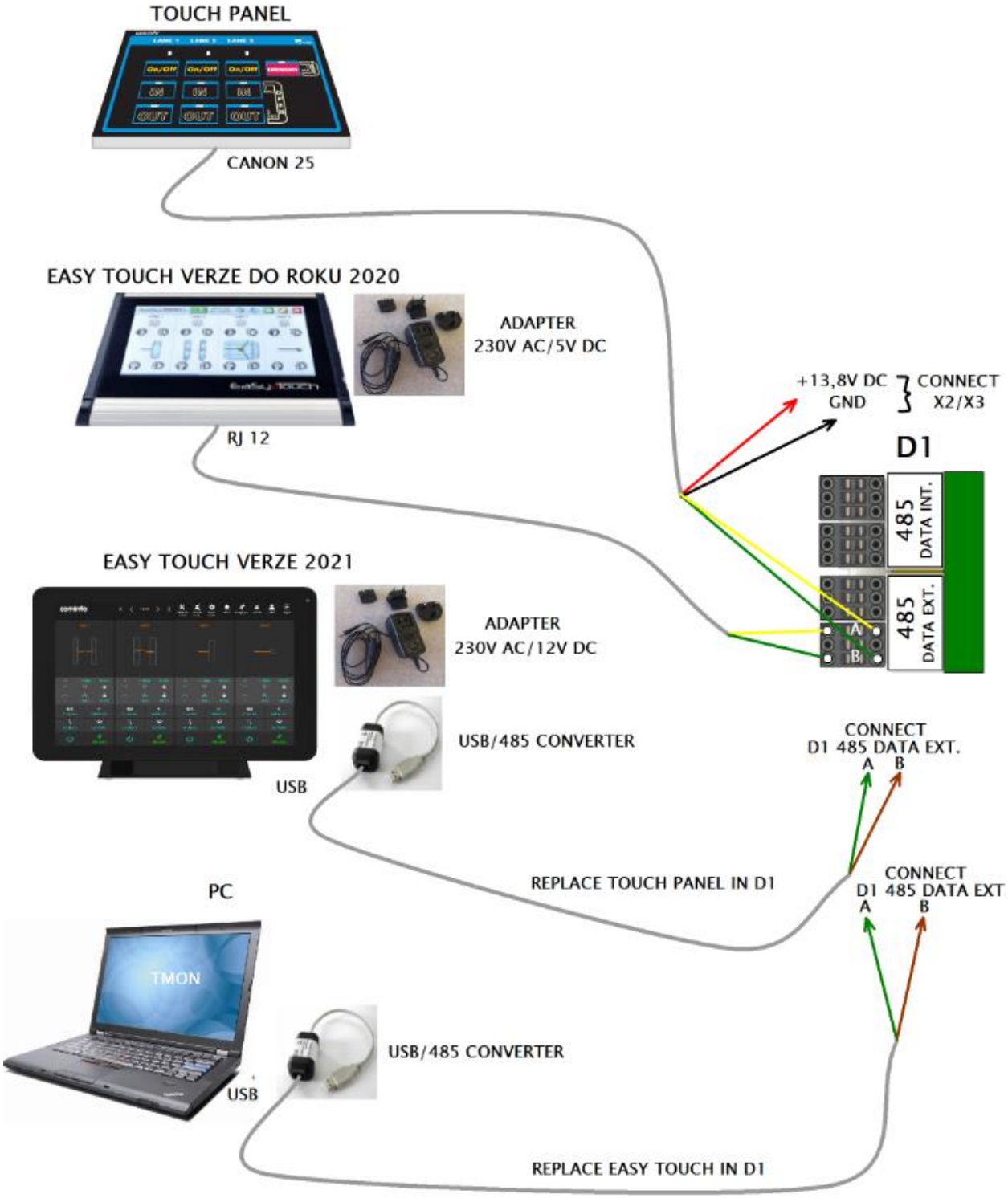
- The external communication line is routed to all terminal blocks to allow connecting the remote control in any installed cabinet.
- In the MIDDLE turnstile, the external communication line of both gates is interconnected via connecting the **X2B** master terminal and **X3** slave terminal of the preceding gate.
- The following remote control products can be connected to external communication line of any **XU X2/A X3** terminal blocks.
  - Touch Panel
  - Easy Touch old version 1.1.5.
  - Easy Touch new version 1.4. with USB/RS485 converter
  - PC with T-MON3 and TMON4 application with USB/RS485 converter

- It is only possible to use the converter supplied by the COMINFO company.
- Computer with T-MON3 application must have the Turnstile server installed.
- Computer with T-MON4 application can have the Turnstile server or TComServer installed.

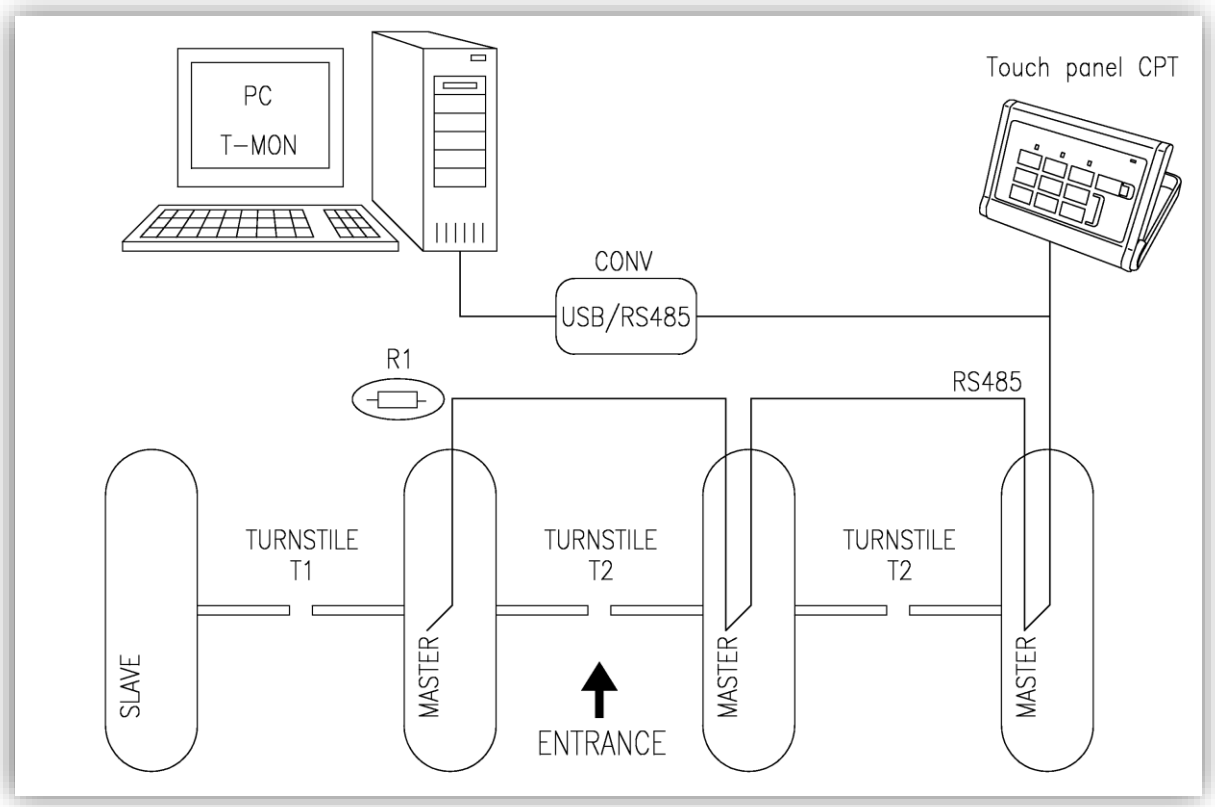
- The connection principle of individual devices is shown on the following figure.



- They can also be connected to the free RS485 DATA EXT connector on the D1 distributor.
- The connection principle of individual devices is shown on the following figure.



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.

- By default, only the T1 turnstile jumper is connected, as described in the *MLU10 connectors layout* chapter.
- If only the CPT panel is connected to the RS485 line, it is necessary to set the DIP-Switch inside the CPT according to the instructions.
- When replacing the MLU10 control electronics in the T1 turnstile, it is necessary to connect the jumper on the MLU10 electronics.

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

Connection of RS485 line shielding:

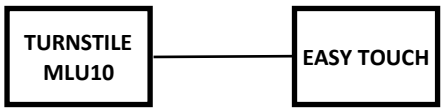
The RS485 line shielding does not have to be connected by default. In case of CPT panel malfunctioning, connect the shielding only on the CPT panel side.

6.18. ETHERNET CONNECTION

- Controlling via ETHERNET is used for remote control of turnstiles with MLU10 electronics by new COMINFO products:
    - Easy Touch version 1.4 (Android)
    - PC with T-MON4 web application
- A PC with the T-CONF MLU10 web application is also connected through ETHERNET to configure the MLU10 electronics and MDD168 drive units.
    - It is possible to perform the configuration remotely over the ETHERNET or connect the PC directly into the RJ connector of the MLU10 electronics.
- The ETHERNET control in the turnstile is connected to the RJ45 connector according to the chapter *CONNECTING THE MLU10 CONTROL ELECTRONICS*.
- In case of controlling more turnstiles, each of them must be connected to a separate socket with separate address in the ETHERNET network.

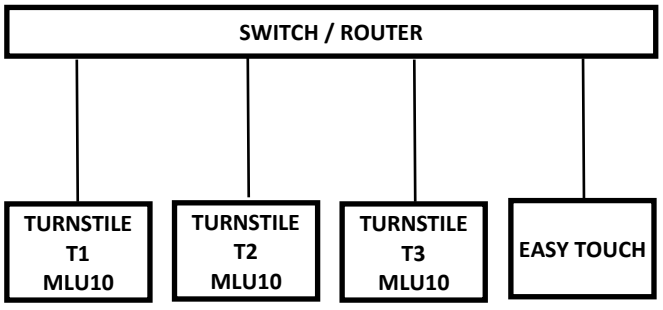
6.18.1. Connecting a separate turnstile and Easy Touch without using a PC

- A separate turnstile can be connected to a single Easy Touch by simply connecting the RJ45 connectors with a network cable.
- Both devices must have static IP addresses set.



6.18.2. Connecting the turnstiles with a single Easy Touch without using a PC

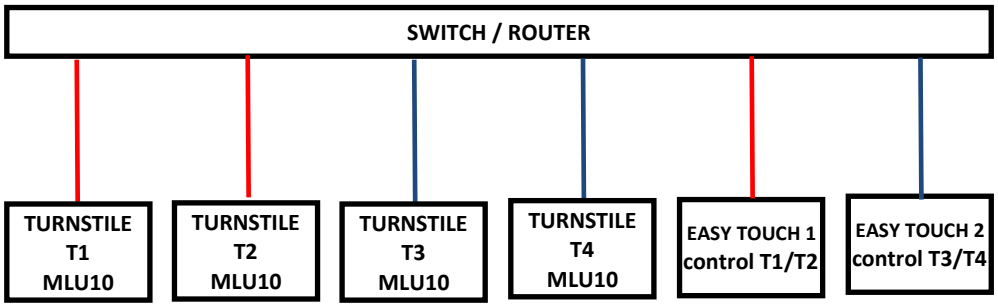
- A SWITCH or a ROUTER must be used in case of connecting more turnstiles with a single Easy Touch.
    - When using a SWITCH, all connected devices must have static IP addresses set.
    - **A ROUTER allows to connect devices with dynamic IP addresses.**



Devices connected
LAN PORT RJ45 SWITCH / ROUTER

6.18.3. Connecting the turnstiles with two or more Easy Touch devices without using a PC

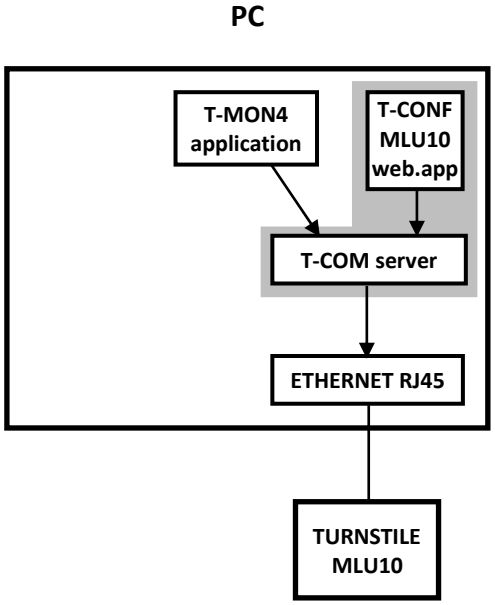
- A SWITCH or a ROUTER must be used in case of connecting more turnstiles and Easy Touch devices.
    - When using a SWITCH, all connected devices must have static IP addresses set.
    - A ROUTER allows to connect devices with dynamic IP addresses.
- Turnstile can be controlled only from one Easy Touch device.



Devices connected
LAN PORT RJ45 SWITCH / ROUTER

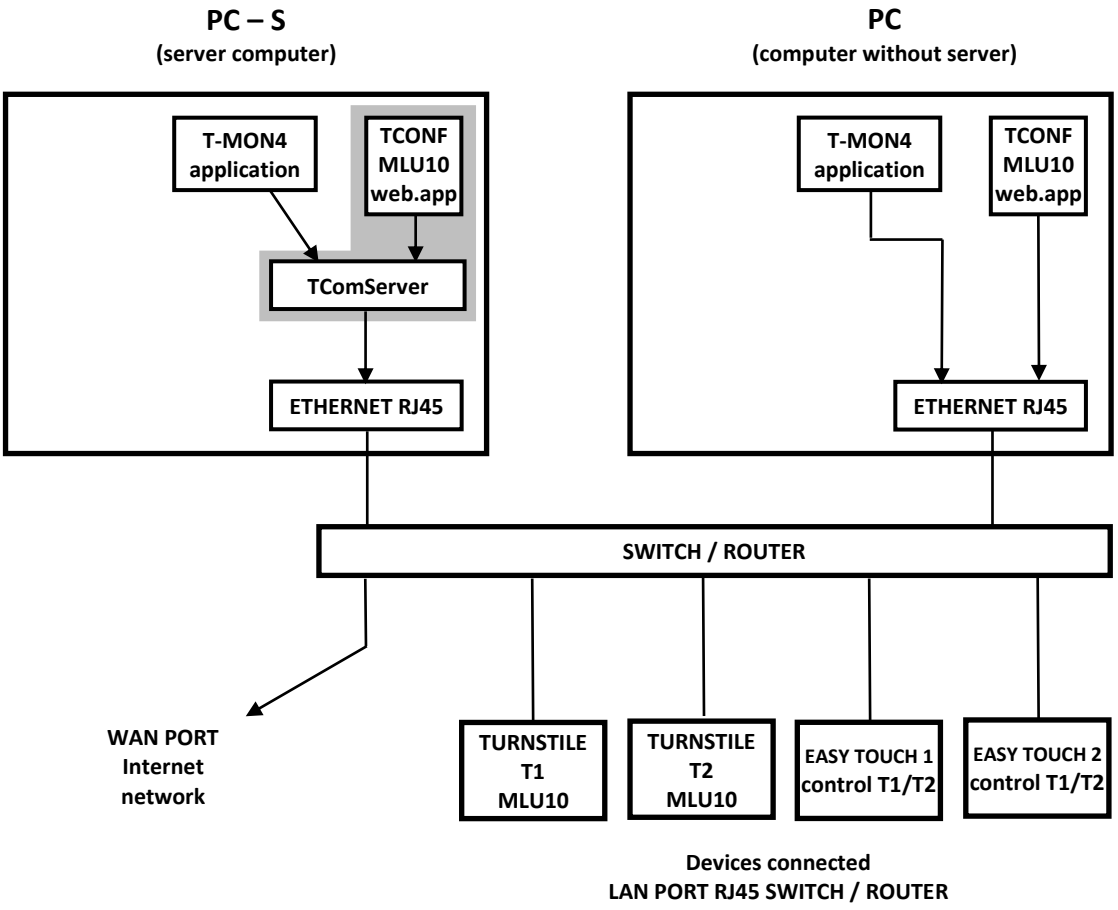
6.18.4. Connecting a separate turnstile and PC

- A separate turnstile can be connected to a single PC with available network interface controller.
- Computer with T-MON4 application must have the TComServer with T-CONF MLU10 web application installed.
- Structure of the software and the connection is shown on the following picture.



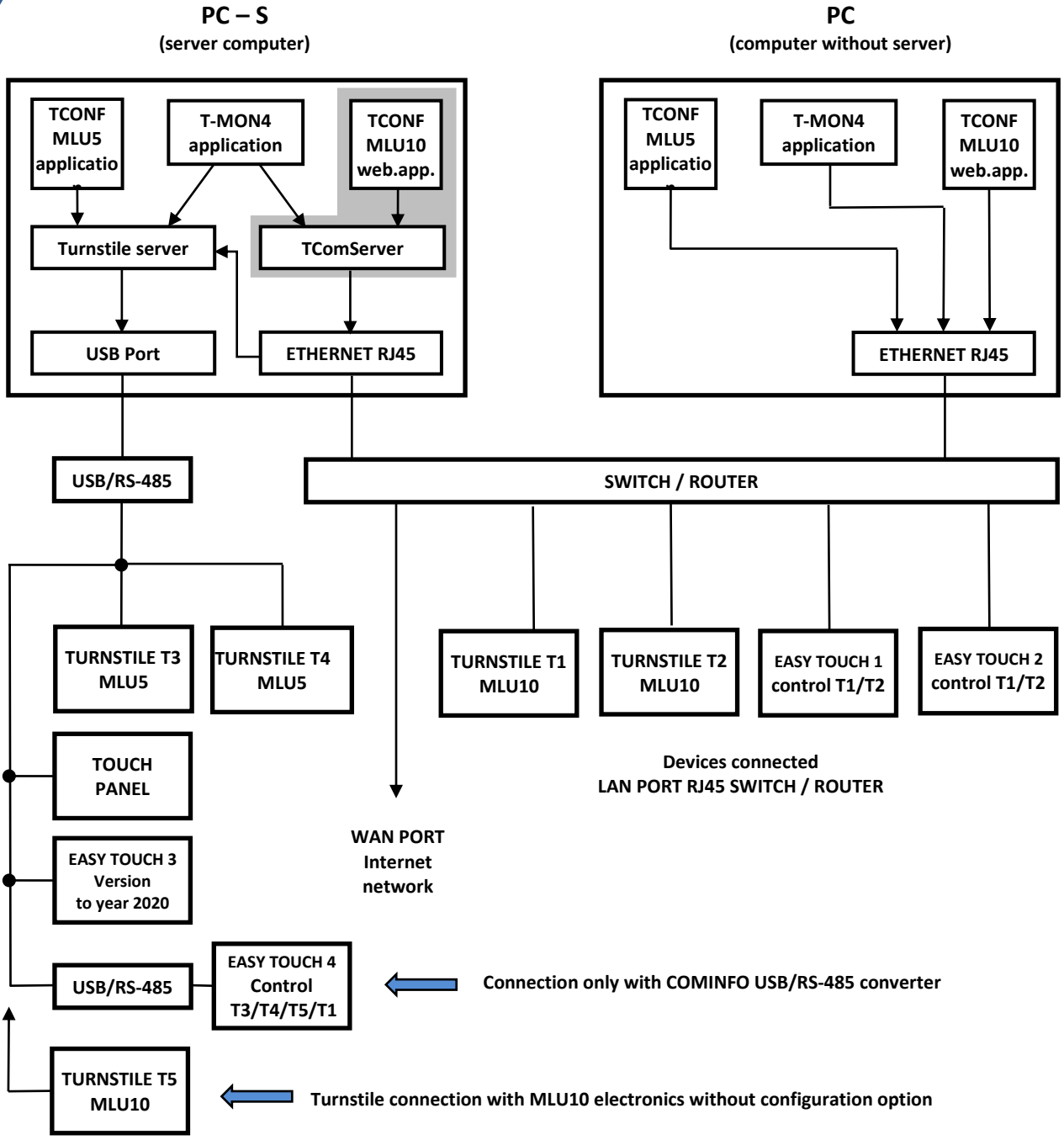
6.18.5. Connecting more turnstiles, Easy Touch and a PC

- To connect more turnstiles, Easy Touch and a PC it is necessary to use a SWITCH or a ROUTER.
    - When using a SWITCH, all connected devices must have static IP addresses set.
    - A ROUTER allows to connect devices with dynamic IP addresses.
- A server PC must have the TComServer with TCONF MLU10 web application installed.
- Each client PC must have the T-MON4 application installed.
- When connecting more computers (client PCs) with T-MON4 application, the TComServer must be installed only on one PC-S computer (server computer).
- Configuration of the turnstiles from the client computers is done through a web browser.
- In case of connecting with a PC it is possible to control the same turnstile from more Easy Touch devices.
- Using a SWITCH or a ROUTER with a WAN port you can connect computers to local network with possibility of connecting to the internet.
- Installation of TComServer with TCONF MLU10 web application and T-MON4 application, network settings and setting the IP addresses of individual devices are described in a separate document.
- Structure of the software and the connection is shown on the following picture.



6.19. CONNECTING ETHERNET/RS485 DATA EXT

- Turnstiles with **MLU5** electronics can be controlled and configured only through the external communication line RS-485 DATA EXT.
- Turnstiles with **MLU10** electronics can be controlled through the external communication line RS-485 DATA EXT or through ETHERNET. Note - MLU10 can be configured only through ETHERNET connection.
- Connecting both communication systems is used to be able to control and configure turnstiles with both, **MLU5** and **MLU10** electronics simultaneously.
- To control the external communication line RS-485 DATA EXT, the PC-S computer has to have the Turnstile server installed.
- For controlling through ETHERNET, the PC-S computer must have the TComServer with TCONF MLU10 web application installed.
- When connecting more computers (client PCs), the Turnstile server and TComServer must be installed only on one PC-S computer (server computer).
- For controlling, each client PC must have the T-MON4 application installed.
- To configure turnstiles with MLU5 electronics, each client PC must have the TCONF MLU5 application installed.
- Configuration of the MLU10 turnstiles from the client PCs is done through a web browser.
- Using a SWITCH or a ROUTER with a WAN port you can connect computers to local network with possibility of connecting to the internet.
- Installation of TComServer with TCONF MLU10 web application and T-MON4 application, network settings and setting the IP addresses of individual devices are described in a separate document.
- Structure of the software and the connection of all devices is shown on the following picture.


PC – S
(server computer)
PC
(computer without server)
TCONF MLU5 applicatio
T-MON4 application
TCONF MLU10 web.app.
Turnstile server
TComServer
USB Port
ETHERNET RJ45
TCONF MLU5 applicatio
T-MON4 application
TCONF MLU10 web.app.
ETHERNET RJ45
USB/RS-485
SWITCH / ROUTER
TURNSTILE T3 MLU5
TURNSTILE T4 MLU5
TURNSTILE T1 MLU10
TURNSTILE T2 MLU10
EASY TOUCH 1 control T1/T2
EASY TOUCH 2 control T1/T2
TOUCH PANEL
Devices connected
LAN PORT RJ45 SWITCH / ROUTER
WAN PORT
Internet
network
EASY TOUCH 3 Version to year 2020
USB/RS-485
EASY TOUCH 4 Control T3/T4/T5/T1
Connection only with COMINFO USB/RS-485 converter
TURNSTILE T5 MLU10
Turnstile connection with MLU10 electronics without configuration option

6.20. EXAMPLE OF CONNECTION OF PC AND OPTIONAL TERMINAL DEVICES

The e-Gate turnstile may be equipped with an industrial computer located in the MASTER turnstile.

The computer controls the passage through the turnstile by processing data from the identification devices and turnstile electronics which sends information about the movement of persons in the gate corridor.

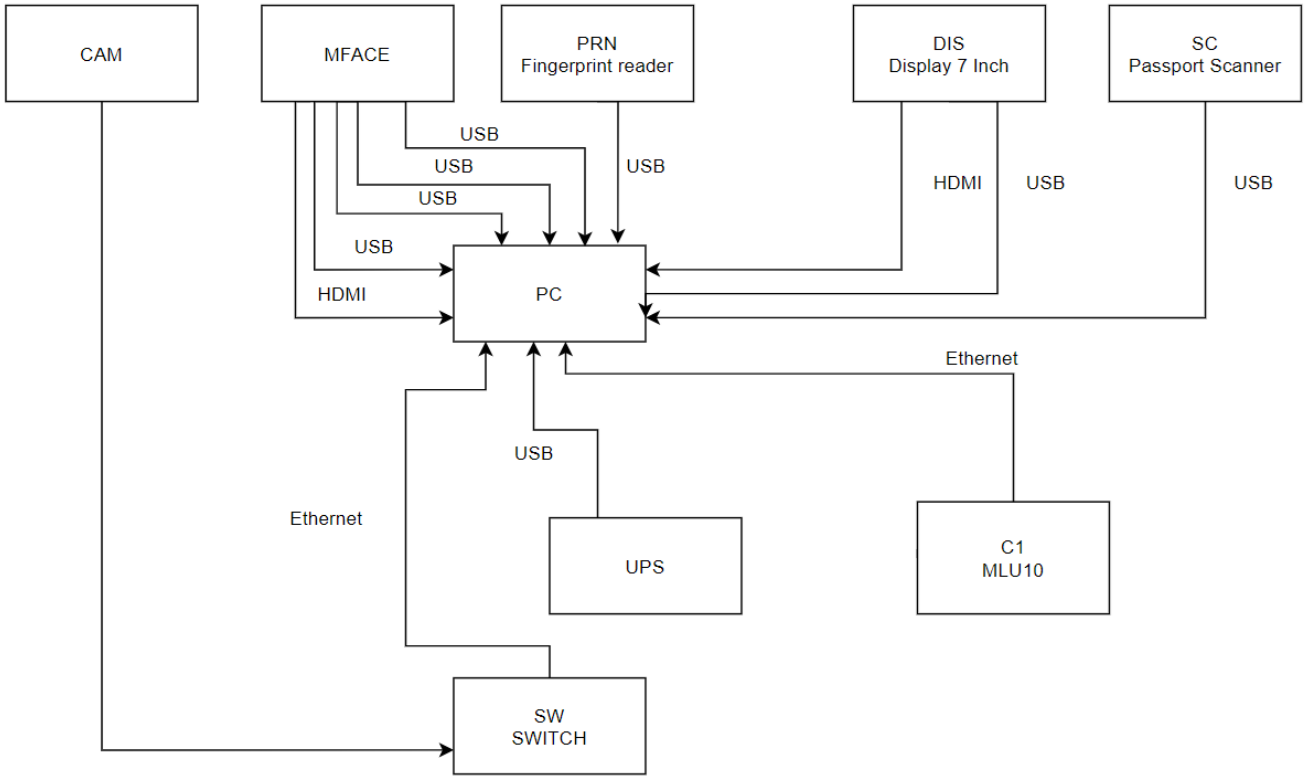
The devices used are adapted to the requirements of the installed turnstile and system of their connection might not correspond with the description in following chapters.

6.20.1. Connecting the PC

The computer is powered from a 12VDC power supply and has the following devices connected to it

UPS	- Backup power supply
SC	- Passport scanner
DISP	- Entrance information display
MFACE	- Facial detection terminal with information display
PRN	- Fingerprint reader
CAM	- Gate monitoring camera connected through Switch
C1	- Turnstile control electronics
SW	- Switch

6.20.2. Communication cables wiring

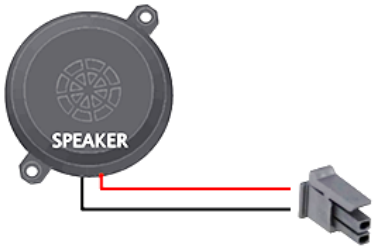


6.20.3. Connecting the Switch

- The **SW** SWITCH is used in case the turnstile is equipped with an industrial computer.
- The power supply is ensured by original 230V Power adapter connected to the **X1/A** terminal.
- The **SW** is connected to the computer via HDMI cable.

6.20.4. Connecting the PC speaker

- The **SP** speaker is connected directly to the PC via MOLEX connector.



6.20.5. Connecting the passport scanner

- The power supply is ensured by original 230V Power adapter connected to the **X1/B** terminal.
- The **SC** is connected to the computer via USB cable.

6.20.6. Connecting the entrance information display (optional accessory)

- The **DISP** display is connected only to the computer via one USB and one HDMI cable.

6.20.7. Connecting the facial detection terminal (optional accessory)

- The **MFACE** facial detection terminal is powered by 12VDC power supply.
- The **MFACE** is connected to the computer via four USB and one HDMI cable.

6.20.8. Connecting the fingerprint reader (optional accessory)

- The **PRN** fingerprint reader is connected only to the computer via original USB cable.

6.20.9. Connecting the gate monitoring camera (optional accessory)

- The **CAM** camera is connected to the **SW** SWITCH via original UTP CAT5E cable.

6.21. WIRING OF THE INTERCONNECTING CONNECTORS OF THE TURNSTILE PARTS

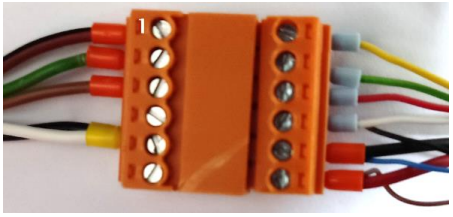
6.21.1. Wiring of the MASTER turnstile connectors

Connect	Wire	Connector K1	Connect	Wire	Cable
M3-	Blue		X2/A M3- GND	Blue	32
M3-	Black		X2/A M3- GND	Black	32
M3+	Silver		X2/A M3+ VDC+PS3	Silver	32
M3+	Gray		X2/A M3+ VDC+PS3	Gray	32

Connect	Wire	Connector K2	Connect	Wire	Cable
*VTL2 +	Black/red		X2/A VTL2+ MAIN VDC+PS1	Black/red	35
*VTL2 -	Black		X2/A VTL2- GND	Black	35
M3 A	Black/red		X2/B M3 A 485 INT	Black/red	39
M3 B	Black		X2/B M3 B 485 INT	Black	39

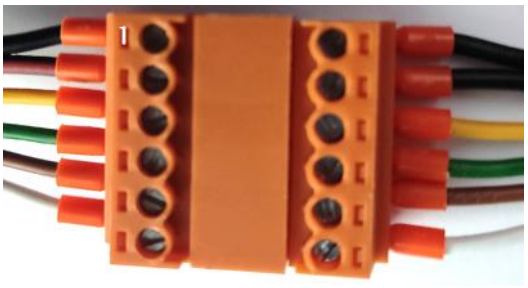
*VTL2 not connected as standard

Connect	Wire	Connector K3	Connect	Wire	Cable
WL3 R	Yellow		CLU1 K3	Yellow	51
WL3 G	Green		CLU1 K3	Green	51
WL3 +	Brown		CLU1 K3	Brown	51
WL3 B	White		CLU1 K3	White	51

Cable	Connect	Wire	Connector K4	Connect	Wire	Cable
53	BUTT	Black/red		C1 K4 IN8	Yellow	45
43	KS Exit	Green		C1 K4 IN7	Green	45
43	KS Entry	Brown		C1 K4 IN6	Red	45
-	-	-		C1 K4 IN5 RX10 Out	White Black	45 44
53 43	BUTT KS	Black White		C1 K4 GNDi/IG RX10 -	Black Blue	45 44
-	-	-		C1 K4+12Vi RX10+	Red Brown	45 44

6.21.2. Wiring of the SLAVE turnstile connectors

Connect	Wire	Connector K5	Connect	Wire	Cable
M4-	Blue		X3 M4 GND	Blue	8
M4-	Black		X3 M4 GND	Black	8
M4+	Silver		X3 M4 VDC+PS4	Silver	8
M4+	Gray		X3 M4 VDC+PS4	Gray	8

Connect	Wire	Connector K6	Connect	Wire	Cable
M4 B	Black		X3 B 485 INT	Black	12
M4 A	Black/red		X3 A 485 INT	Black/red	12
WL4 R	Yellow		CLU2 K3	Yellow	16
WL4 G	Green		CLU2 K3	Green	16
WL4 +	Brown		CLU2 K3	Brown	16
WL4 B	White		CLU2 K3	White	16

7. BASIC PRINCIPLES OF THE TURNSTILE CONTROL

All of the turnstile functions are controlled by the MLU10 electronics.
They are controlled simultaneously by following control and communication systems.

7.1. CONTROLLING BY STATUS SIGNALS

- Controlling by status signals is used with all superior systems.
- The MLU10 electronics receives and processes input control signals from the superior system.
- The MLU10 electronics sends the turnstile output control status signals to the superior system.
- The MLU10 electronics controls the execution of the EMERGENCY function based on the signal from the fire alarm system.

7.2. CONTROLLING VIA ETHERNET

- Controlling via ETHERNET is used for remote control of the turnstile by new COMINFO products:
    - Easy Touch version 1.4 (Android)
    - PC with T-MON4 application (application by the manufacturer COMINFO)
- The ETHERNET control can also be realized via PC with a customer application based on a communication protocol developed in cooperation with the manufacturer COMINFO.
- A PC with the T-CONF web application is also connected through ETHERNET to configure the MLU10 electronics and the MDD168 drive units.

7.3. CONTROLLING BY THE EXTERNAL COMMUNICATION LINE RS485 DATA EXT

- Controlling by the external communication line is used for backwards compatibility with older remote control products by COMINFO:
    - Touch Panel
    - Easy Touch version 1.1.5 (Linux)
    - T-MON3
- Controlling by the external communication line is used for simultaneous control of turnstiles equipped with **MLU5** and **MLU10** electronics.

7.4. CONTROLLING BY THE INTERNAL COMMUNICATION LINE RS485 DATA INT

- The MLU10 electronics uses the 485 communication line to control all internal devices of the turnstile.
- Internal communication line directly controls following devices:
    - MDD168 drive units
    - Digital Lane Light
    - Signal Expander
    - CLU – optical signalization electronics used in the e-Gate turnstile for controlling the Wing Light

8. DESCRIPTION OF CONTROLLING THE TURNSTILE BY STATUS SIGNALS

8.1. INPUT CONTROL SIGNALS

8.1.1. Description of the input control signals function.

- **INL input** – the input activates single or permanent passage by the turnstile in the INL direction.
- **INR input** – the input activates single or permanent passage by the turnstile in the INR direction.
- **ON/OFF input** – input for deactivating the turnstile
- **EMG1 input** – input for controlling the EMERGENCY function via the GNDiz signal.
- **+EMG2 input** – input for controlling the EMERGENCY function via +24VDC voltage.
- **-EMG2 input** – input for controlling the EMERGENCY function via -24VDC voltage.
- **IN1-6 inputs** – inputs modifiable for any function.
- **UNI-0** – input for the manufacturer's needs - **DO NOT CONNECT ANY CIRCUITS**.

All input signals are factory set to NO. Using the TCONF application it is possible to set any input signal to NO or NC, independently to other inputs.

The turnstile deactivation input ON/OFF is factory set to NO.
Turnstile is permanently activated with this setting.
Turnstile will be deactivated after connecting the control signal to the ON/OFF input.

8.1.2. Lengths of input control signals

Name of the Input Signal	Single Passage	Permanently released passage
INL	>100ms <2000ms)[1]	>2000ms
INR	>100ms <2000ms)[1]	>2000ms
ON/OFF	FOR THE DURATION OF THE INPUT ACTIVATION	
PANIC/EMERGENCY	FOR THE DURATION OF THE INPUT ACTIVATION	

)[1] - **Recommended length of the input signal for a single passage is 1000ms**

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

1. By permanently activating the INL or INR input according to the requirements of the permanent release direction.
2. Using the control panel - Touch panel or Easy Touch (see separate manuals).
3. Using the T-MON application (see separate manual).

8.2. OUTPUT CONTROL SIGNALS

8.2.1. Description of the output control signals function.

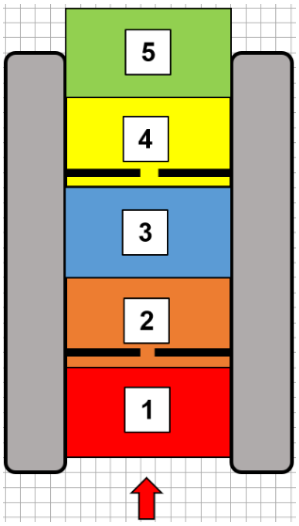
- **ROT L** signal for the superior system informing about opening of the passage in the L direction
- **ROT R** signal for the superior system informing about opening of the passage in the R direction
- **BUSY** signal for the superior system informing about released or ongoing passage
- **ALARM** attempt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

All output signals are factory set to NO. Using the TCONF application it is possible to set any output signal to NO or NC, independently to other inputs.

8.2.2. Lengths of output control signals:

Name of the output signal	Signal duration
ROTL	>200ms
ROTR	>200ms
BUSY	FOR THE DURATION OF PASSAGE

8.3. PASSAGE SIGNALS TIMING DIAGRAM



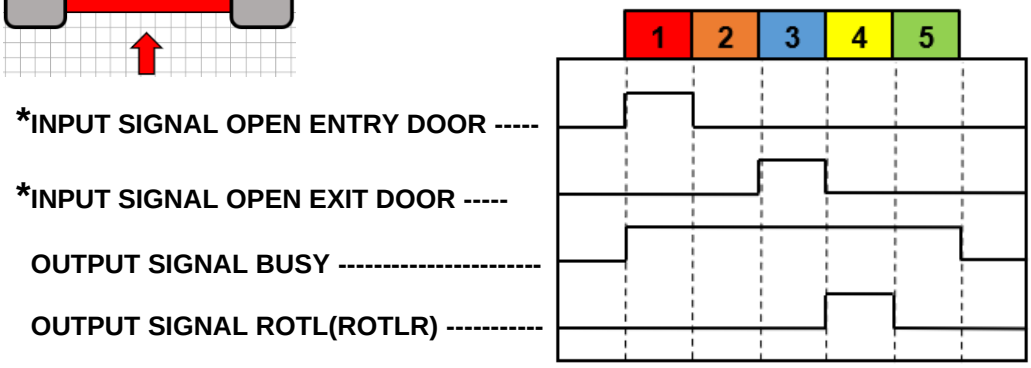
5 - Exit door closing phase

4 - Completing the passage and person counting phase

3 - Person identification and activation of exit wings opening phase

2 - Entry to the identification corridor and closing entry wings phase

1 - Passage activation and opening the entry wings phase



* The IDEMIA system - OPEN ENTRY DOOR signal generated by the PC based on PS reading.

* The IDEMIA system - OPEN EXIT DOOR signal generated based on MFACE and PRN identification.

9. CONTROLLING VIA ETHERNET – CUSTOMER APPLICATION

The ETHERNET control can also be realized via PC with a customer application based on a communication protocol developed in cooperation with the manufacturer COMINFO.

9.1. EXAMPLE OF A COMMUNICATION PROTOCOL

Commands

BYTE 0		
Bit	**meaning**	**total bit.**
0	Passage in Left direction - start of passage in automatic mode	0
4	Activation of emergency	4
5	End Free Passage Left (Set Picto Green)	5
7	Deactivation of Emergency	7

BYTE 1		
Bit	**meaning**	**total bit.**
0	Turnstile ON	8
1	Turnstile OFF	9

BYTE 2		
Bit	**meaning**	**total bit.**
0	Open entry door = 1 / Close Entry Door = 0	16
1	Open exit door = 1 / Close Exit Door = 0	17
5	Verification OK	21
6	Verification Failed	22

BYTE 3		
Bit	**meaning**	**total bit.**
0	Command Lock Down Left (set Picto Red)	24

Events

BYTE 0		
Bit	**meaning**	**total bit.**
0	Pass Unblocking Left (ongoing passage)	0
4	Emergency – ON =1, OFF =0	4
5	Electronic Error On Master	5
6	Turnstile is ON = 1 / OFF = 0	6
7	Electronic Error On Slave	7

BYTE 1		
Bit	meaning	**total bit.**
0	Timeout expired – passage not realized	8
1	Pass realized left	9

BYTE 2		
Bit	**meaning**	**total bit.**
2	Key switch IN - E-Gate	18
3	Key switch OUT – E-Gate	19
4	Validation START	20

BYTE 3		
Bit	**meaning**	**total bit.**
0	Lock Down Left	24
1	Lock Down Right	25
2	Person in corridor L	26
3	Person in corridor R	27
4	Intrusion	28
5	Vandalism – attempt to open entry door	29
6	Tailgating	30
7	Crossover	31

BYTE 4		
Bit	**meaning**	**total bit.**
0	Jump out – E-Gate	32
2	Opened entry door – E-Gate	34
5	Opened exit door – E-Gate	37
6	Input 3 (user button) - E-Gate	38

BYTE 5		
Bit	**meaning**	**total bit.**
0	Vandalism exit door – E-Gate	40
1	Jump in – E-Gate	41
2	Closed entry door – E-Gate	42
3	Closed exit door – E-Gate	43
4	Opening entry door – E-Gate	44
5	Opening exit door – E-Gate	45
6	Closing entry door – E-Gate	46
7	Closing exit door – E-Gate	47

BYTE 6		
Bit	**meaning**	**total bit.**
0	Blocked entry door – E-Gate	48
1	Blocked exit door – E-Gate	49
2	Left item – E-Gate	50

10. 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 via ETHERNET or through external communication line RS 485 DATA EXT.**
- **Apart from the superior system, also TOUCH PANEL, EASY TOUCH 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 MLU10 electronics by status signals.**

10.1. 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 MLU5 application.
- Connection and setting of the TOUCH PANEL is described in a separate manual.

10.2. 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.

10.3. CONTROLLING THE TURNSTILE BY T-MONITOR APPLICATION

- It is the highest level of control of COMINFO turnstiles.
- The T-MONITOR application allows:
  - controlling all the turnstile functions
  - turnstile status monitoring
  - automatic control of turnstile activation/deactivation using 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.

11. TURNSTILE POWER SUPPLY

11.1. CONNECTING THE EXTERNAL 230VAC MAINS POWER SUPPLY

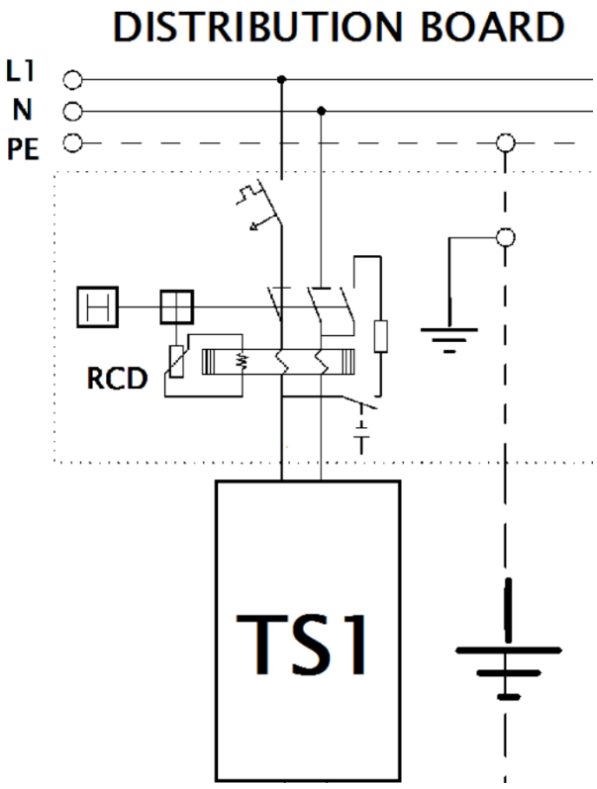
APPLIANCE MUST BE CONNECTED IN COMPLIANCE WITH INSTRUCTIONS THAT ARE ATTACHED TO IT AND ALSO IN COMPLIANCE WITH RESPECTIVE LEGAL REGULATIONS AND STANDARDS, WHICH ARE EFFECTIVE IN THE COUNTRY OF INSTALLATION OF THE PRODUCT. CONNECTION MAY BE PERFORMED ONLY BY A QUALIFIED PERSON.

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:



- The turnstile is equipped with input B16A circuit breaker. While planning the protection, it is necessary to adapt the circuit breaker selectivity.
- The 230VAC mains power supply is connected to the main terminal block in the master turnstile **X1A** according to the chapter *ELECTRICAL CONNECTION OF THE TURNSTILE*.

11.2. POWER INPUT OF THE TURNSTILE

- The following tables show the power input values of the turnstile and basic optional accessories for which the protection and cross-section of power cables have to be dimensioned.
- These values can be also used for calculating the turnstile power consumption in standby mode.
- The tables do not show the power input values of the turnstile equipment which is related to the terminal.

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

Process	Power input [VA]	Note
Maximum consumption during a passage through the turnstile [1])	**360**	Opening/closing wings 2x drives [2])
Idle state of the turnstile (turnstile OFF)	**70**	Locked in home position
Idle state of the turnstile (turnstile ON)	**20**	Unlocked in home position

Table of power input increase with basic optional accessories:

Optional accessories	Power input [VA]	Note
Digital Lane Light	**+5.5**	1x Digital Lane Light
Wing Light	**+90**	For a single gate - all the wings backlit

[1]) Maximum power input while reversing the wings when closing.

[2]) By default, only one set of wings open during the passage. In case of a specific request, it is possible to open both wings simultaneously. In this case, the maximum power input will be double.

12. COMPLETE WIRING DIAGRAM

12.1. CAPTIONS TO THE DIAGRAMS:

12.1.1. Basic elements

BRK1 - The tooth brake of the right entry MASTER wing
BRK2 - The tooth brake of the left entry SLAVE wing
BRK3 - The tooth brake of the right exit MASTER wing
BRK4 - The tooth brake of the left exit SLAVE wing
C1 - MLU10 control electronics
D1 - RS485 Distributor
ES1 - Earthing terminal block (bridge) in the MASTER turnstile
FA1 - Main supply circuit breaker 230VAC B16A
FA2 - Turnstile power supply circuit breaker 230VAC B10A
FU1 - power supply output fuse PS1 16A
FU2 - power supply output fuse PS2 16A
FU3 - power supply output fuse PS3 16A
FU4 - power supply output fuse PS4 16A
M1 - The drive unit of the right entry MASTER wing
M2 - The drive unit of the left entry SLAVE wing
M3 - The drive unit of the right exit MASTER wing
M4 - The drive unit of the left exit SLAVE wing
PE1 - The MASTER turnstile interconnecting earthing terminal block
PE2 - The MASTER turnstile earthing terminal of earthing bridge ES1
PE3 - The SLAVE turnstile earthing terminal block
PS1 - Main power supply for the MASTER turnstile devices and M1 motor (230VAC/12VDC)
PS2 - Power supply for the SLAVE turnstile devices and M2 motor (230VAC/12VDC)
PS3 - Power supply for the M3 motor (230VAC/12VDC)
PS4 - Power supply for the M4 motor (230VAC/12VDC)
RX1-8 - SB9 receiver sensor bars (9 sensors) located in the MASTER turnstile
RX9 - SB6 receiver sensor bar (6 sensors) located in the MASTER turnstile
RX10 - Separate receiver sensor located in the MASTER turnstile
TX1-8 - SB9 transmitter sensor bars (9 sensors) located in the SLAVE turnstile
TX9 - SB6 transmitter sensor bar (6 sensors) located in the SLAVE turnstile
TX10 - Separate transmitter sensor located in the SLAVE turnstile
X1/A - Main **230VAC** power supply terminal block
X1/B - Turnstile power supply terminal block
X2/A - MASTER turnstile terminal block
X2/B - The MASTER turnstile interconnecting terminal block
X3 - The SLAVE turnstile interconnecting terminal block
XU - The MASTER turnstile user terminal block
XS - Plug socket for interconnecting the power supplies of the MASTER turnstile parts

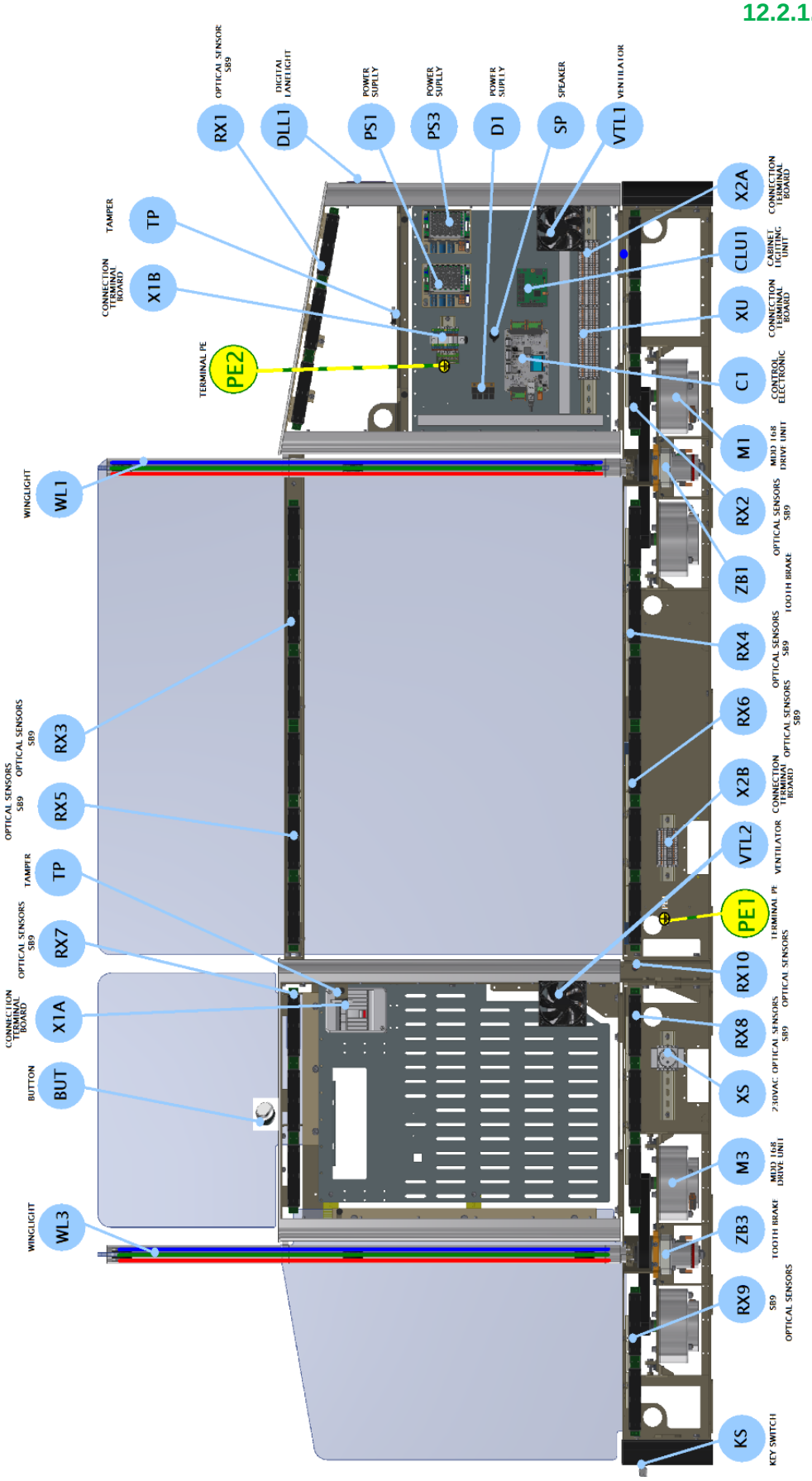
12.1.2. Equipment

BUTT - The reset button
CLU1 - Control electronics of MASTER optical signalization (Cabinet Lighting unit)
CLU2 - Control electronics of SLAVE optical signalization (Cabinet Lighting unit)
DLL1 - MASTER turnstile entry Digital Line Light
KS - Key controller
SP - Acoustic signalization speaker
VTL1* - Ventilator of the MASTER turnstile entry cabinet
VTL2* - Ventilator of the MASTER turnstile exit cabinet
WL1 - Wing Light of the right entry MASTER wing
WL2 - Wing Light of the left entry SLAVE wing
WL3 - Wing Light of the right entry MASTER wing
WL4 - Wing Light of the left exit SLAVE wing

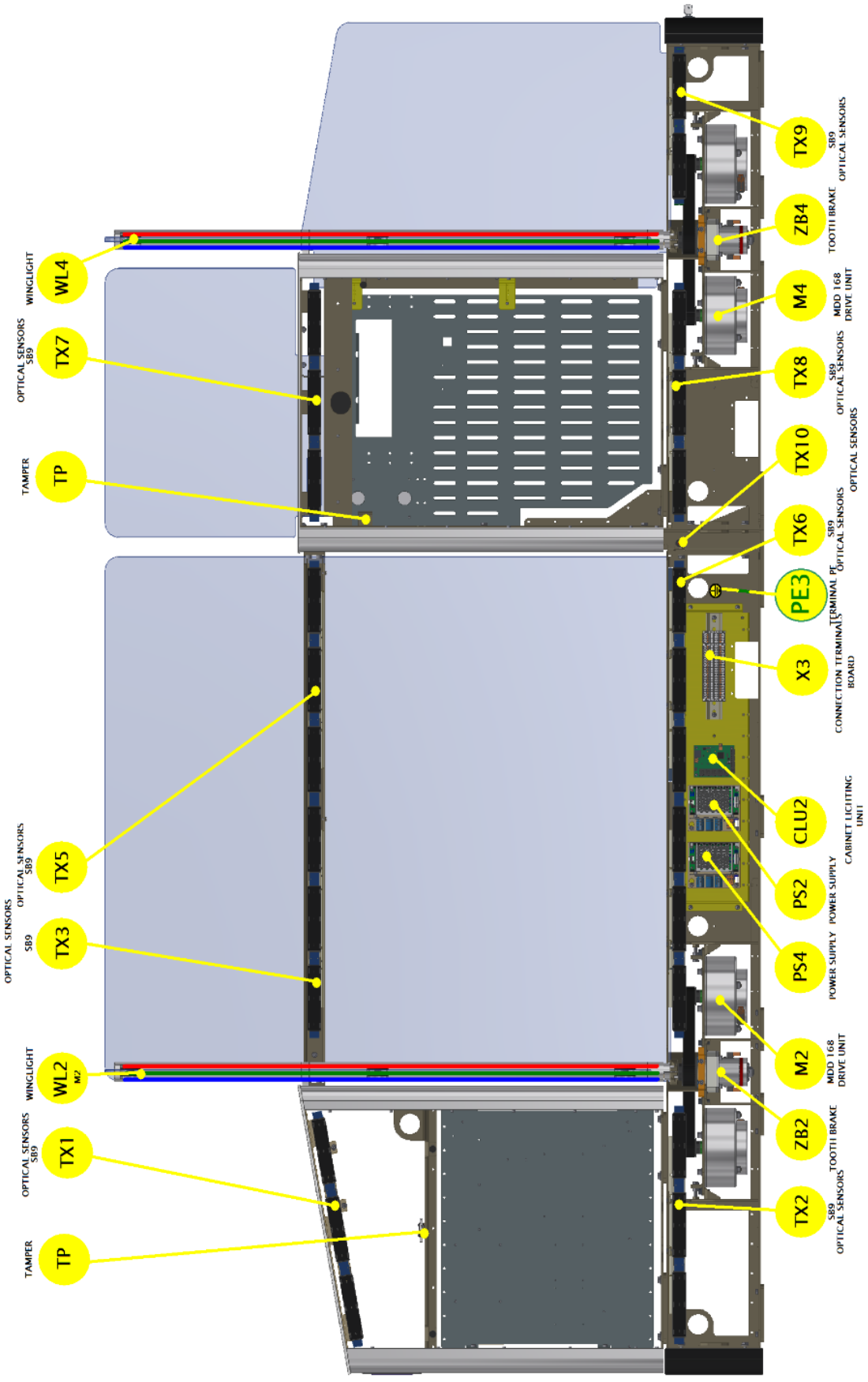
*Fans are installed in case of high power loss of optional turnstile accessories

12.2. LAYOUT OF THE DEVICES IN THE TURNSTILE

12.2.1. MASTER turnstile

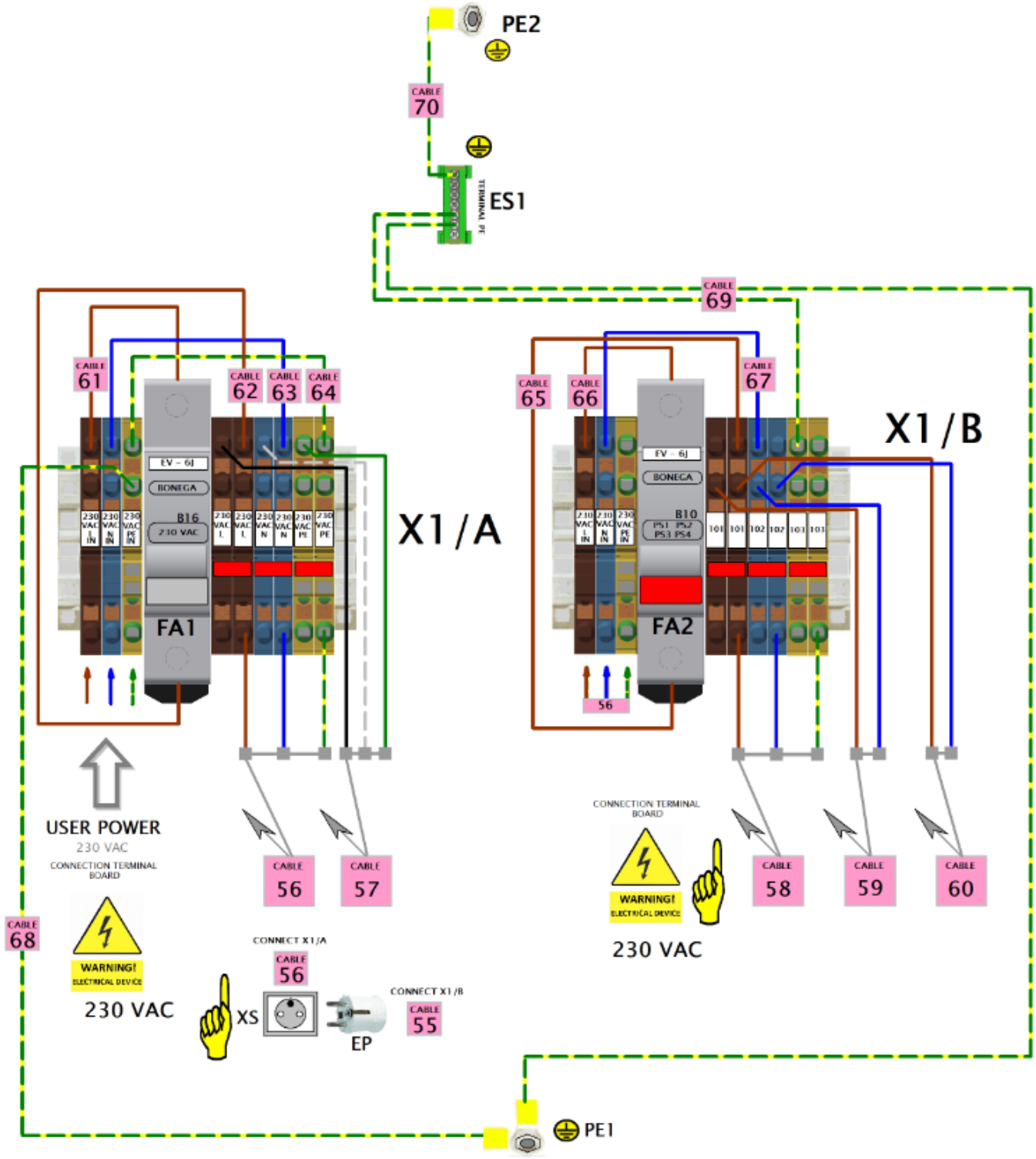


12.2.2. SLAVE turnstile



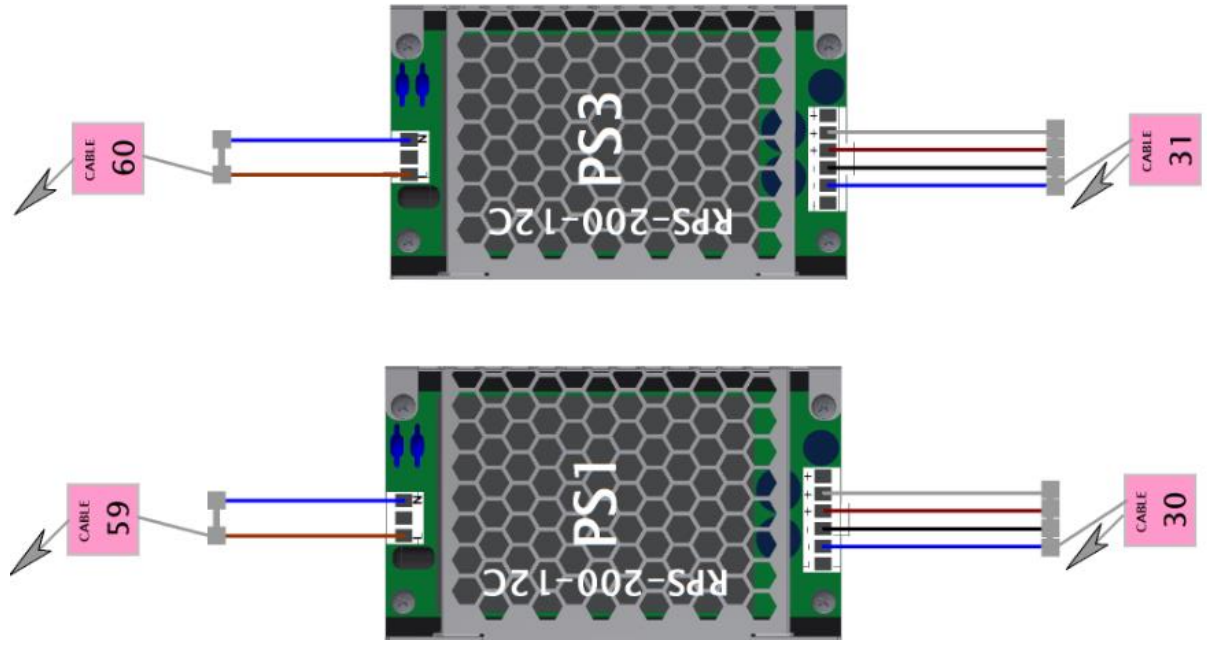
12.3. WIRING DIAGRAM OF TURNSTILE WITH 230VAC POWER SUPPLY

12.3.1. Wiring diagram of the turnstile power supply (230VAC)

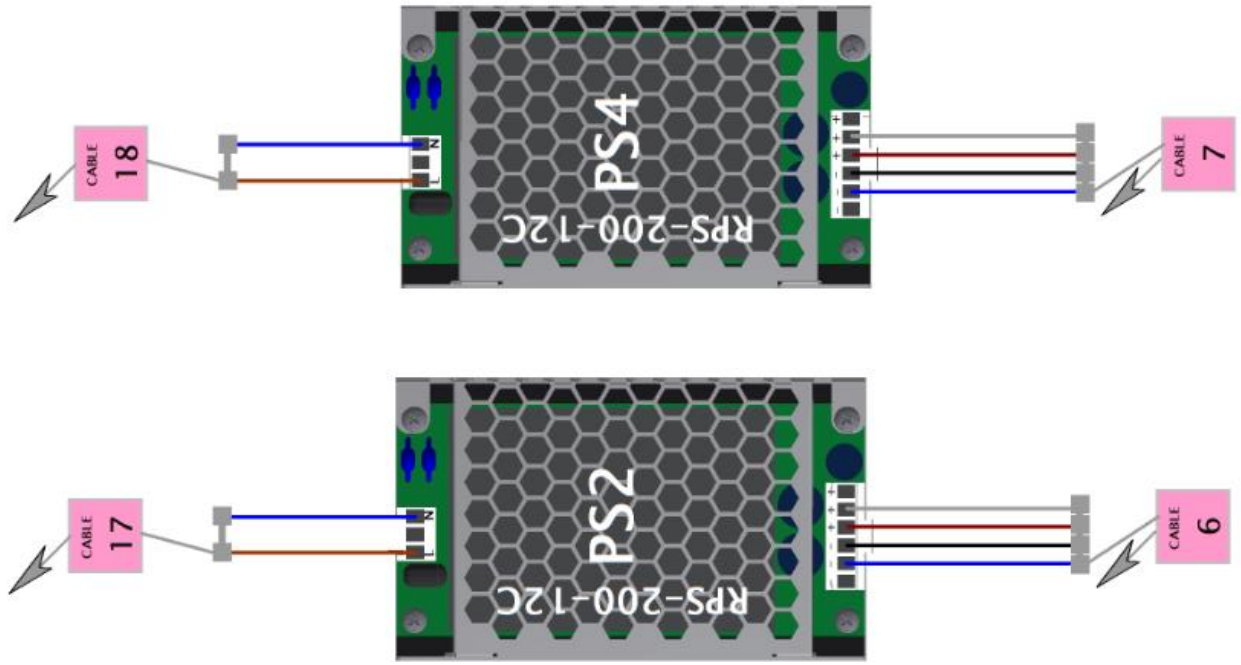


12.3.2. Wiring diagram of internal power supplies

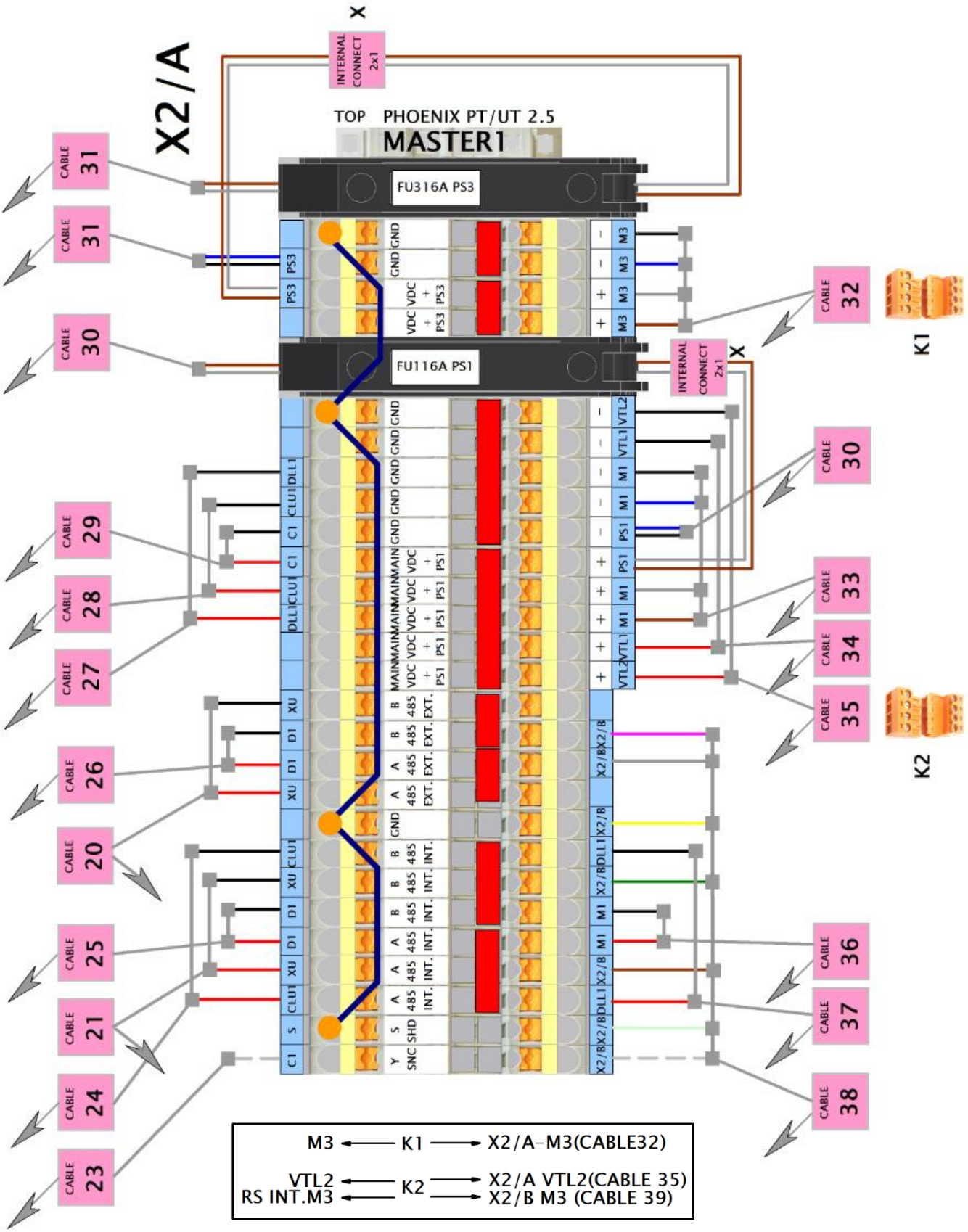
MASTER TURNSTILE POWER SUPPLIES



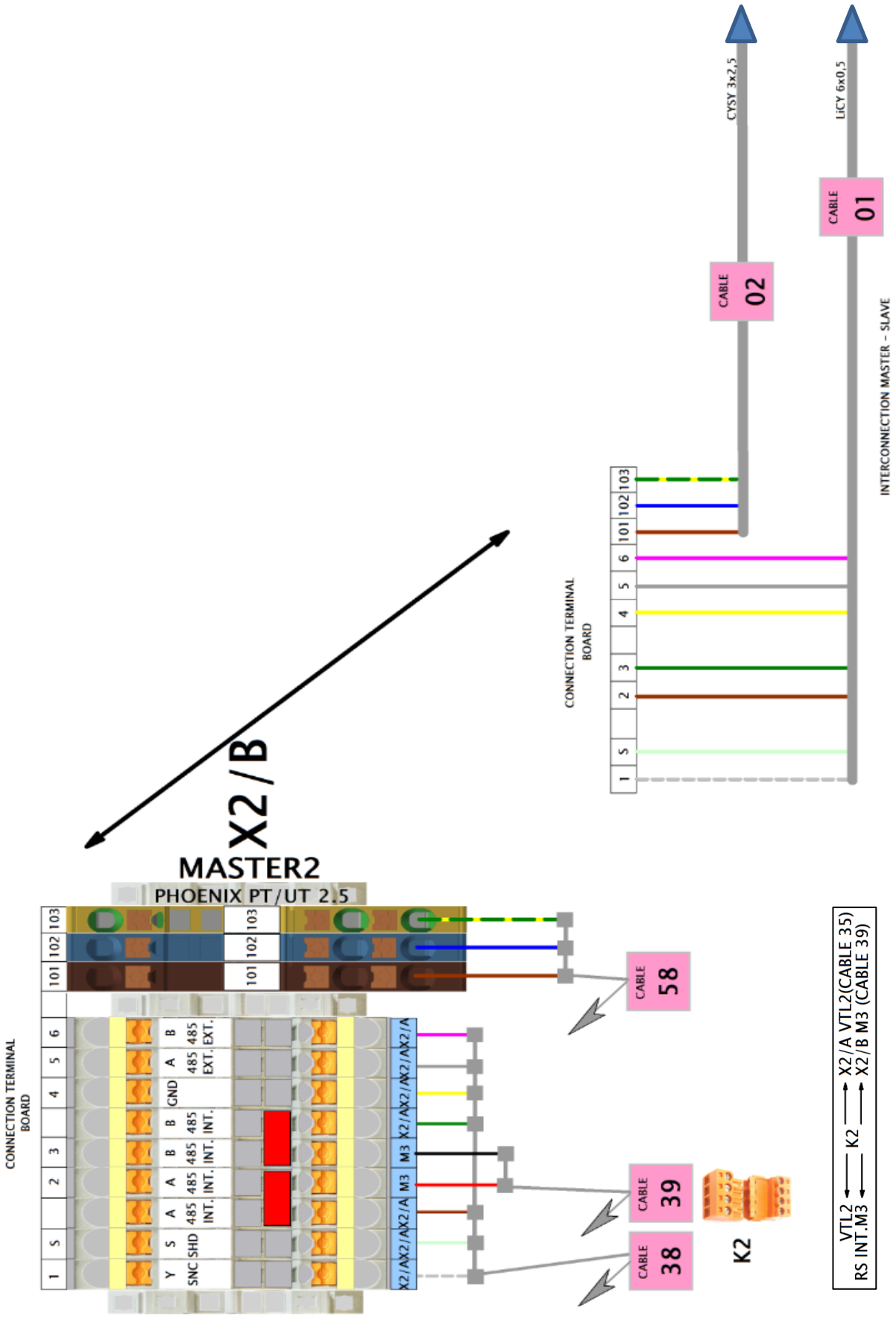
SLAVE TURNSTILE POWER SUPPLIES



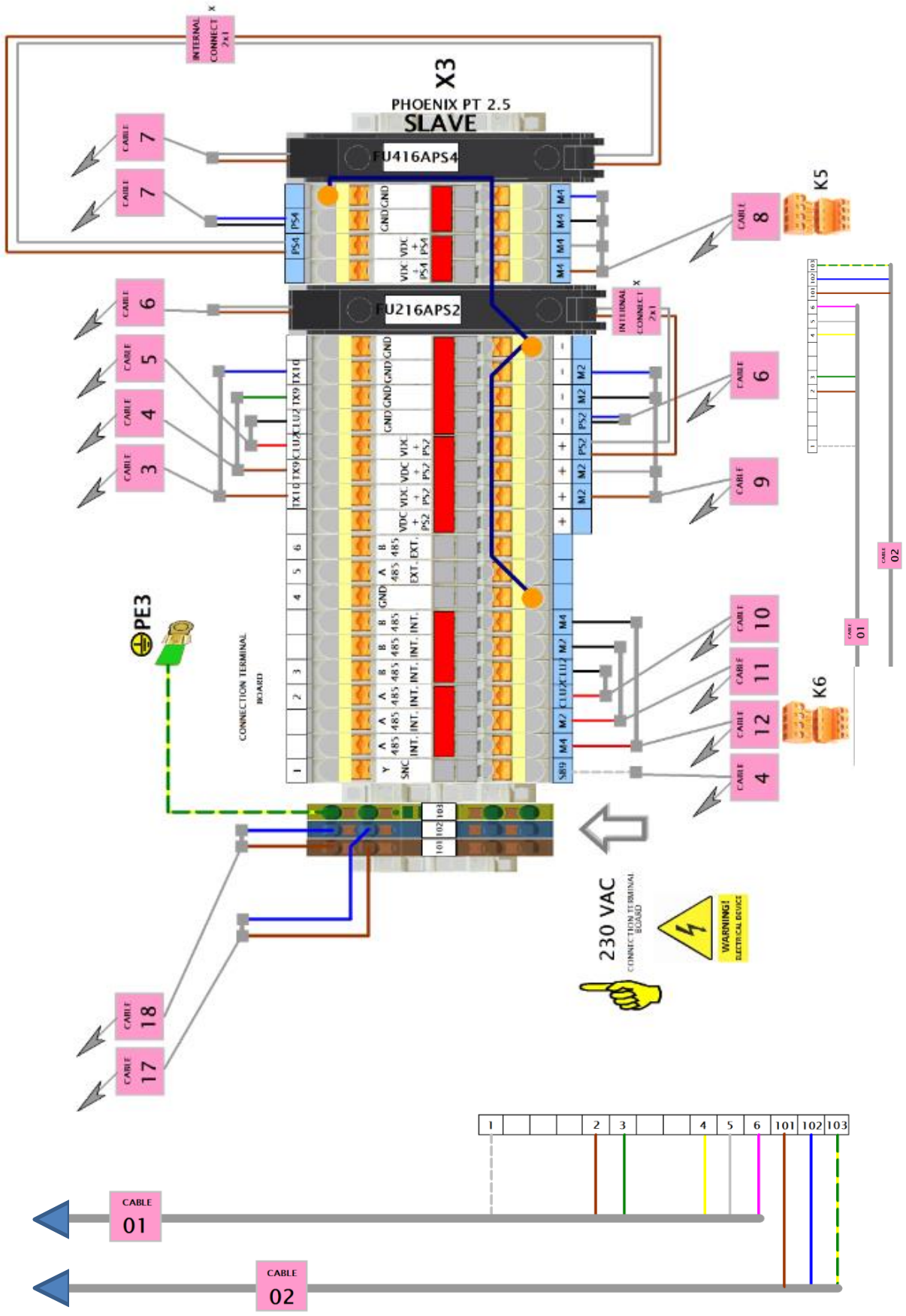
12.3.3. X2/A MASTER terminal block wiring diagram



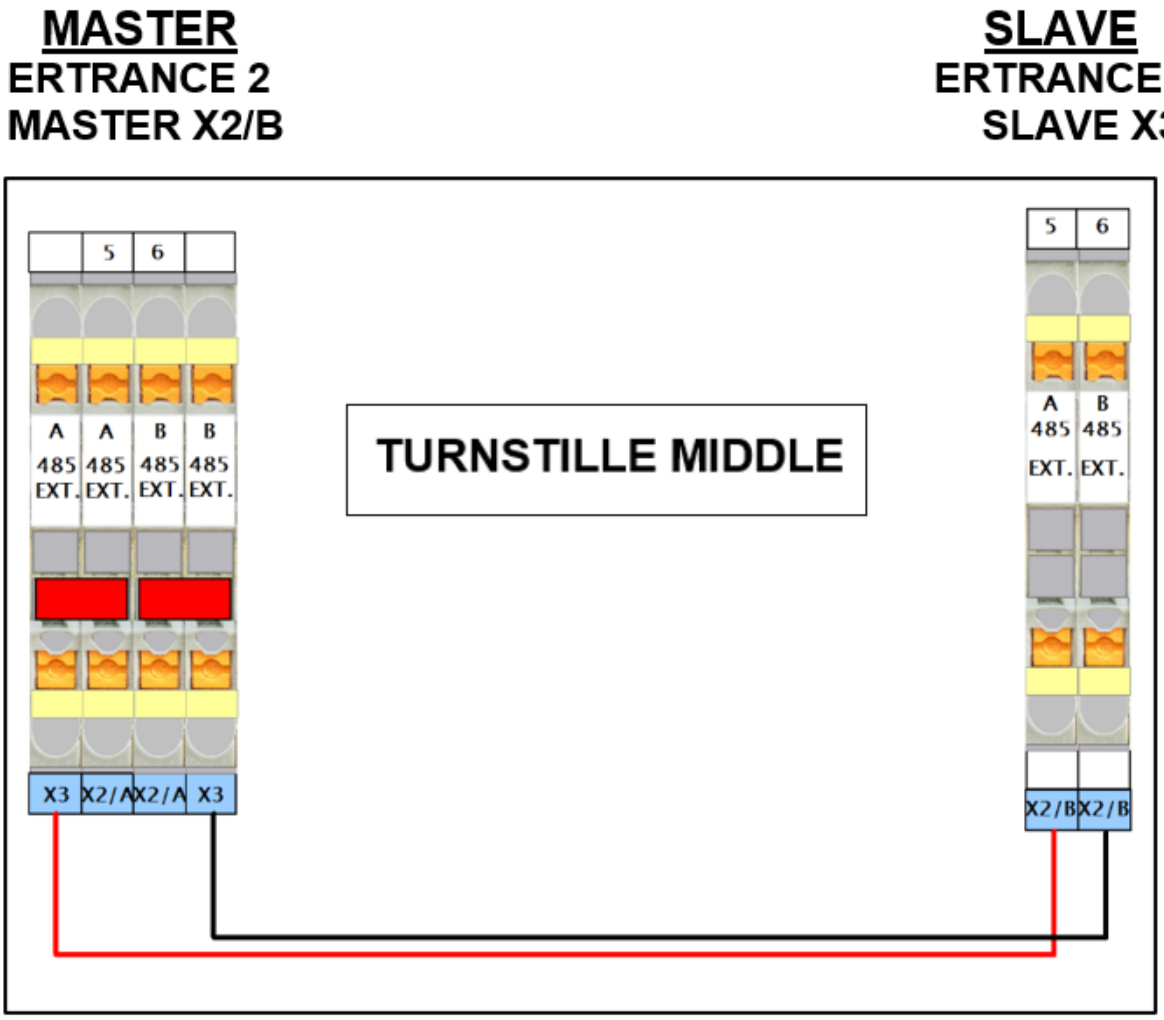
12.3.4. X2/B MASTER interconnecting terminal block wiring diagram



12.3.5. X3 SLAVE interconnecting terminal block wiring diagram

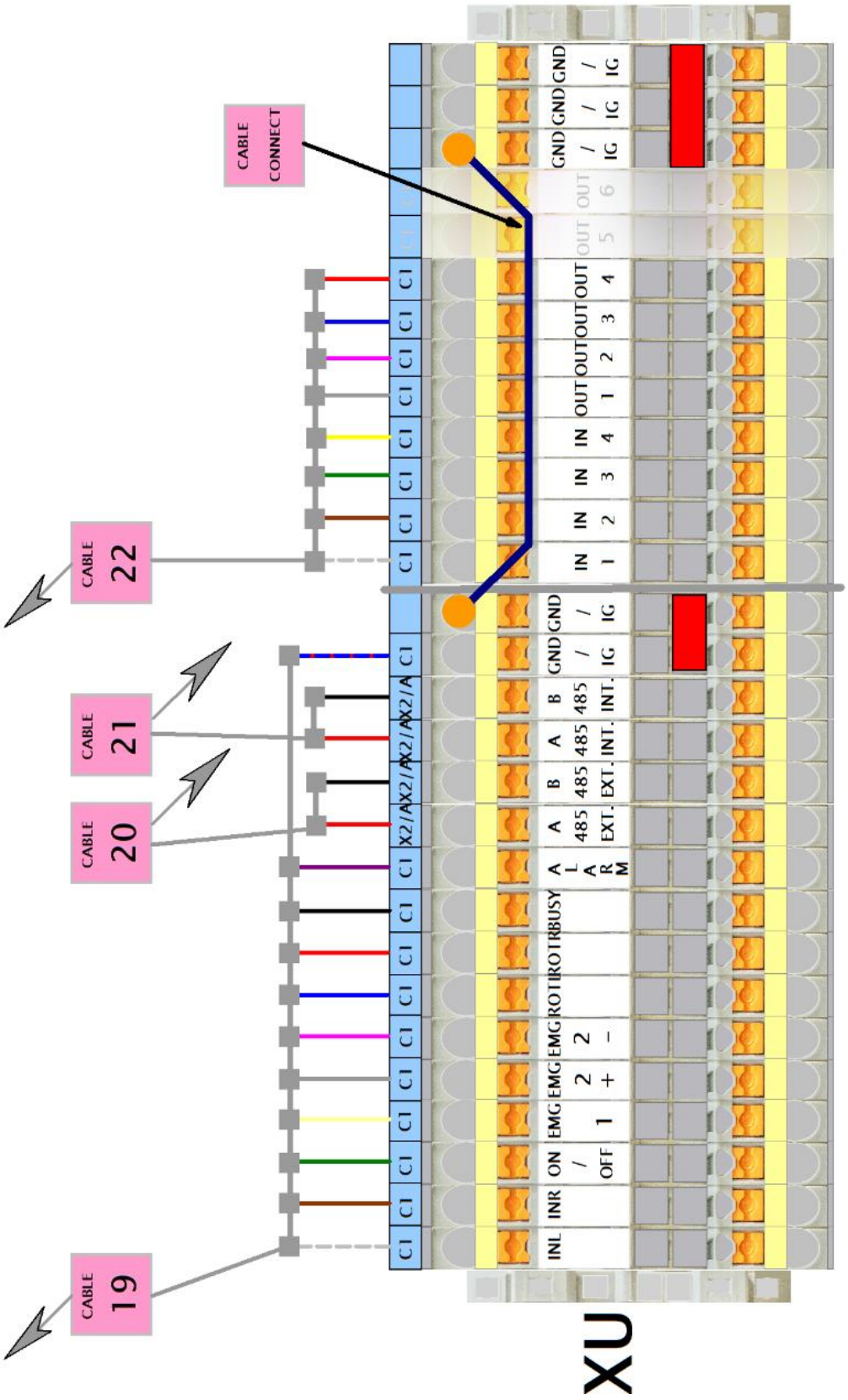


12.3.6. Diagram of interconnecting the RS485 EXT line in the MIDDLE turnstile



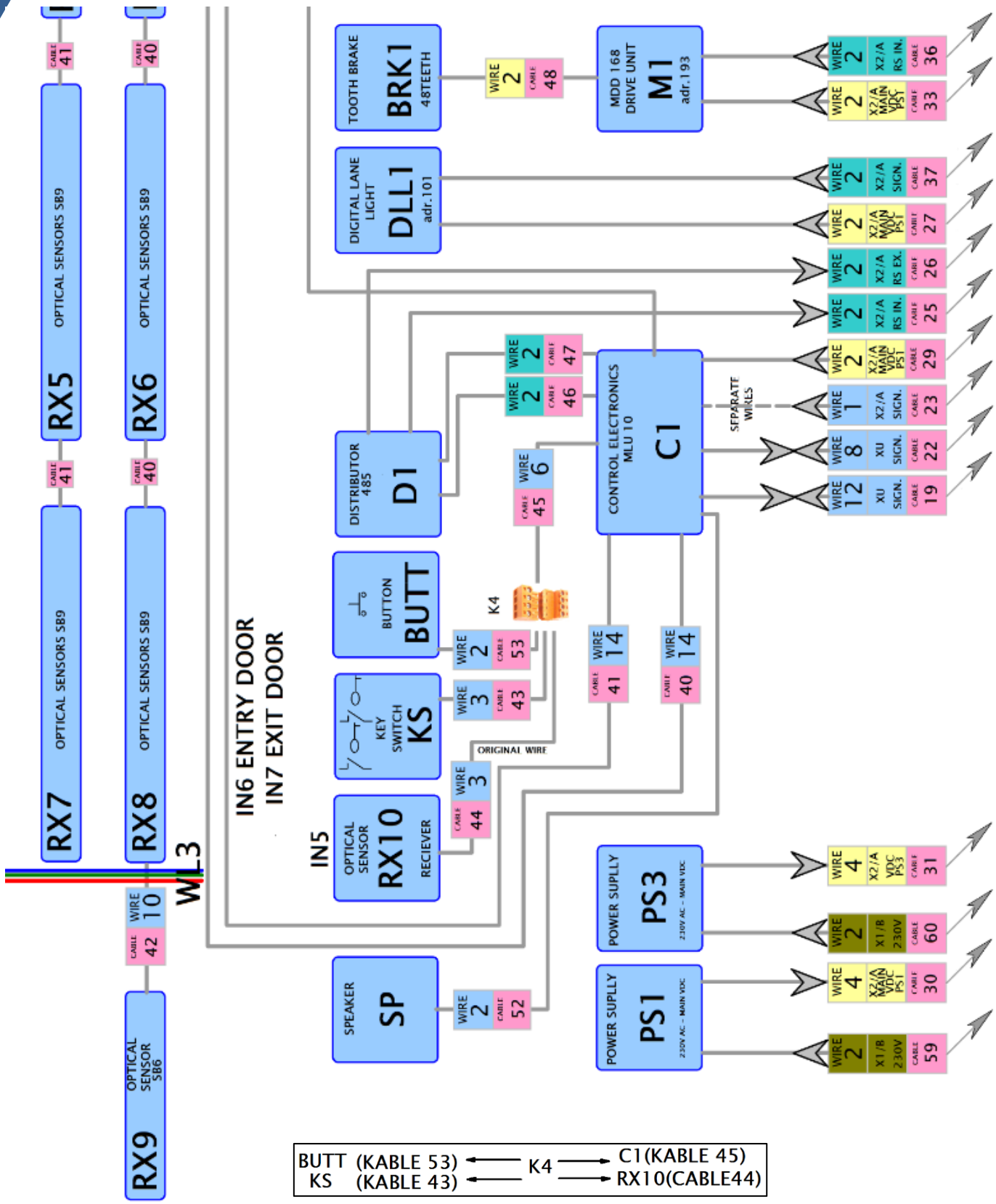
Note:
Interconnection is only used in the **MIDDLE** turnstile to interconnect the external **RS485 DATA EXT** communication line between **MASTER** terminal **X2/B** and **SLAVE** terminal **X3** of the preceding passage.
In the **MIDDLE** turnstile, the **X2/B** terminal block has four terminals.

12.3.7. Wiring diagram of the XU user terminal block

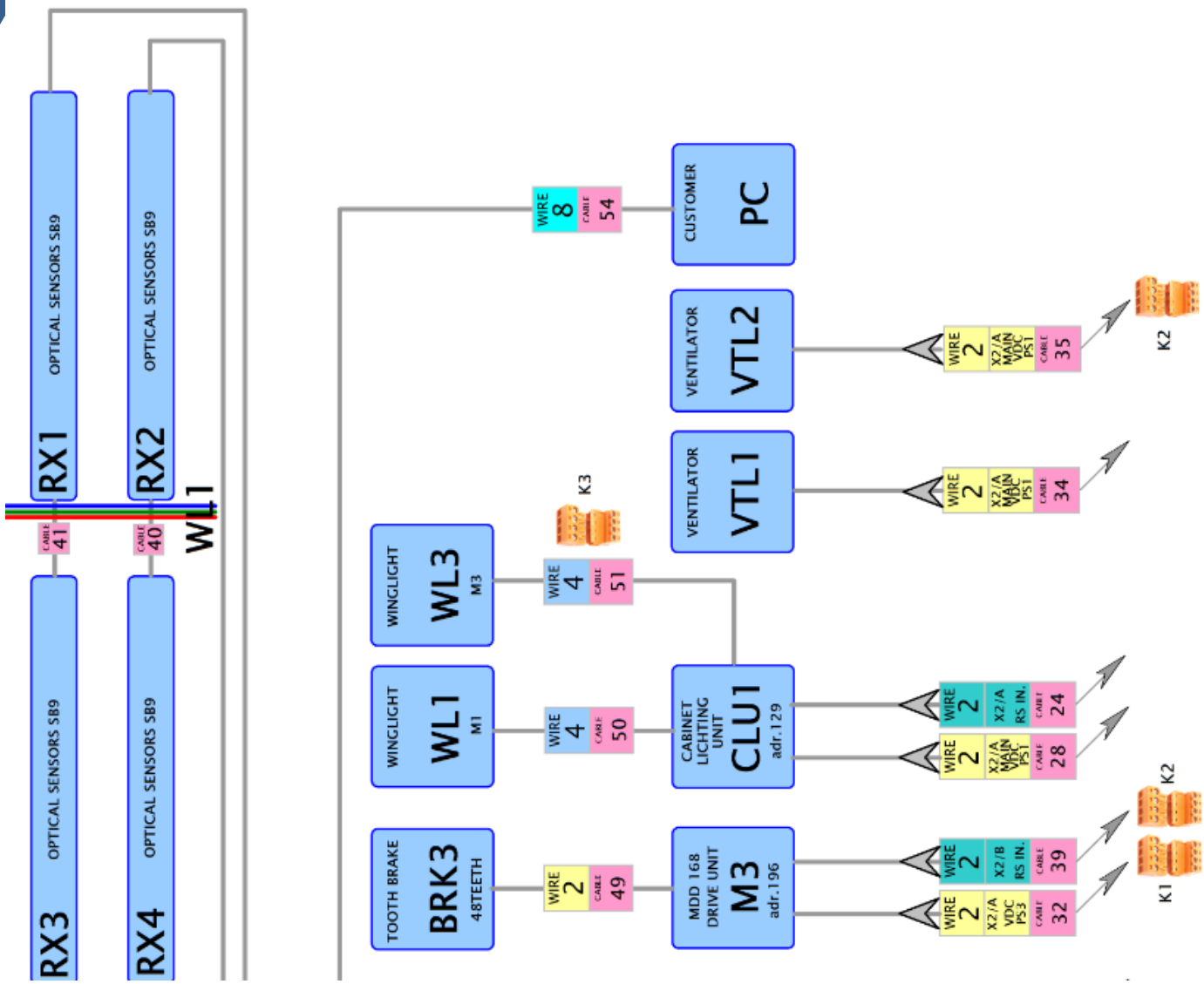


12.3.8. MASTER cable diagram

PART ONE

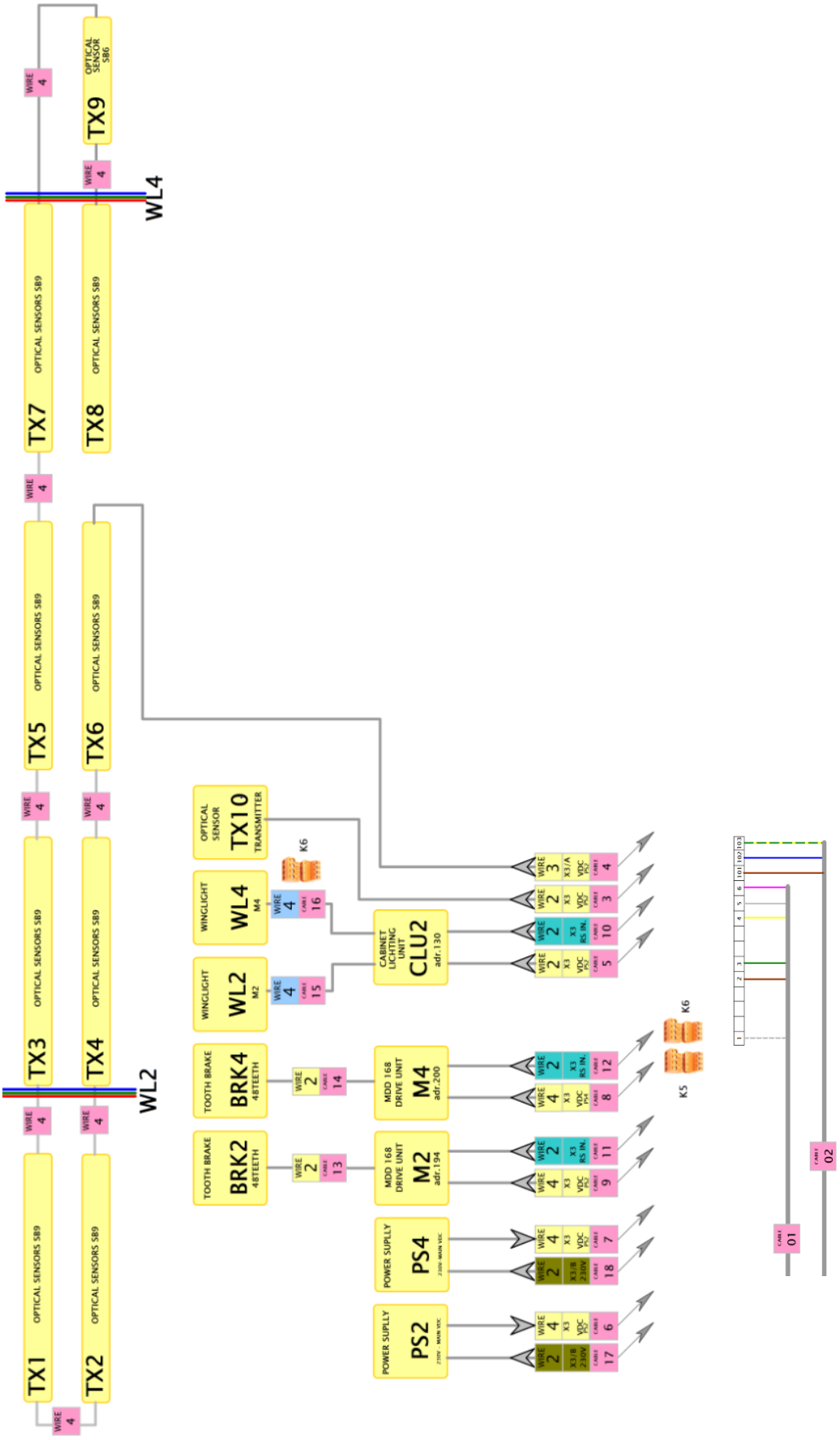


PART TWO



M3	K1	X2/A-M3(CABLE32)
VTL2	K2	X2/A VTL2(CABLE 35)
RS INT.M3	K2	X2/B M3 (CABLE 39)
WL3	K3	CLU1(CABLE 51)

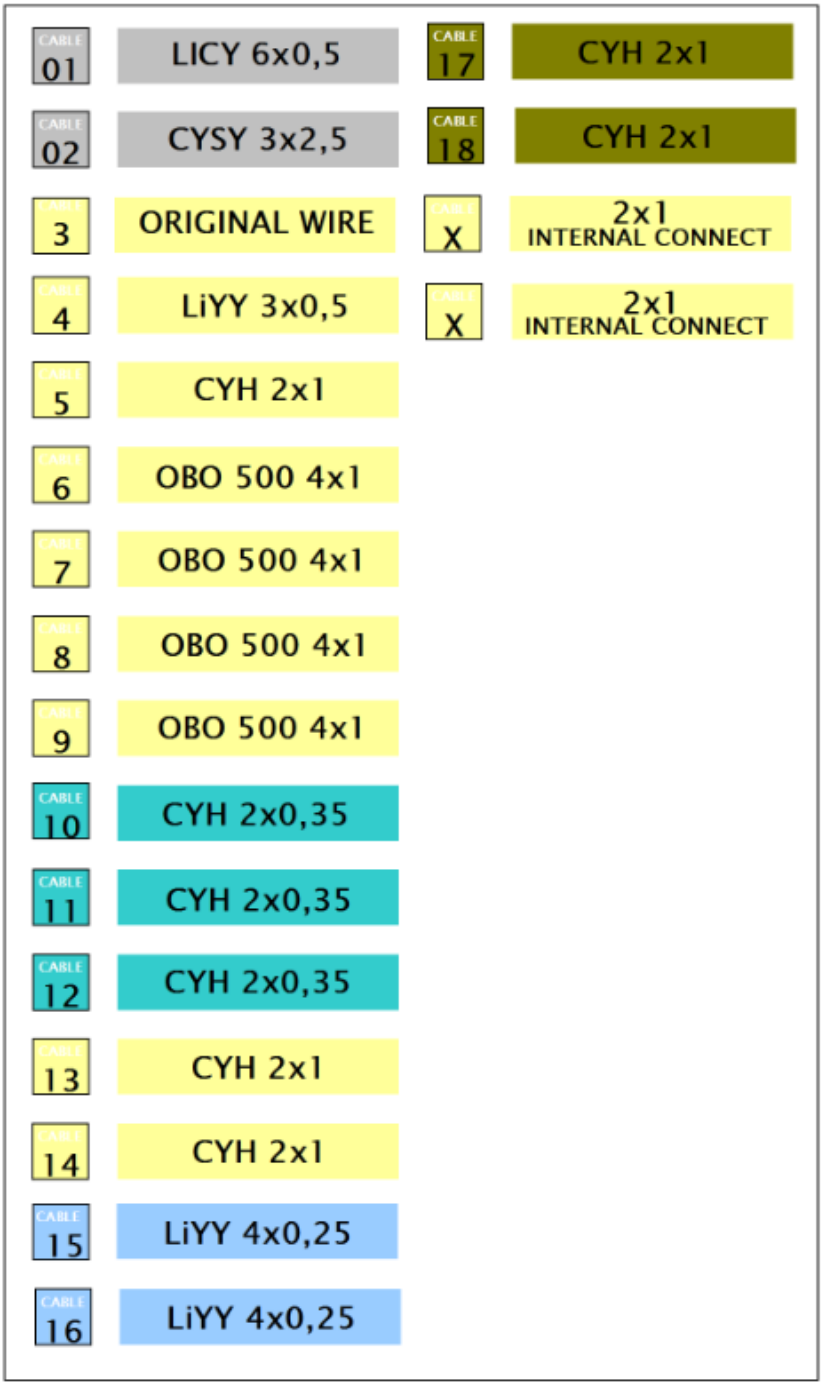
12.3.9. SLAVE cable diagram



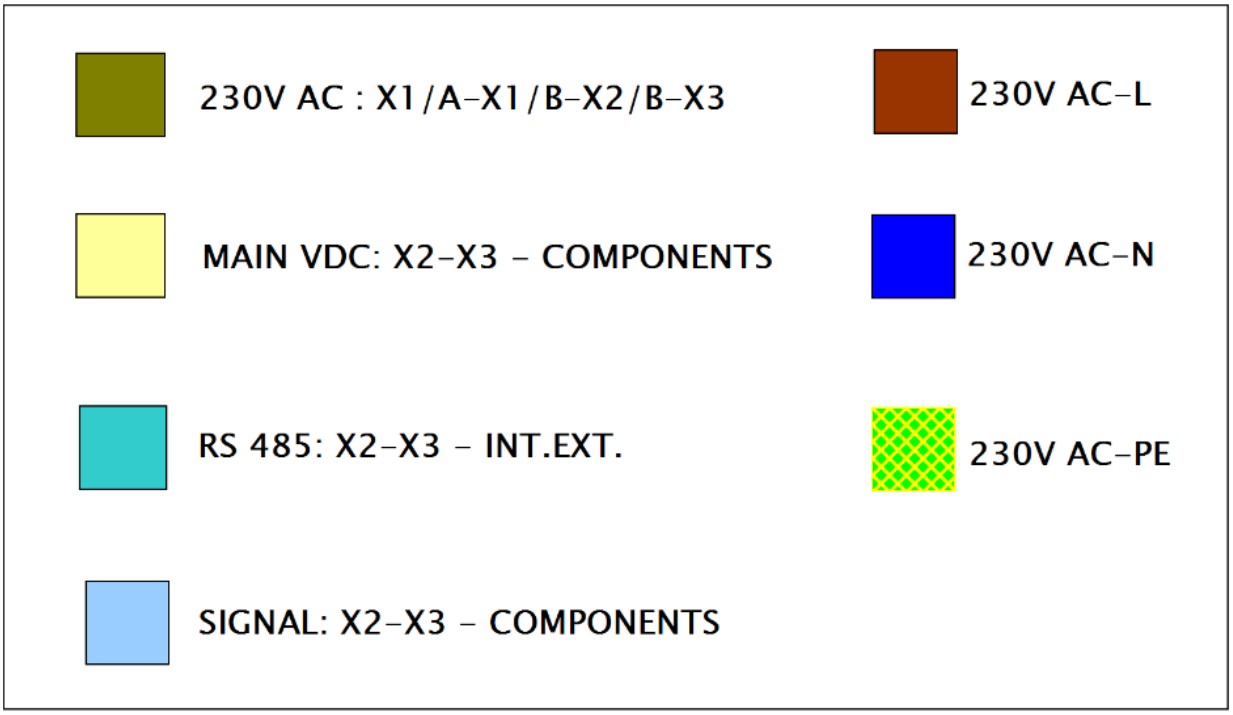
12.3.10. MASTER cables specification card (230VAC)

CABLE 01	LICY 6x0,5	CABLE 39	CYH 2x0,35	CABLE 61	H07V-K1x2,5
CABLE 02	CYSY 3x2,5	CABLE 40	28AWG x14	CABLE 62	H07V-K1x2,5
CABLE 19	LiYY 12x0,5	CABLE 41	28AWG x14	CABLE 63	H07V-K1x2,5
CABLE 20	CYH 2x0,35	CABLE 42	28AWG x10	CABLE 64	H07V-K1x2,5
CABLE 21	CYH 2x0,35	CABLE 43	LiYV 3x0,5	CABLE 65	H07V-K1x2,5
CABLE 22	LiYY 8x0,5	CABLE 44	ORIGINAL WIRE	CABLE 66	H07V-K1x2,5
CABLE 23	LiYV 1x0,5	CABLE 45	W 4x0,22+2x0,5	CABLE 67	H07V-K1x2,5
CABLE 24	CYH 2x0,35	CABLE 46	CYH 2x0,35	CABLE 68	H07V-K1x2,5
CABLE 25	CYH 2x0,35	CABLE 47	CYH 2x0,35	CABLE 69	H07V-K1x2,5
CABLE 26	CYH 2x0,35	CABLE 48	CYH 2x1	CABLE 70	H07V-K1x2,5
CABLE 27	CYH 2x1	CABLE 49	CYH 2x1	CABLE X	2x1 INTERNAL CONNECT
CABLE 28	CYH 2x1	CABLE 50	LiYY4x0,25	CABLE X	2x1 INTERNAL CONNECT
CABLE 29	CYH 2x1	CABLE 51	LiYY4x0,25		
CABLE 30	OBO 500 4x1	CABLE 52	CYH 2x0,25		
CABLE 31	OBO 500 4x1	CABLE 53	CYH 2x0,35		
CABLE 32	OBO 500 4x1	CABLE 54	ORIGINAL WIRE 1xUTP CAT5E		
CABLE 33	OBO 500 4x1	CABLE 55	CYSY 3x2,5		
CABLE 34	CYH 2x1	CABLE 56	CYSY 3x2,5		
CABLE 35	CYH 2x1	CABLE 57	ORIGINAL WIRE		
CABLE 36	CYH 2x0,35	CABLE 58	CYSY 3x2,5		
CABLE 37	CYH 2x0,35	CABLE 59	CYSY 2x1		
CABLE 38	LiCY 6X0,5	CABLE 60	CYSY 2x1		

12.3.11. SLAVE cables specification card (230VAC)



12.3.12. Cable colour markings



12.3.13. Drawing number label

Title: EG - IDEMIA - FULL - 230VAC		Release date: 23.1.2023
Status: DRAFT	Drawing type: CONNECTION DIAGRAM - MANUFACTURER	Version: 0v8
Drawn by: M.VACULA	Verified by: MLU10	Language: EN
cominfo security first	Note: UNFINISHED	Drawing number: MVA2023 - 086

Cominfo, a.s.
Nábřeží 695
760 01 Zlín – Prštné
Czech Republic

Hotline: +420 603 151 334
e-mail: cominfo@cominfo.cz