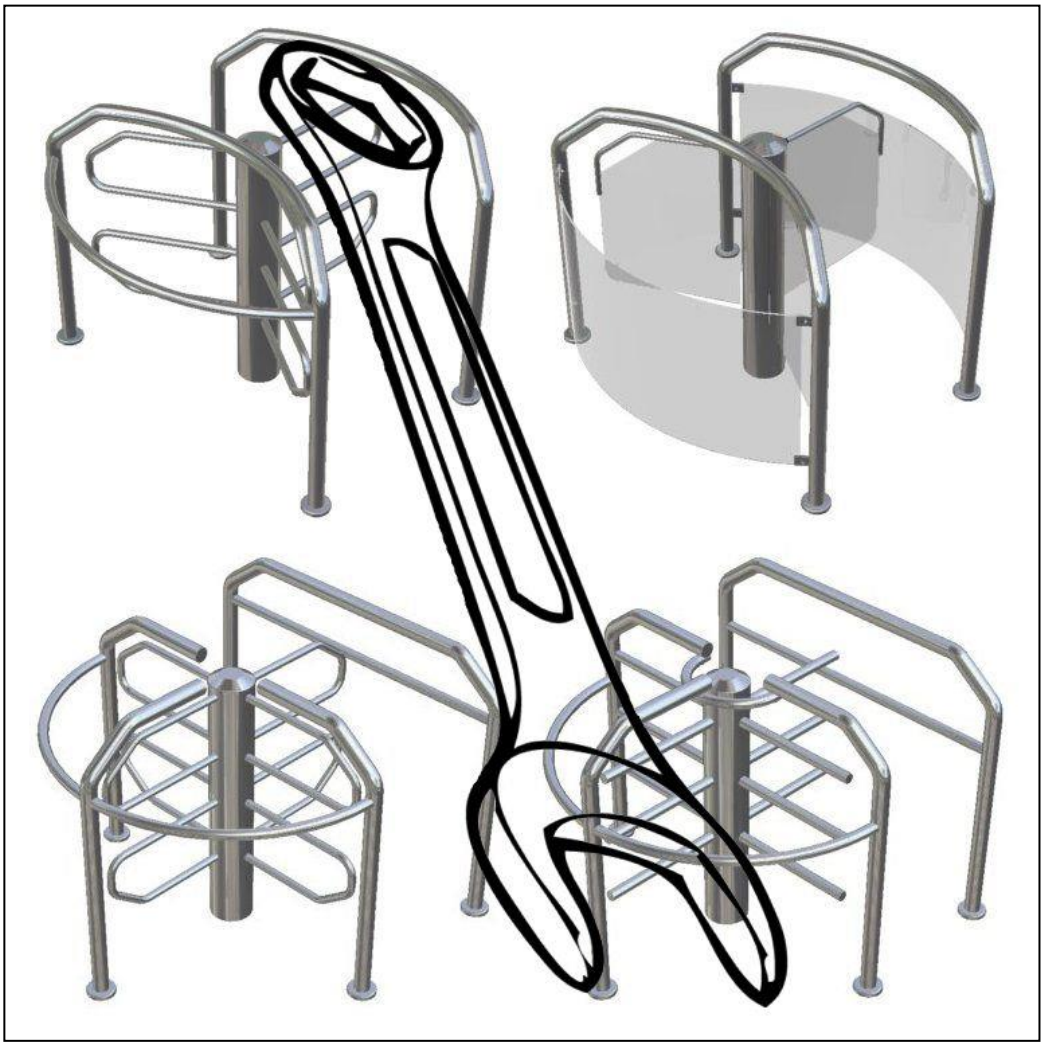

INSTALLATION INSTRUCTIONS FOR TURNSTILES TYPE:

ROUND

(ROUND-J, ROUND-E, ROUND-F)
With electronics MLU5

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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 ROUND 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 MLU electronics of the 5V6 version or higher.

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

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

The Instructions employ the following categories of safety instructions:

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

WARNING!
Important information or procedure.

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

2. TURNSTILE TRANSPORT AND HANDLING

Turnstile is packed in a transport wrapping. Transport the turnstile to the place of destination in its transport boxing using a forklift. After unwrapping, take the turnstile to a predetermined place. At least two persons should cooperate when manipulating the turnstile. When handling the turnstile, pay increased attention with regard to the safety of persons and potential damage of the turnstile.

Table of weights of the turnstiles (including standard barriers):

Turnstile	Outer rotating casing	
	Ø168 mm	Ø204 mm
ROUND-J	**69 kg**	**71 kg**
ROUND-J-S	**67 kg**	**X**
ROUND-J-90-U arm	**67 kg**	**69 kg**
ROUND-J-90-straight	**65 kg**	**X**
ROUND-J-90-DUO-straight	**119 kg**	**X**
ROUND-J-90-straight-1300	**82 kg**	**X**
ROUND-J-90-DUO-straight-1300	**146 kg**	**X**
ROUND-E	**106 kg**	**112 kg**
ROUND-E-S	**101 kg**	**X**
ROUND-F	**141 kg**	**147 kg**
ROUND-F-Top	**230 kg**	**236 kg**

3. INSTALLATION OF THE TURNSTILE

Turnstiles with glass wing are supplied partially disassembled. Installation of the glass and the turnstile 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.

RISK OF INJURY DURING THE TURNSTILE INITIALIZATION

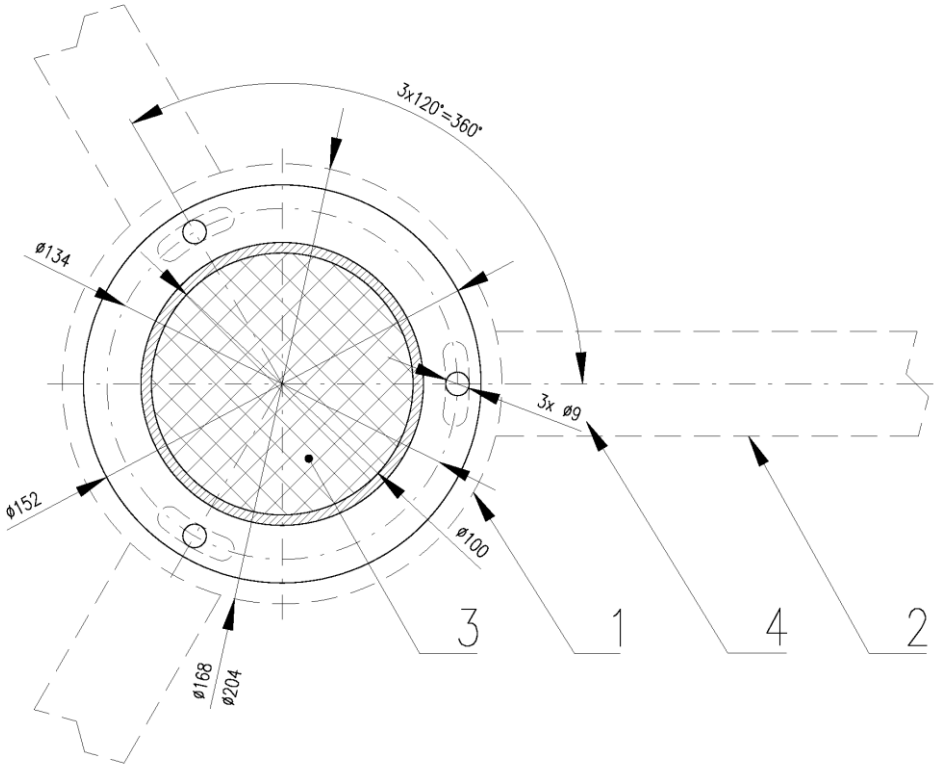
While putting the turnstile into operation it is necessary to perform initialization and calibrate the rotation of the turnstile. The turnstile revolves at maximal speed during the initialization. Workers performing the initialization are obliged to ensure that the revolving turnstile does not injure anybody.

3.1. DIMENSIONS FOR ANCHORING THE ROTARY GATE OF THE TURNSTILE

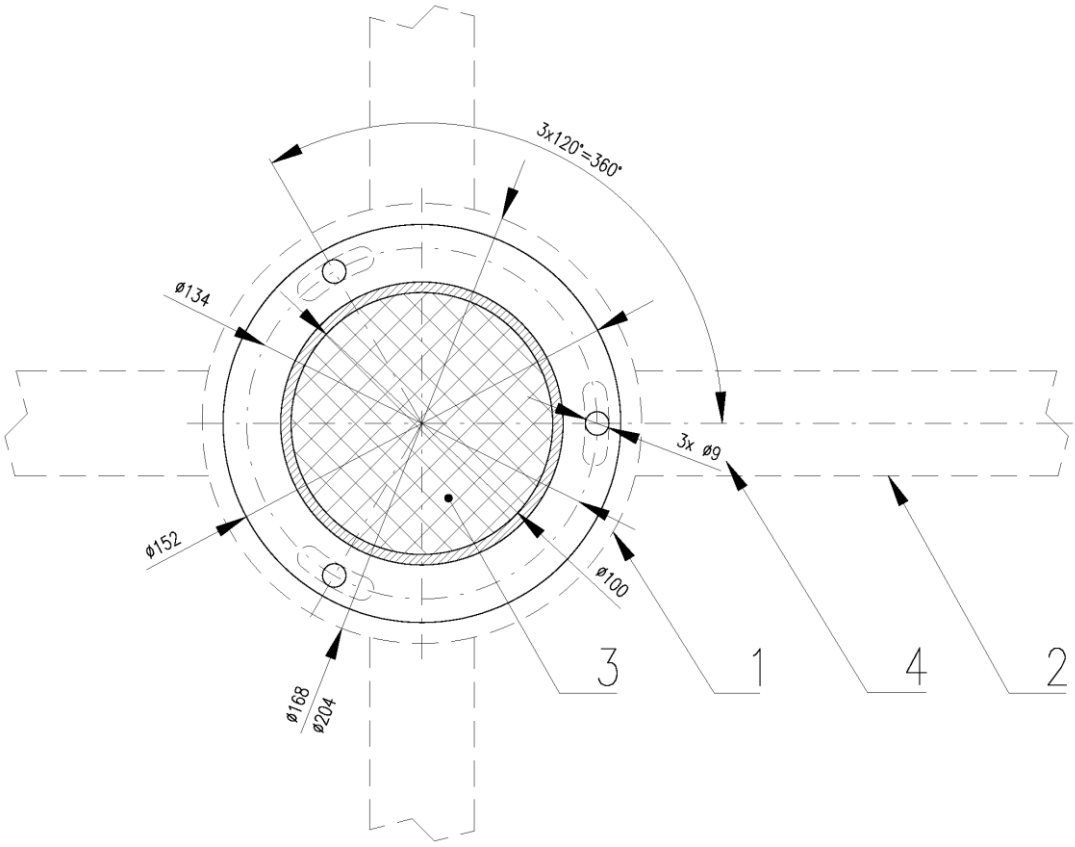
CAPTIONS FOR THE FIGURES:

1. Contour of the outer rotating casing of the turnstile – ø168 or ø204 (dashed line)
2. Contour of the turnstile wing in passage zone (dashed line)
3. Holes for cables (cross-hatched)
4. Holes for M8 anchoring bolts

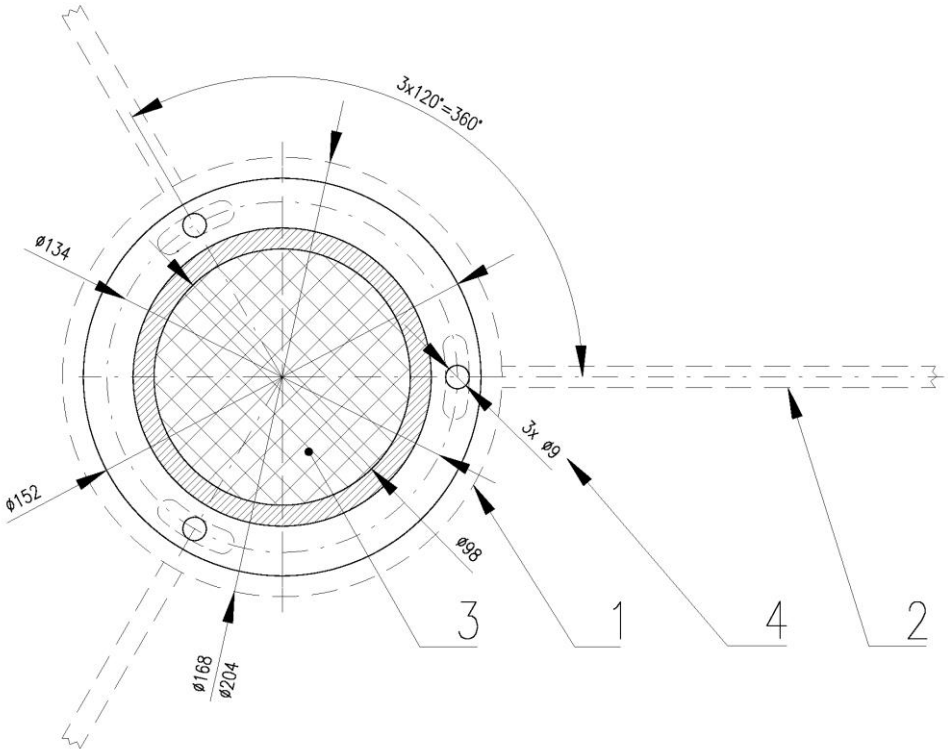
3.1.1. ROUND-J / ROUND-J-S



3.1.2. ROUND-J-90°-U / ROUND-J-90° / ROUND-J-90°-DUO

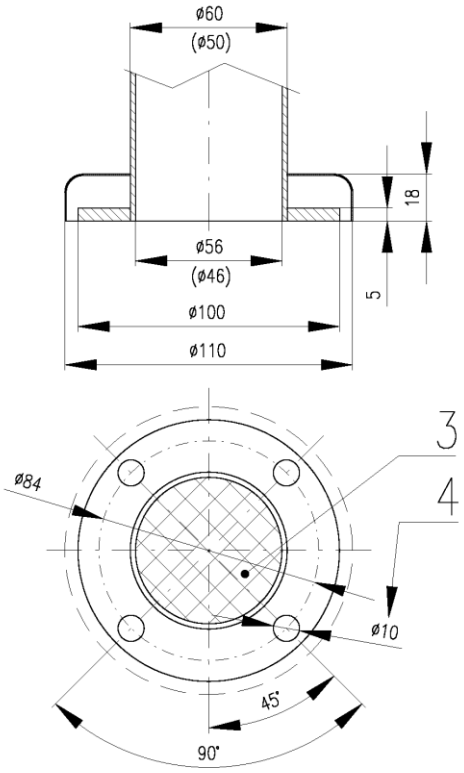


3.1.3. ROUND-E / ROUND-E-S / ROUND-F / ROUND-F-Top

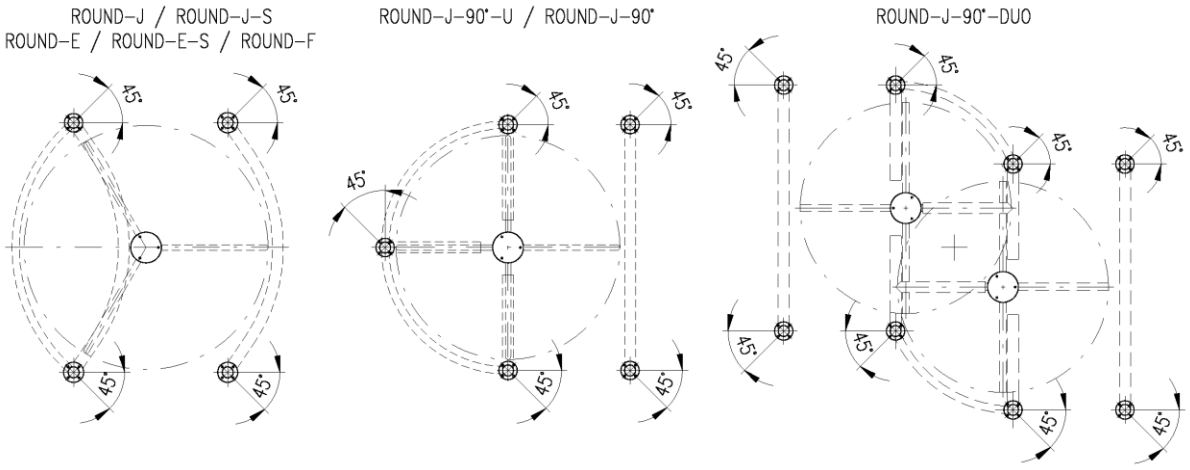


3.2. DIMENSIONS FOR ANCHORING THE BARRIERS

The layout of individual barriers according to standard turnstile types is specified in the *Instructions for Use of ROUND Type Turnstile* in chapter *General Description and Basic Dimensions*. Due to the fact that barrier dimensions of the ROUND type turnstiles are often modified for individual orders, it is necessary to carry out the installation according to the approved project documentation.

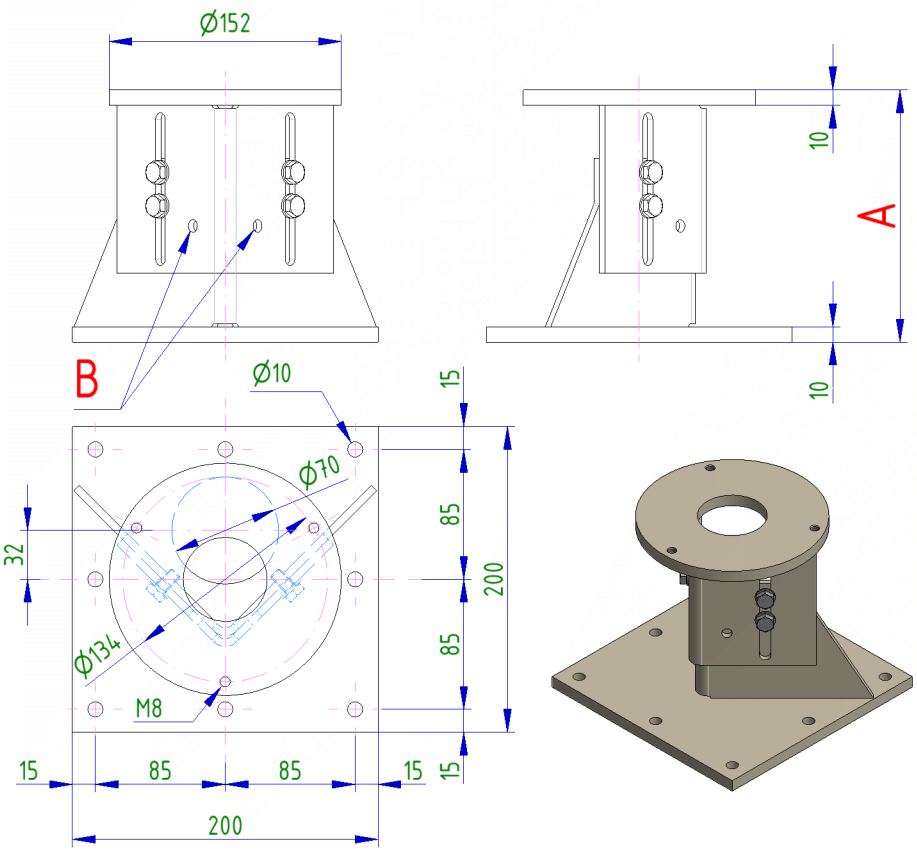


Orientation of holes in barrier flanges:



3.3. ANCHORING BASE

In case of ROUND type turnstiles, the anchoring base is used when installing the rotary gate to interlocking paving or double floor. The base is height adjustable in different ranges "**A**" (75-112mm, 90-142mm, 130-200mm, 180-280mm, 215-350mm). After the anchoring base is anchored and the required height is set, it is necessary to drill the lower part with the upper part of the base in the "**B**" spot, and secure them by an M8 bolt and nut.



Anchoring of the turnstile barriers to the interlocking paving or double floor can be done in two ways:

1. Using a similar anchoring base as for the rotary gate of the turnstile. Each leg of the barrier has a separate anchoring base.

2. The legs of the barriers are manufactured longer by the height of the interlocking paving or double floor. The barrier is anchored under the paving or floor and the barrier leg cap is placed on the paving or floor

3.4. DESCRIPTION OF THE INSTALLATION

3.4.1. 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

3.4.2. 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

3.4.3. LIST OF INSTRUCTION MANUALS FOR ACCESSORIES, THAT AREN'T PART OF THIS MANUAL

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

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

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

- **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*

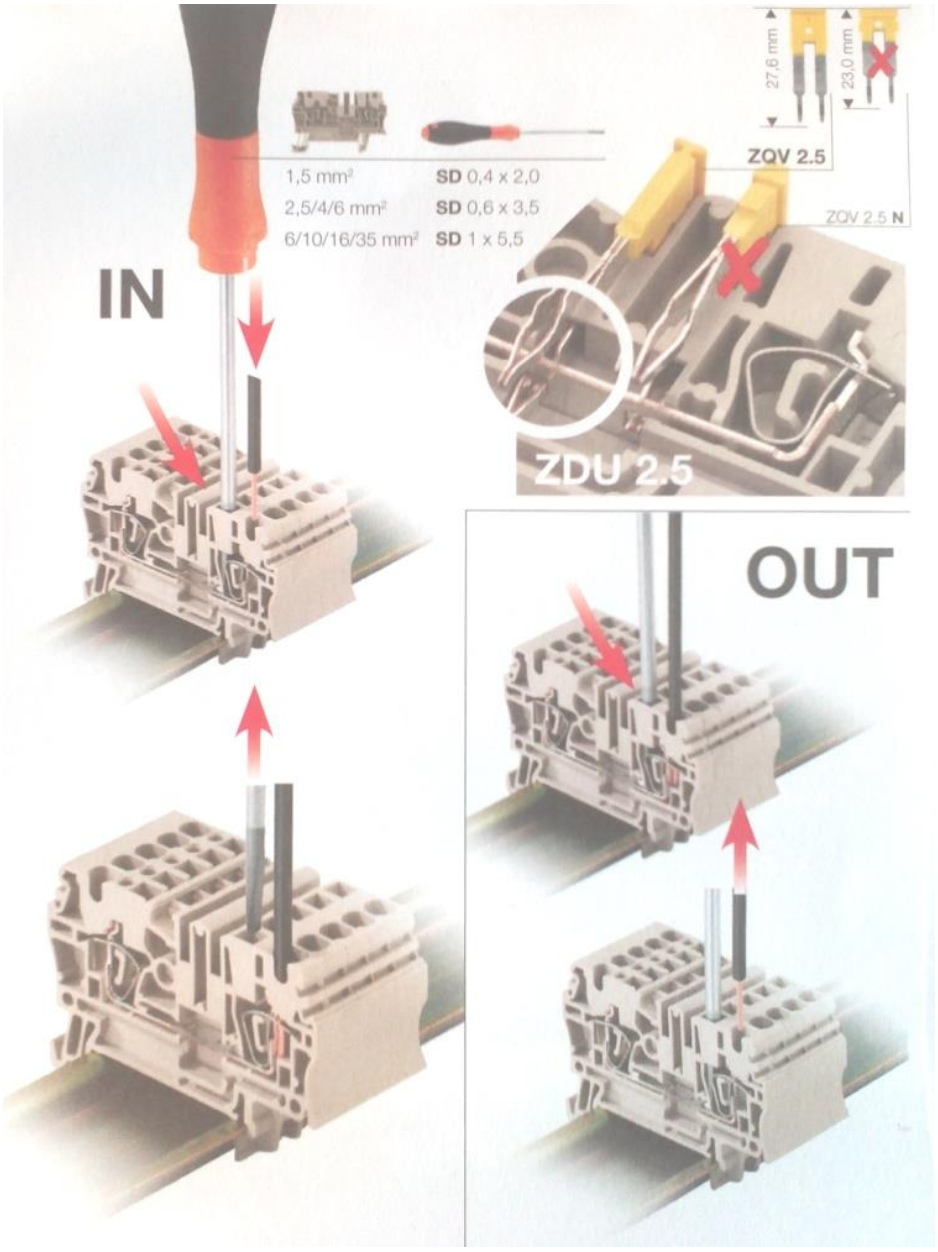
- **TURNSTILE TESTER** (Control panel for checking correct function of the turnstile)

3.4.4. DESCRIPTION OF CONNECTION OF TERMINAL BLOCKS AND CRIMP CONNECTORS

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

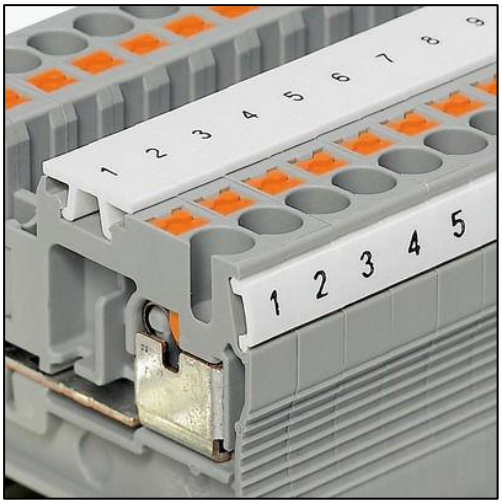
Serial <u>Weidmüller</u> terminal box with flexible clamps:

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



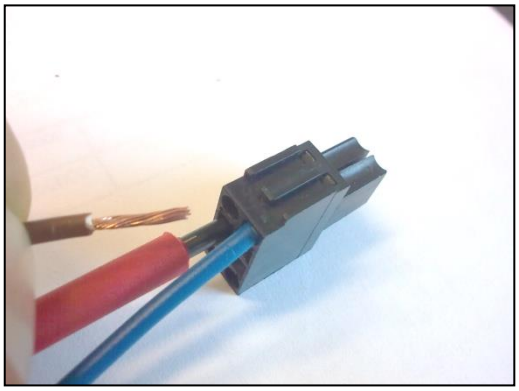
Serial <u>Phoenix</u> terminal box with flexible push-in clamps:

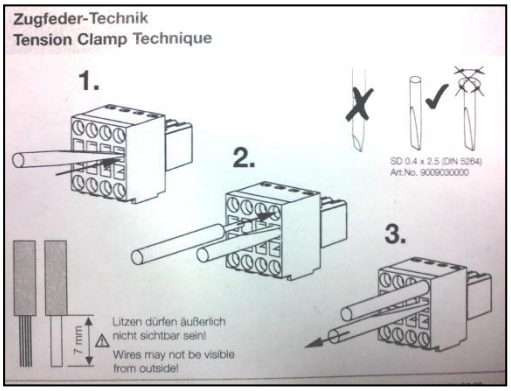
- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with any tool as shown on the figure.



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

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





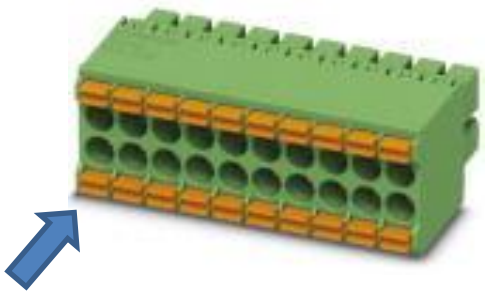
<u>Weidmüller</u> connector with flexible push-in clamps:

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

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

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

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



3.4.5. 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 and barriers is ensured. In case of large unevenness of the ground, use special bolsters under the anchoring flanges of the turnstile and barriers. If the anchorage is to be performed on interlocking pavers, a special anchoring frame is used. This frame must be anchored in the foundation concrete surface before laying the interlocking pavers. These bolsters and the anchoring frame 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 systems and other components (e.g. gates and barriers).

2. Line up particular turnstiles and barriers or other components of the system in required distances on the axis. Depending on undulation of the floor, underlay the anchoring flanges in order to make it stand in a perfectly vertical position.

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.

4. Lead the power supply and control cable to the control electronics in the turnstile.

5. Anchor the rotary gate of the turnstile to the floor by M8 anchoring bolts. The anchoring bolts must be perpendicular to the floor.

6. Check the verticality of the rotary gate of the turnstile.

7. Perform the electrical connection in compliance with the chapter *Description of Connection of the Control Electronics and Accessories*.

8. For turnstiles with a frameless glass wing, fix the glass into the internal mechanism of the turnstile (see chapter *Assembling the frameless glass wing*).

9. Mount the outer rotating casing of the turnstile.

10. Lead cables through the legs of the barriers to any RFID sensors or other accessories.

11. Anchor the barriers to the floor by M8 anchoring bolts. In the case of barriers with bent glass fillings, pay extra attention to be precise when anchoring, to guarantee the possibility of subsequent trouble-free installation of these fillings.

12. Check the verticality of the barriers.

13. For the ROUND-F type turnstiles, fix the bent glass barrier fillings (see chapter *Assembling the glass fillings of the barriers*).

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

3.5. HOW TO ACCESS THE ANCHORING HOLES AND MOTOR DRIVE UNIT WITH CONTROL ELECTRONICS

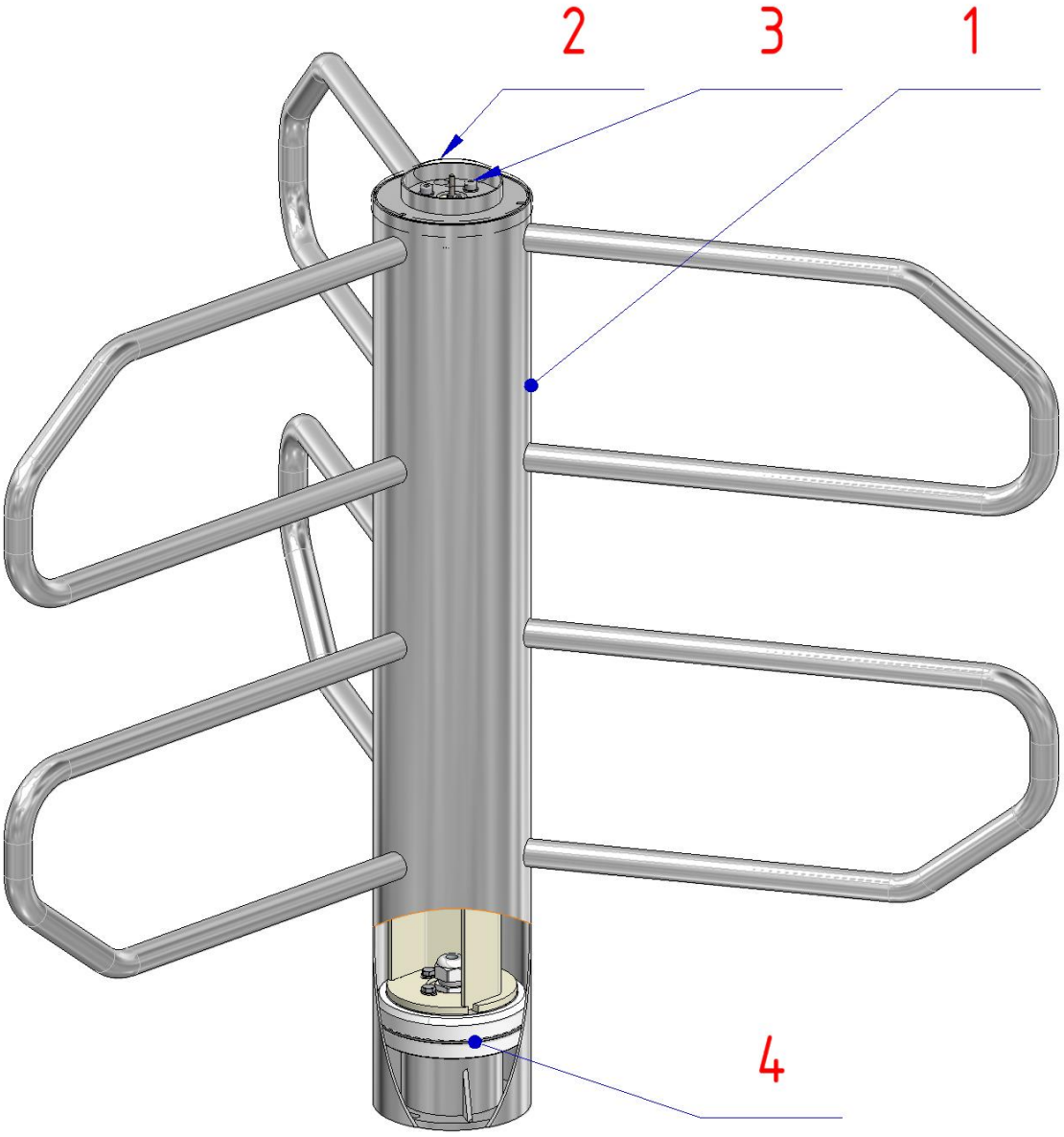
3.5.1. ROUND-J / ROUND-J-S/ ROUND-J-90°-U / ROUND-J-90°/ ROUND-J-90°-DUO

Removing the outer rotating casing:

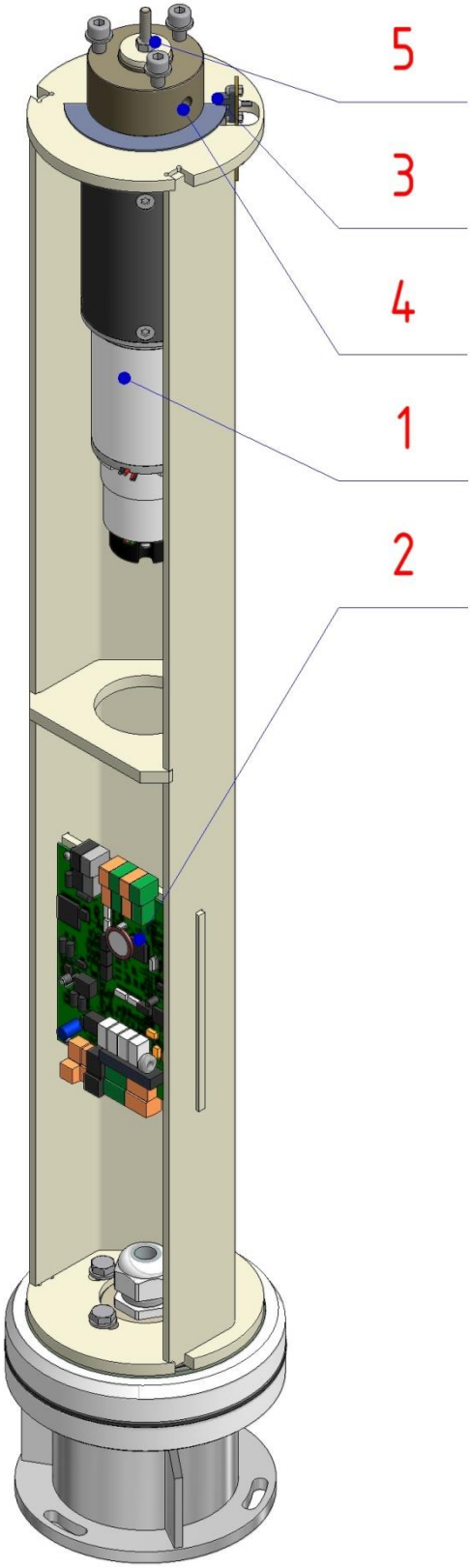
Remove the top lid (pos.2) by turning it anti-clockwise. After removing 3 pcs of M8 bolts (pos.3) in the top casing flange, slide the outer rotating casing (pos.1) with wings upwards. When reassembling, take extra care when sliding the outer rotating casing over the O-ring (pos.4). It is recommended to replace the O-ring with a new one when reassembling. In the case of turnstiles with wings positioned 90° apart, check the correct position of the outer rotating casing in relation to the internal mechanism of the turnstile so that the turnstile wing stops in the correct home position during operation.

O-ring dimensions (ISO 3601-1):

For casing diameter of 168mm: E 1450 G (ø145x7) NBR 70
For casing diameter of 204mm: E 1800 G (ø180x7) NBR 70



Description of the internal mechanism of the turnstile:



CAPTIONS FOR THE FIGURE:

1. Drive Unit
2. Control electronics
3. Home position sensor
4. Locking pin in the outer rotating casing holder
5. Mounting nut of the outer rotating casing holder

After removing the outer rotating casing of the turnstile, the control electronics (pos.2) and the home position sensor (pos.3) can be accessed.

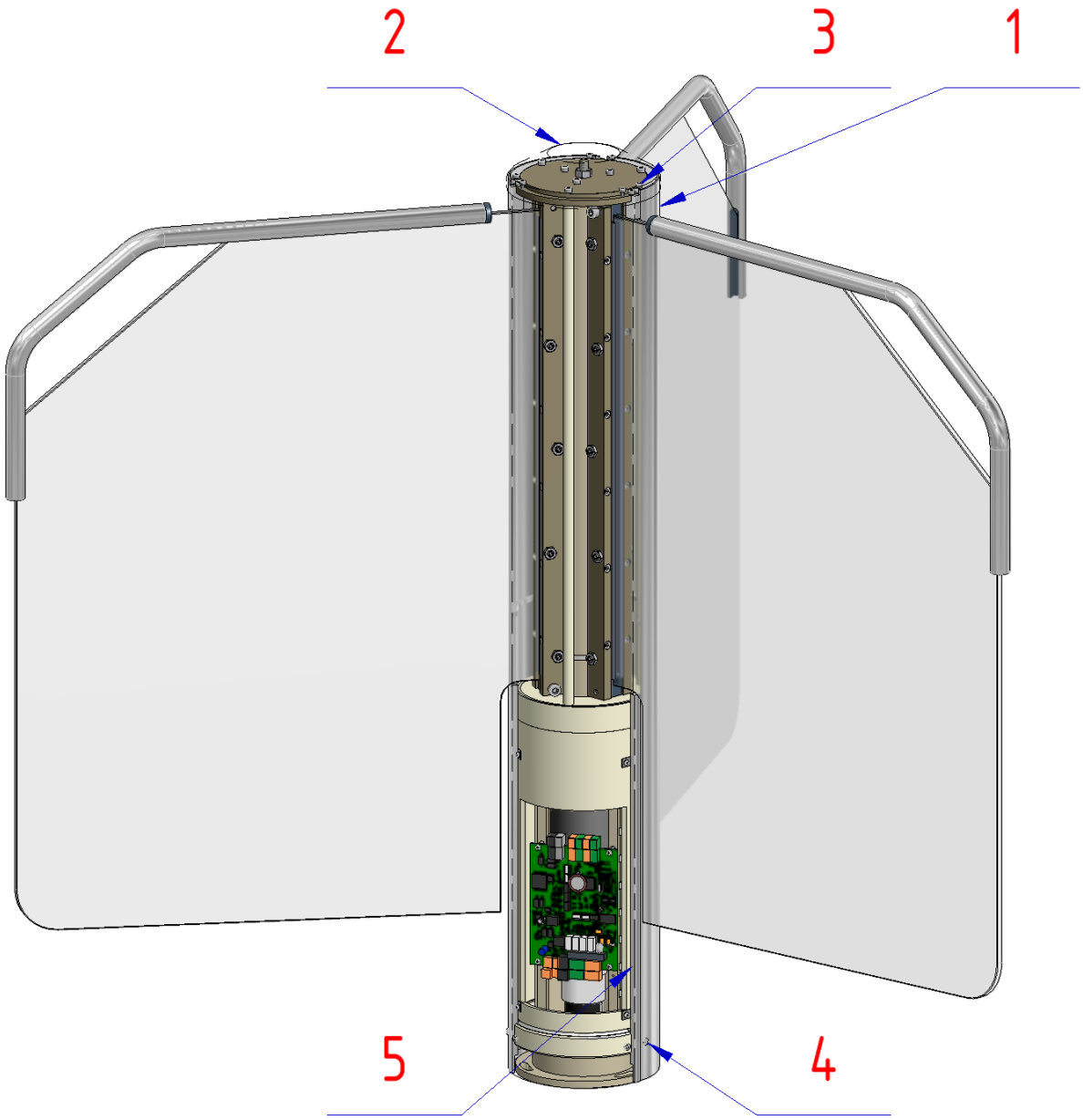
When replacing the home position sensor (pos.3), adjust its position so that it is not touching the diaphragm during turnstile rotation.

To access the motor drive unit (pos.1), it is necessary to force out the ø6x35 locking pin (pos.4) first. After unbolting the M6 nut (pos.5), remove the outer rotating casing holder.

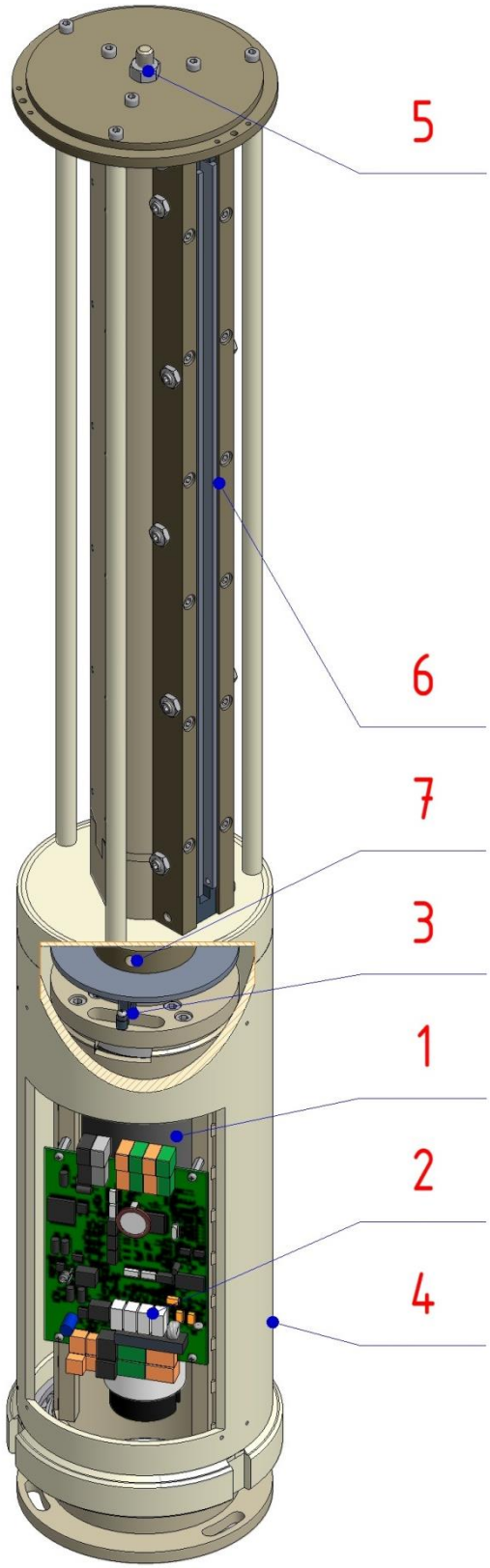
3.5.2. ROUND-E / ROUND-E-S / ROUND-F / ROUND-F-Top

Removing the outer rotating casing:

Remove the top lid (pos.2) by turning it anti-clockwise. The rotating casing consists of three segments (pos.1). After removing 2 pcs of M4x12 bolts (pos.3) in the upper part of the segment and 2 pcs of M4x8 stainless-steel bolts (pos.4) in the lower part of the segment, disassemble one segment of the outer rotating casing (pos.1). Leave the bottom covering bars (pos.5) in place when removing section. Remove the remaining segments the same way. To access the control electronics, it is only necessary to remove one segment, which is located above the access opening of the turnstile's rotating support cylinder.



Description of the internal mechanism of the turnstile:



CAPTIONS FOR THE FIGURE:

1. Drive Unit
2. Control electronics
3. Home position sensor
4. Rotating support cylinder of the turnstile
5. Nut for attaching the glass holder to the motor drive unit
6. Glass holder
7. Locking pin

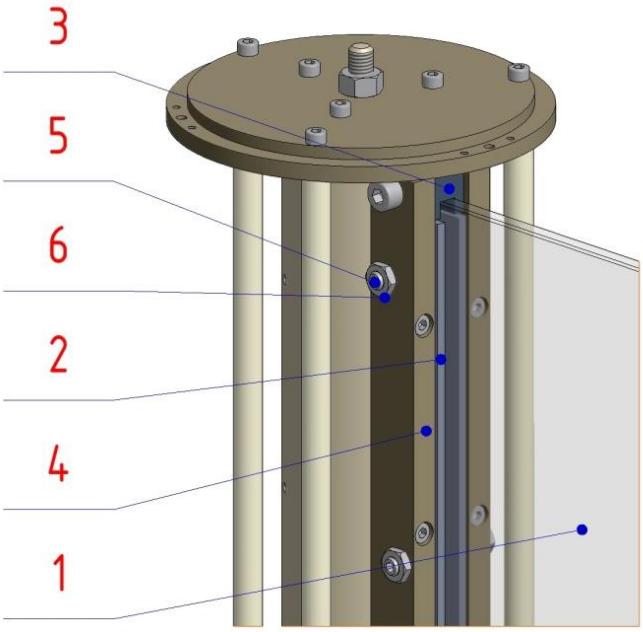
After removing the outer rotating casing of the turnstile, the control electronics (pos.2) can be accessed. Turn the rotating support cylinder of the turnstile (pos.4), so that the opening in the cylinder is in suitable position for accessing the control electronics.

After unbolting the M10 nut (pos.5), the complete glass holder (pos.6) with the rotating support cylinder (pos.4) can be removed by sliding it upwards. When reassembling, the rotating support cylinder can be mounted in two different positions. It is necessary to mount the cylinder in the position, in which the turnstile wing is in correct home position.

To access the motor drive unit (pos.1) and home position sensor (pos.3), it is necessary to force out the ø6x35 locking pin (pos.7) first. To avoid damaging the turnstile mechanism, it is recommended to use the *Universal pulling tool* (optional accessory) to remove parts from the motor drive unit shaft.

3.6. ASSEMBLING THE FRAMELESS GLASS WING

The frameless glass wing is used in turnstiles type ROUND-E, ROUND-E-S, ROUND-F.

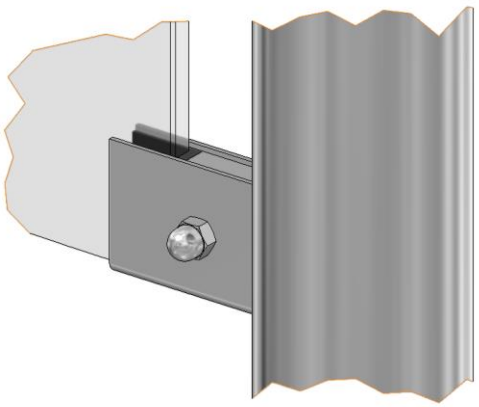


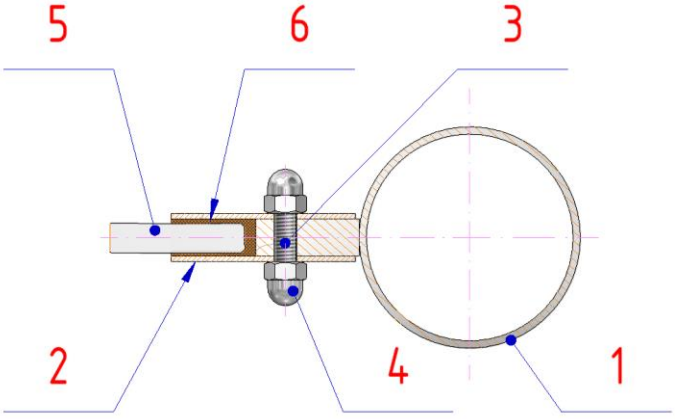
Insert the frameless glass wing (pos.1) with glued pressure plates (pos.2) between the plastic supports (pos.3) at the bottom and top and at the same time between the vertical rails of the glass holder (pos.4). Tighten the glass using M8 cone point set screws (pos.5). Secure with M8 counter nut (pos.6). If a stainless-steel handle is used on the top edge of the glass, it is already attached during manufacturing.

3.7. ASSEMBLING THE GLASS FILLINGS OF THE BARRIERS

Glass filling of barriers is used only in ROUND-F type turnstile.

- Begin the assembly on the bottom pair of the glass holders.
- Mount the bottom shims (pos.2) on the barrier frame (pos.1) using the M6x25 bolt (pos.3) and two M6 stainless-steel cap nuts (pos.4) and tighten lightly.
- Fill the empty space in the shim where the glass touches (pos.5) with the supplied rubber (pos.6).
- Slide the glass into the bottom shims (pos.5) from the upper side.
- Slide the upper shims with inserted rubber onto the upper edge of the glass and the barrier frame and fasten it with bolts (pos.3) and nuts (pos.4).
- Align all shims to horizontal position and tighten all nuts (pos.4).

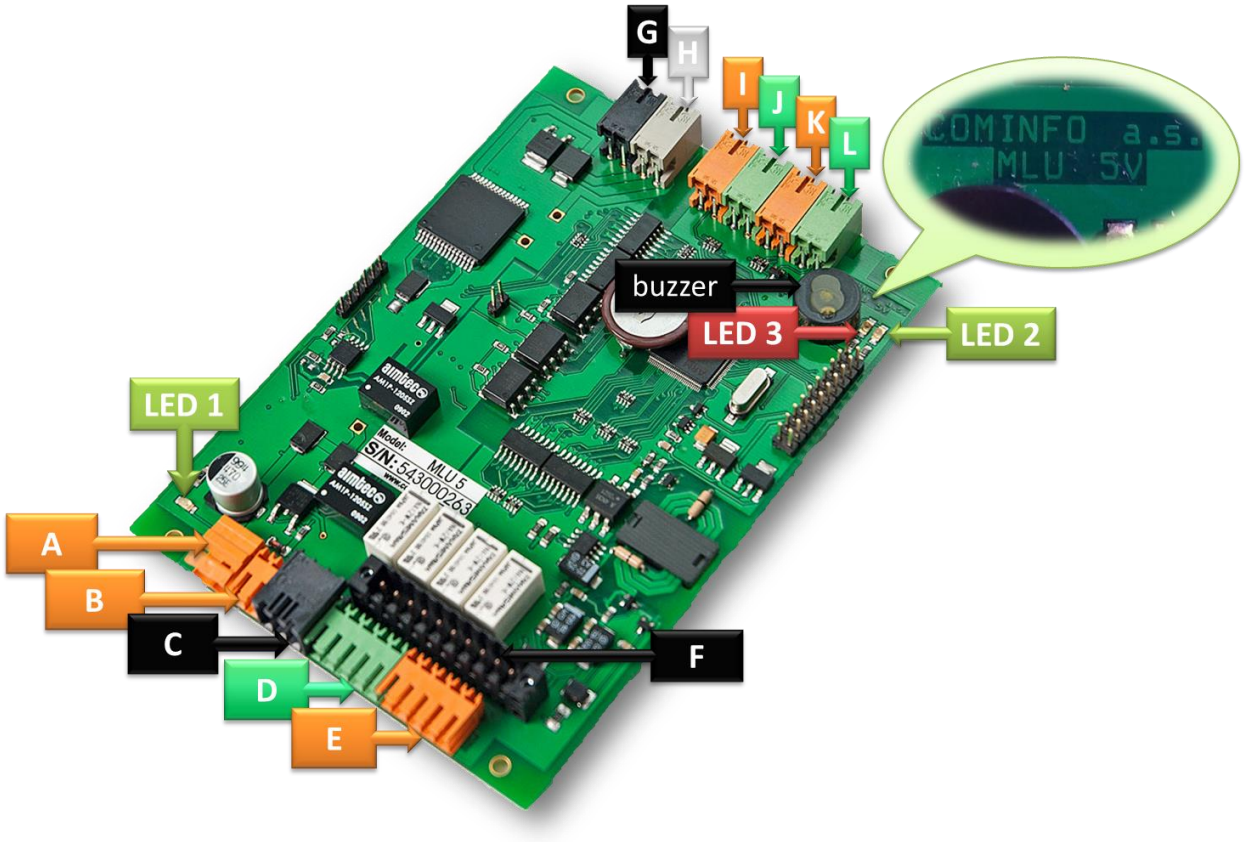




Assembly of frameless glass or glass fillings requires the cooperation of at least two workers.

4. DESCRIPTION OF CONNECTION OF THE CONTROL ELECTRONICS AND ACCESSORIES.

4.1. DESCRIPTION OF THE CONTROL ELECTRONICS



Description of connectors:

A - power supply 13.8VDC
B - GND for superior system + connection of back-up accumulator for service purposes
C - communication lines RS485 (internal + external)
D - input control signals
E - output control signals
F - expander
G - motor
H - **B2** Buzzer
I - encoder 1
J - home position sensor
K - not used – do not connect any circuits
L - not used – do not connect any circuits
buzzer - **B1** Buzzer - signaling of operational state

Description of signaling LEDs

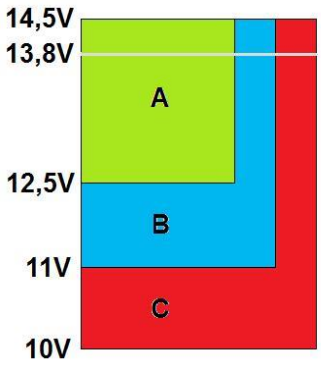
LED 1 - signaling of connection of power supply voltage (green)
LED 2 - signaling of statuses (green)
LED 3 - signaling of statuses (red)

buzzer - Buzzer **B1** - acoustic signaling of operation state

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

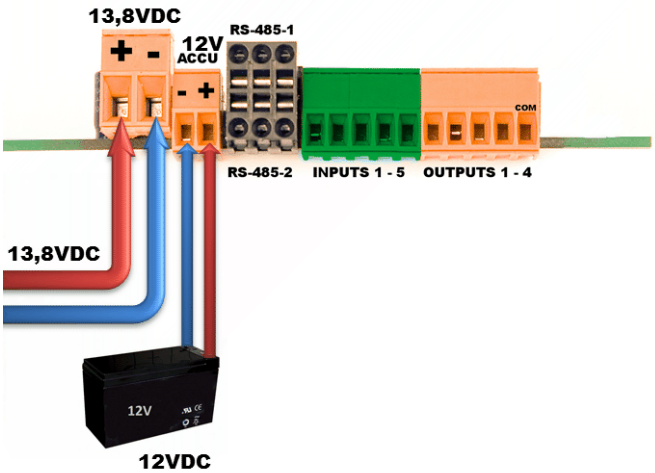
4.2. CONNECTION OF EXTERNAL POWER SUPPLY (13.8VDC)

BEFORE CONNECTING THE CONTROL ELECTRONICS TO THE POWER SUPPLY UNIT, IT IS NECESSARY TO CHECK THE MAGNITUDE OF THE SUPPLY VOLTAGE ON THE TERMINAL BOX INSIDE THE TURNSTILE AND KEEP THE SPECIFIED VOLTAGE POLARITY. IN CASE OF AN INCORRECT SUPPLY VOLTAGE MAGNITUDE AND MISTAKING THE POLARITY, THE CONTROL ELECTRONICS MAY BE DAMAGED OR DESTROYED. THE POWER SUPPLY UNIT MUST COMPLY WITH THE REQUIREMENTS OF THE SELV POWER NETWORK.

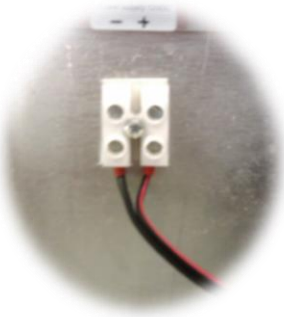


14.5VDC	Absolute maximum of power supply voltage - normal device functioning without limitations (this limit must not be exceeded).
13.8VDC	**Standard power supply voltage** - normal device functioning without limitations.
12.5VDC	Lower limit of standard power supply voltage - normal device functioning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

ROUND turnstiles fall into the **B** area of permitted range of power supply voltage.



The figure shows the basic connection of the supply voltage for the turnstile. Connection of the accumulator directly to the control electronics connector is for service purposes only.



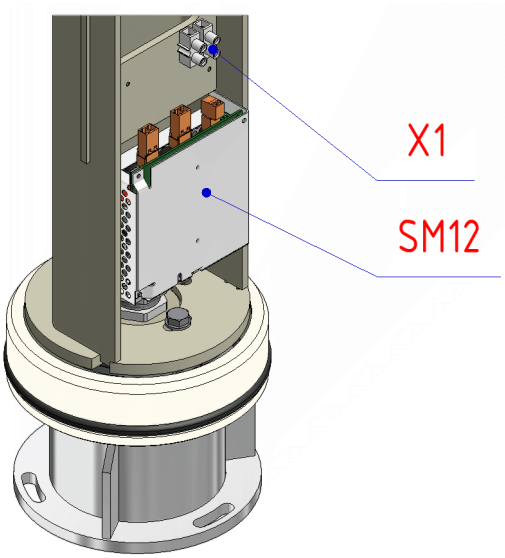
Power supply cables from the power supply are to be connected directly to the power connector of the control electronics or to the terminal block **X1** in the turnstile (see the figure).

4.3. CONNECTION OF THE EXTERNAL POWER SUPPLY (24VAC/50-60Hz)

Valid only for these types of turnstiles:

- ROUND-J
- ROUND-J-S
- ROUND-J-90°
- ROUND-J-90°-DUO
- ROUND-J-90°-U

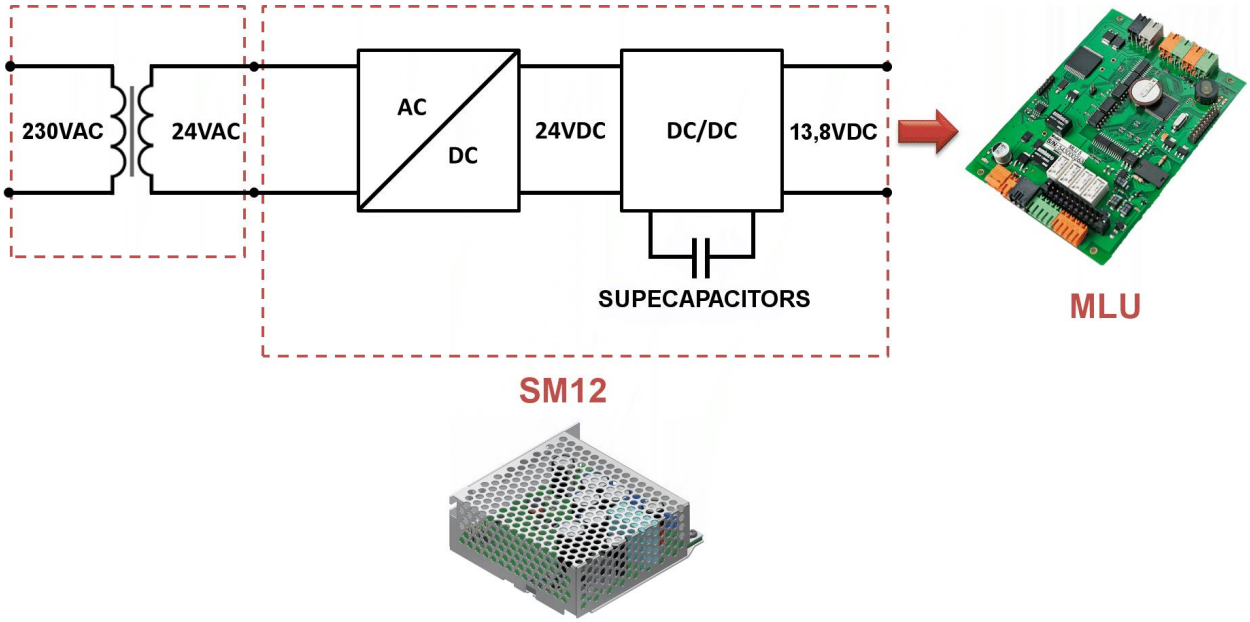
These turnstiles can be optionally equipped with an SM12 power supply.



It is advisable to remove the SM12 power supply from the gate for easier routing of the supply wires through the gate base.

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

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



Transformer that meets the SELV power supplies requirements must be used.

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

4.3.1. PROTECTION OF THE SM12 POWER SUPPLIES FOR TWO AND MORE TURNSTILES

CONNECTION WITHOUT COMMON GND POTENTIAL

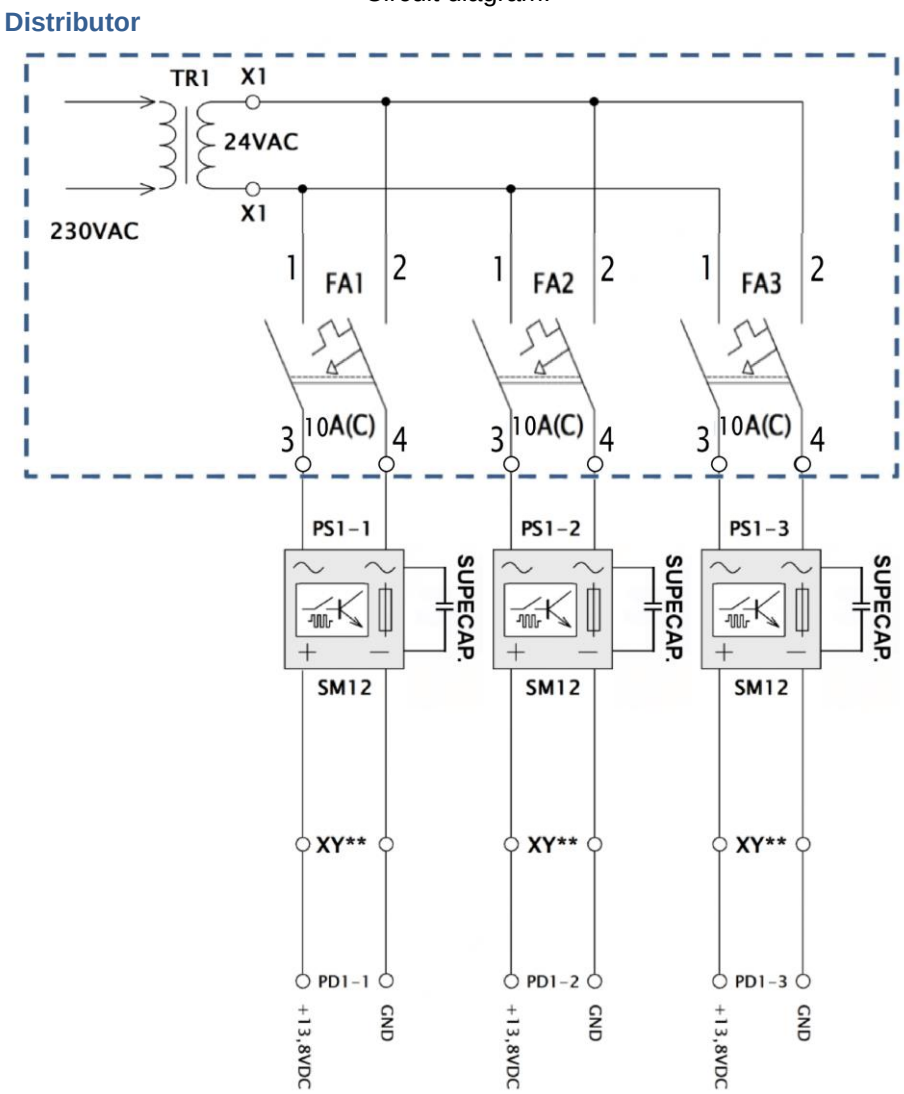
This connection may be used in case of installation of more turnstiles if the superior system does not require setting the turnstiles under a common GND potential for control purposes.

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

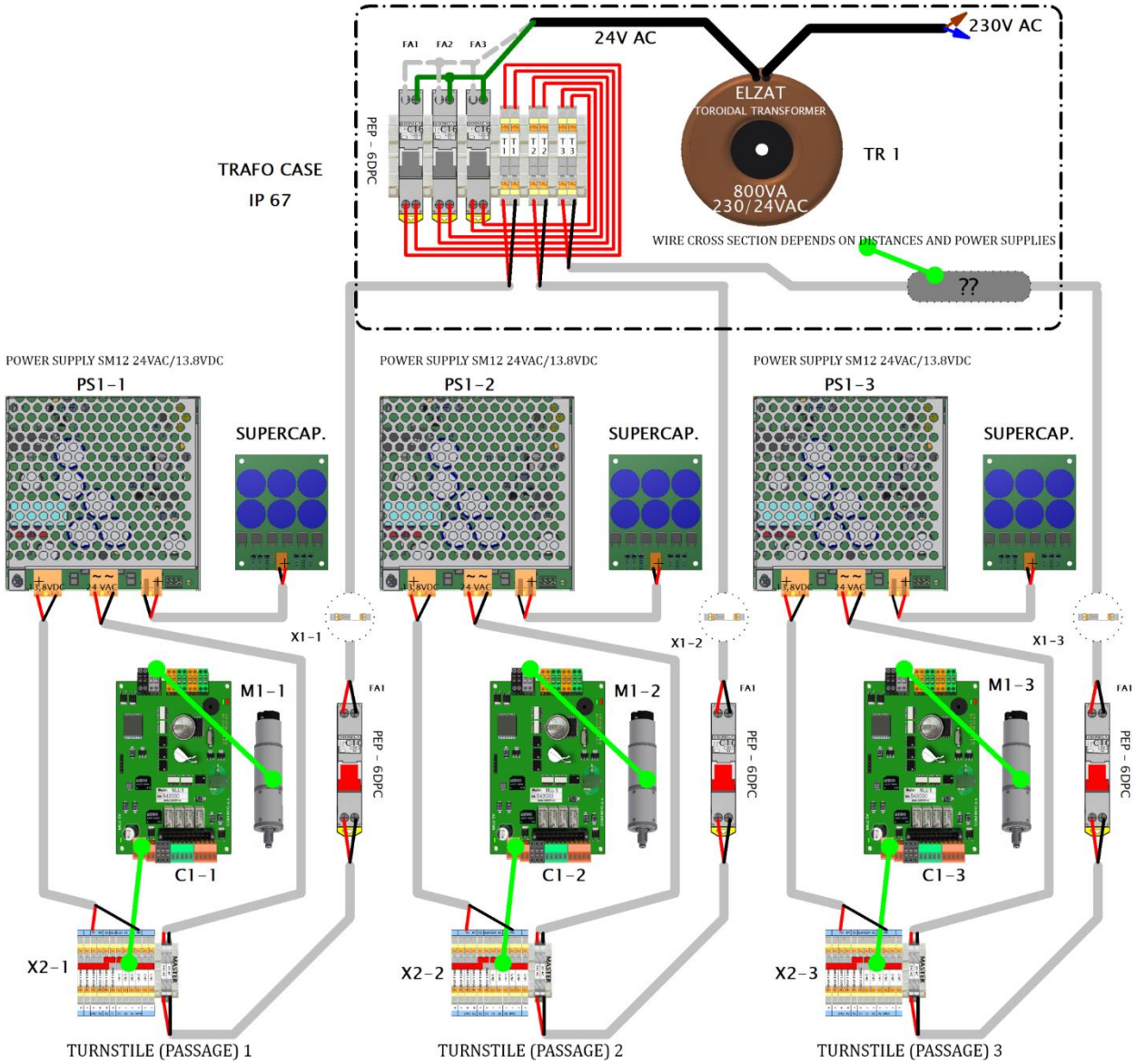
In case of unipolar protection, power sources may not be set under the same GND potential.

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

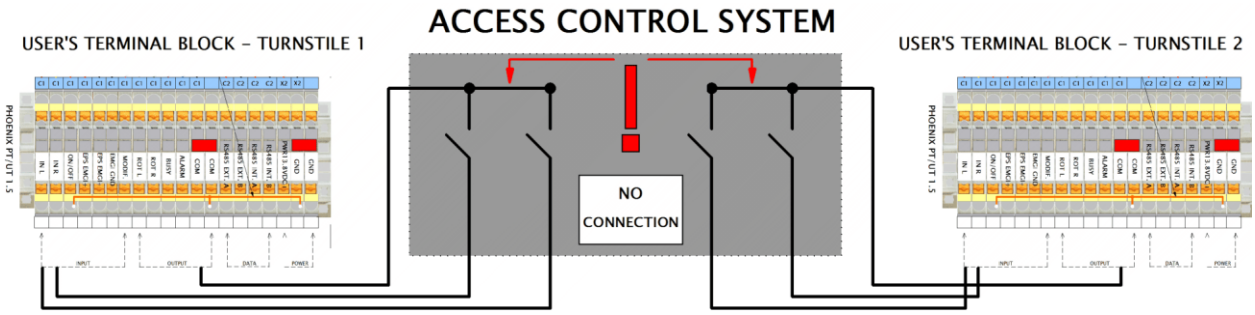
Circuit diagram:



Circuit diagram:



Example of connection of superior system without common GND potential:



CONNECTION WITH COMMON GND POTENTIAL

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

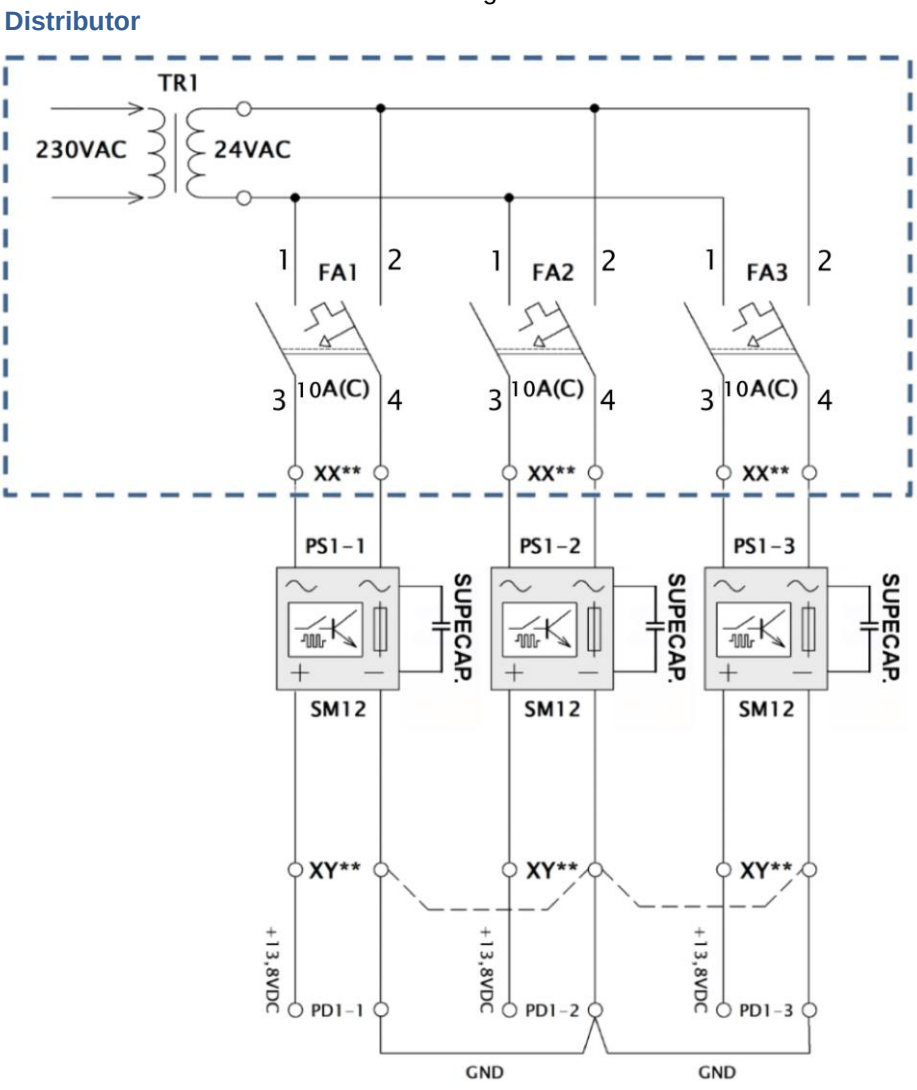
In case of a failure, both poles of SM12 power supply will disconnect and the turnstile will be completely disconnected from the common supply transformer.

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

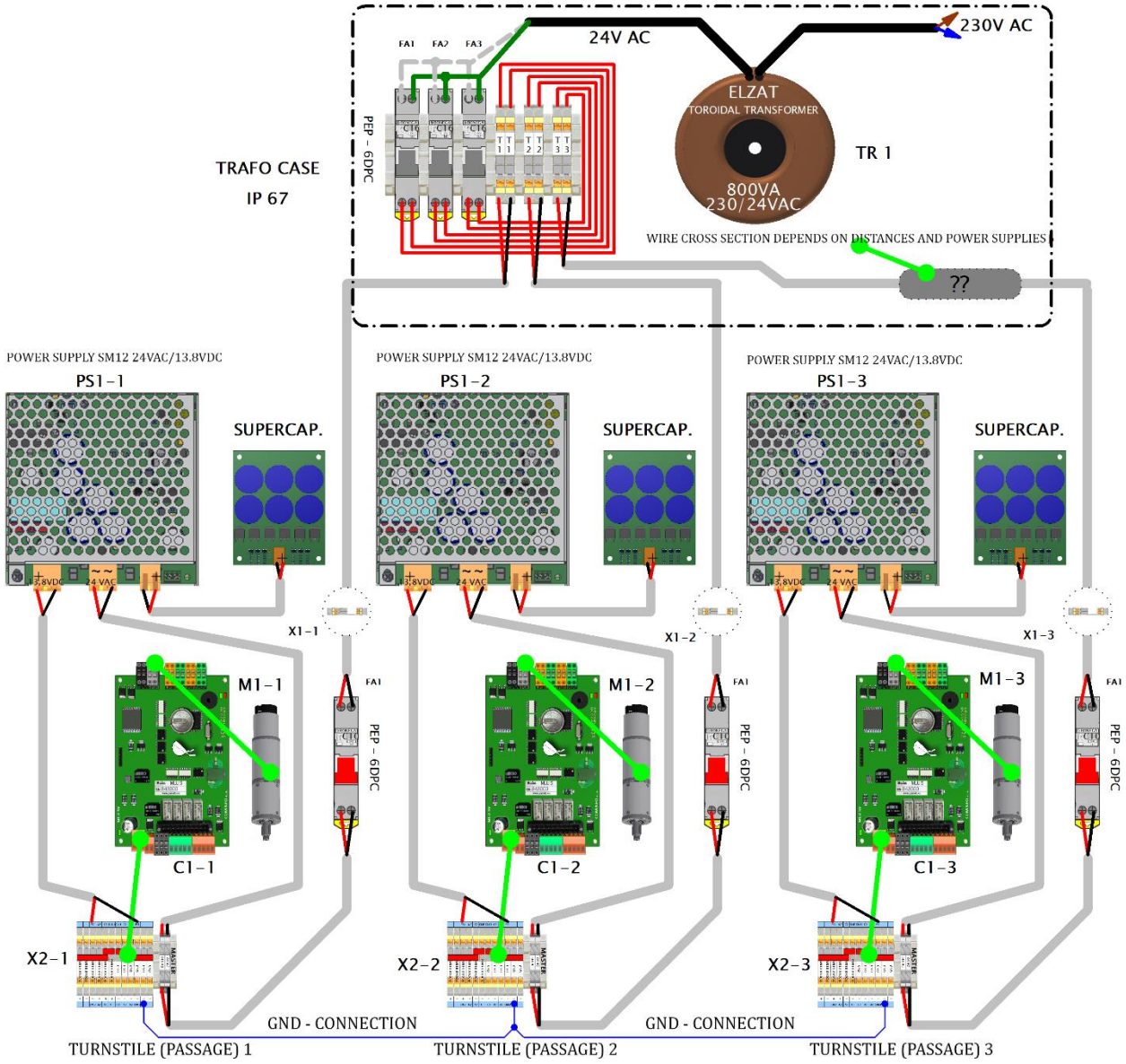
Only special DPC circuit breakers supplied by the manufacturer must be used for double-pole protection.

Superior system can control the turnstiles by common GND relay.

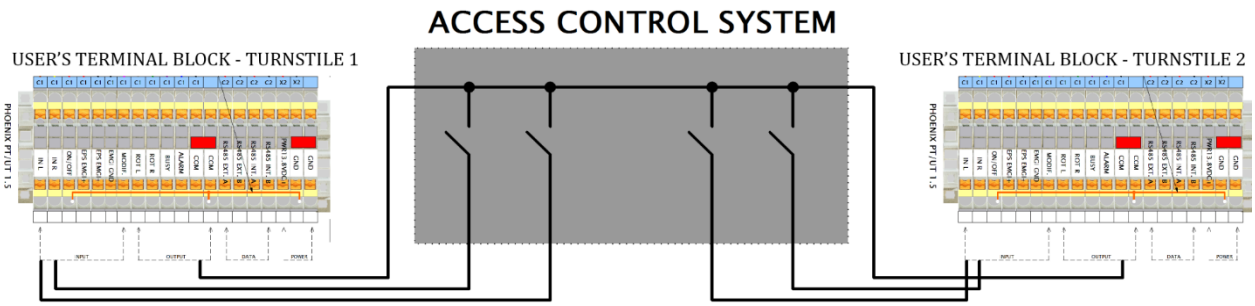
Circuit diagram:



Circuit diagram:



Example of connection of superior system with common GND potential:



4.4. CONNECTION OF EXTERNAL 230VAC POWER SUPPLY

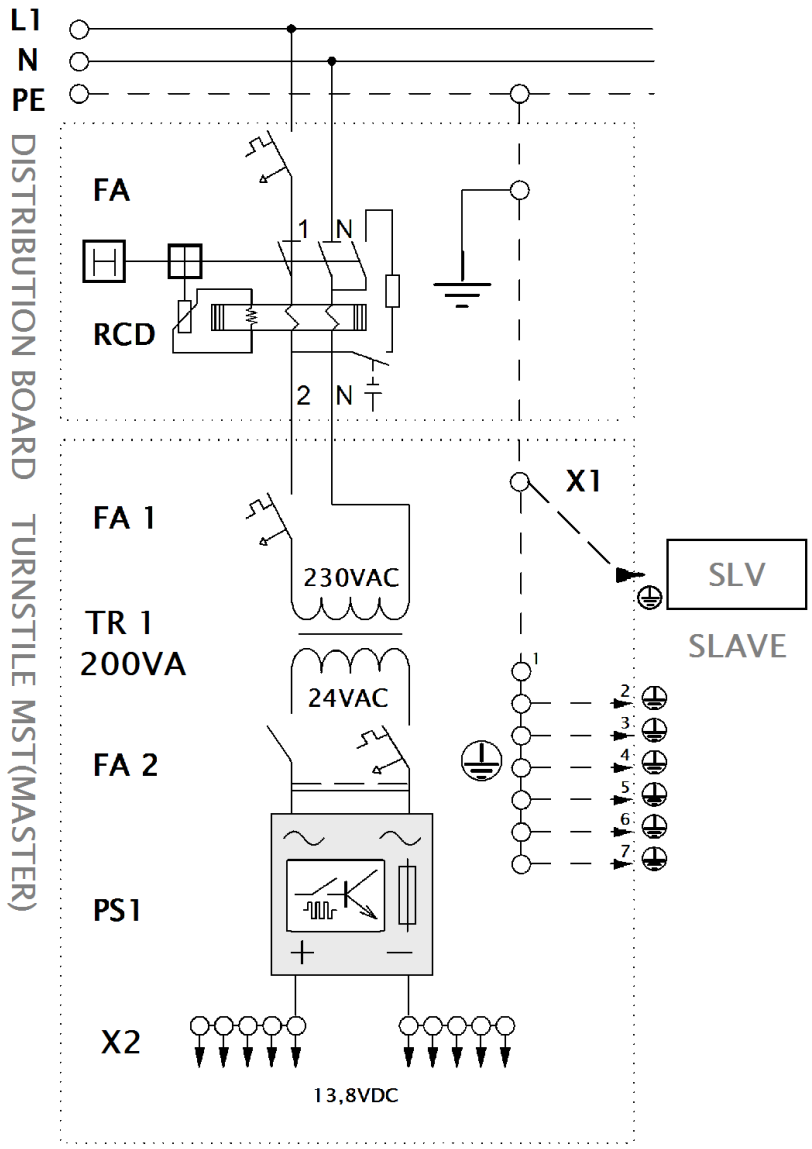
APPLIANCE MUST BE CONNECTED IN COMPLIANCE WITH INSTRUCTIONS THAT ARE ATTACHED TO IT AND ALSO IN COMPLIANCE WITH RESPECTIVE LEGAL REGULATIONS AND STANDARDS, WHICH ARE EFFECTIVE IN THE COUNTRY OF INSTALLATION OF THE PRODUCT. CONNECTION MAY BE PERFORMED ONLY BY A QUALIFIED PERSON

Examples of regulations for select countries:

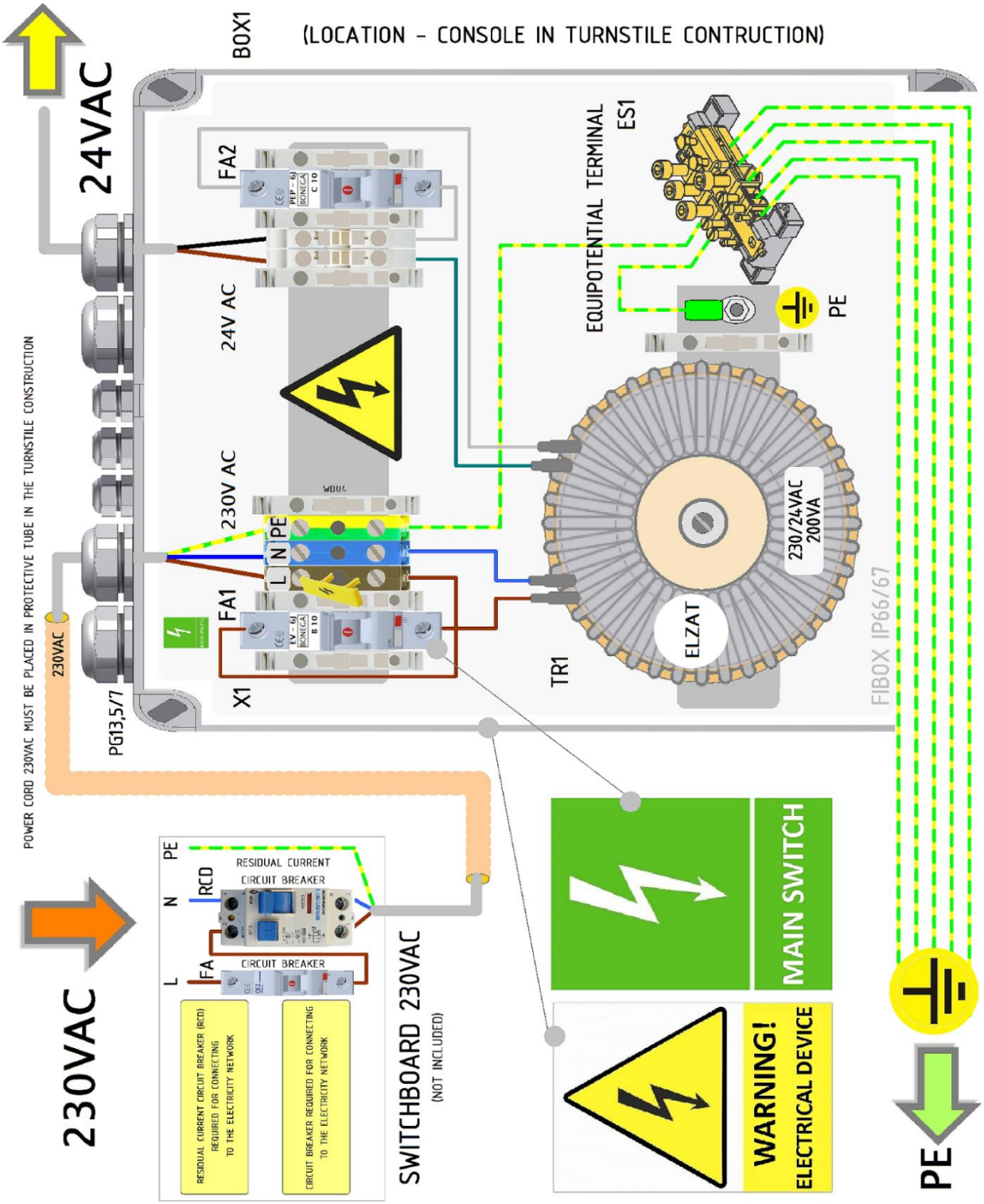
- **CZ: ČSN 33 2000 – 4 – 41 ed.2, ČSN 33 2000-7-706 ed.2, ČSN EN 62305-1 až 4, ČSN 34 0350, ČSN 33 2180**
- **D: DIN VDE 0100-410 Abschnitt 413**
- **EU: IEC 60364-4-41**

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

Circuit diagram:



Distributor example:



4.5. POWER INPUT OF THE TURNSTILE

TURNSTILE INSTALLATION MUST ALWAYS BE PERFORMED IN ACCORDANCE WITH APPROVED PROJECT DOCUMENTATION!

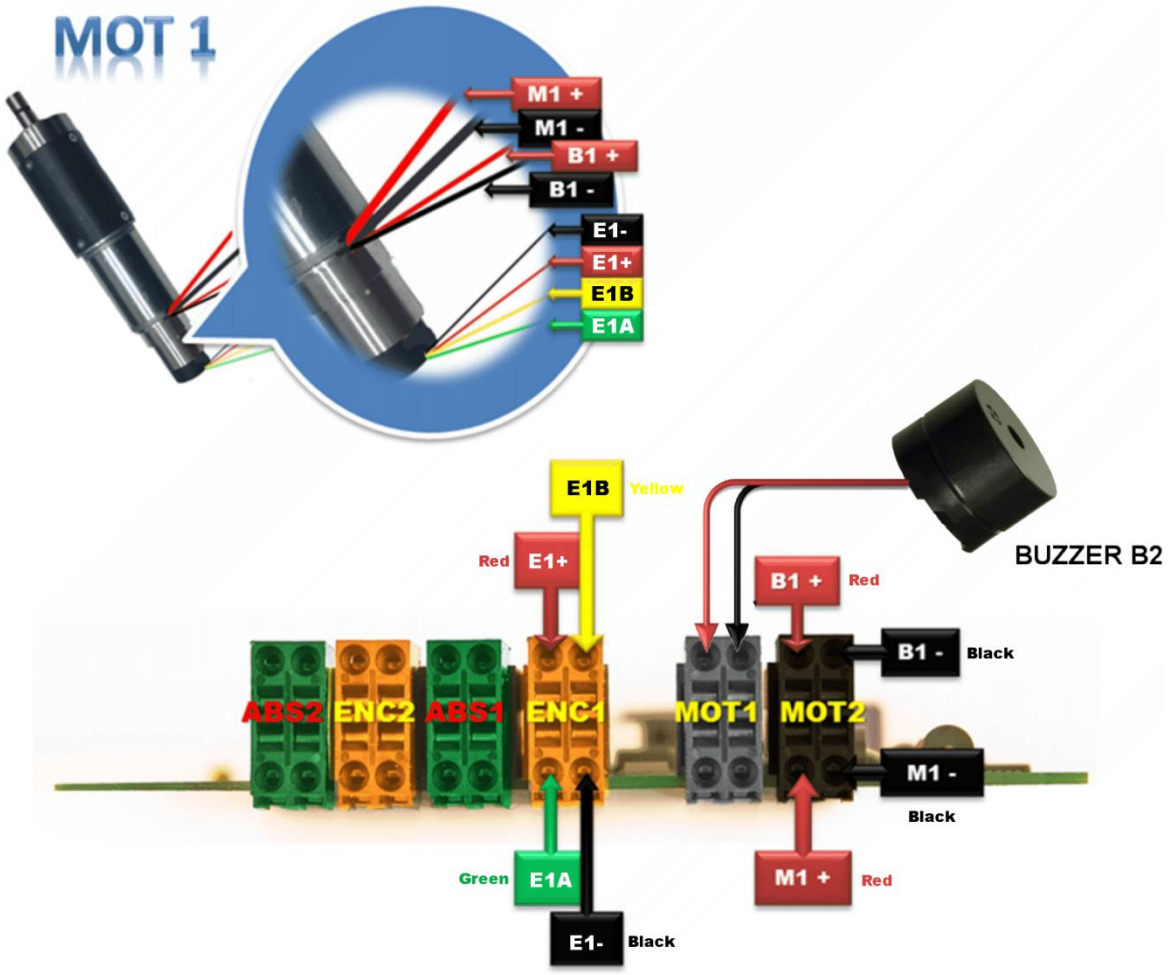
Table of maximum power input values during the operation of the turnstile without optional accessories:

Process	Current [VA]	Note
Initialization of the turnstile	**24**	For one passage (one drive unit)
Opening or closing of the turnstile	**15**	For one passage (one drive unit)
Idle state of the turnstile	**11**	Locked in home position
Idle state of the turnstile	**3**	Unlocked in home position

Table of increases of current consumptions when optional accessories are used:

Optional accessories	Current [VA]	Note
Heating	**+33**	For one passage (1x drive unit) – with temperatures < 15 °C
Lane Light	**+5.5**	Permanently (for 1x Lane Light)

4.6. CONNECTION OF THE POWER PART



On the Figure above, you may see the standard **FAIL-SAFE** motor drive unit.

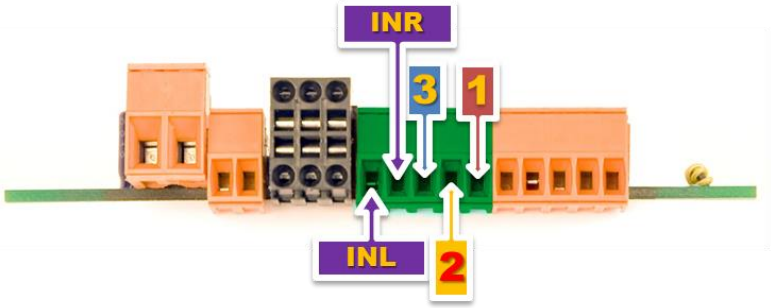
Power supply of the motor drive unit is executed by a pair of thicker cables of red and black color **(M1 +, M1 -)** coming out from the middle part of the motor drive unit, connected according to the Figure above. Connect the red wire to the **MOT2** connector to the clamp marked as **M1+**. Connect the black wire to the **MOT2** connector to the clamp marked as **M1-**.

Pair of the thinner red and black cables **(B1 +, B1 -)** coming out from the middle part of the motor drive unit, serve for connection of electromechanical brake. Connect the red wire to the **MOT2** connector to the clamp marked as **B1+**. Connect the black wire to the **MOT2** connector to the clamp marked as **B1-**.

Four thin cables **(E1)** coming out from the end part of the motor drive unit serve for connection of the magnetic encoder of motor drive unit. Connect the red wire to the **ENC1** connector to the clamp marked as **E1+**. Connect the black wire to the **ENC1** connector to the clamp marked as **E1-**. Connect the green wire to the **ENC1** connector to the clamp marked as **E1A**. Connect the yellow wire to the **ENC1** connector to the clamp marked as **E1B**.

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

4.7. CONNECTION OF INPUTS



- **Input 1** serves as adjustable input for the manufacturer's needs - **DO NOT CONNECT ANY CIRCUITS.**
- **Input 2** serves for connection of the EMERGENCY switch (emergency state). The switch switches the input with the ground.
- **Input 3** serves for connection of the ON/OFF switch. The switch switches the input with the ground. When controlling by status signals, this input must be switched on in order to enable control via INR, INL inputs.
- **Input INR** serves for connecting the control of passages direction. It can be connected to the output of the superior system or to any switch that switches input with the ground.
- **Input INL** serves for connecting the control of passages direction. It can be connected to the output of the superior system or to any switch that switches input with the ground.

All inputs must be switched by a potential-free contact.
If the input is not potential-free, the input must be solved through a relay.

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

4.7.1. EMERGENCY (EMERGENCY STATE)

Emergency state may be activated by two types of signals on the Input no. 2. Signal type can be set via TCONF application.

Option 1 (factory setting):
Input is disconnected in the idle state. To activate the emergency state, it is necessary to ground the input.

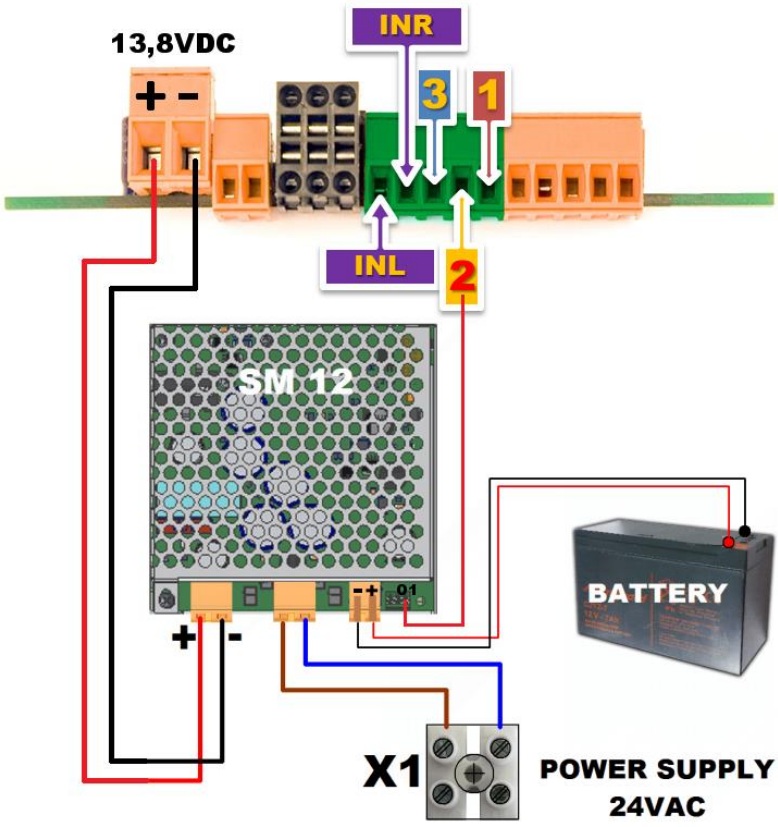
Option 2:
Input is grounded in the idle state. To activate the emergency state, it is necessary to disconnect the input.

4.7.2. ATIVATION OF THE EMERGENCY STATE IN CASE OF LOSS OF POWER VOLTAGE

In some cases, when the turnstile gate is used as a fire escape, it is required for the gate to open upon loss of power voltage when transitioning to the backup accumulator power supply.

CONNECTION WITH A COMINFO SM12 BACKUP POWER SUPPLY:

The SM12 backup power supply has an output collector which is activated in case of switching to powering by accumulator. Clamp O1 of connector K5 of the SM12 backup power supply is connected only to the EMERGENCY electronics input (input no.2). It is not necessary to configure MLU5 electronics. After the supply voltage is lost, the gate is opened immediately while running on backup accumulator. After the power supply voltage is restored, the gate automatically closes after 10s. This time can be configured.



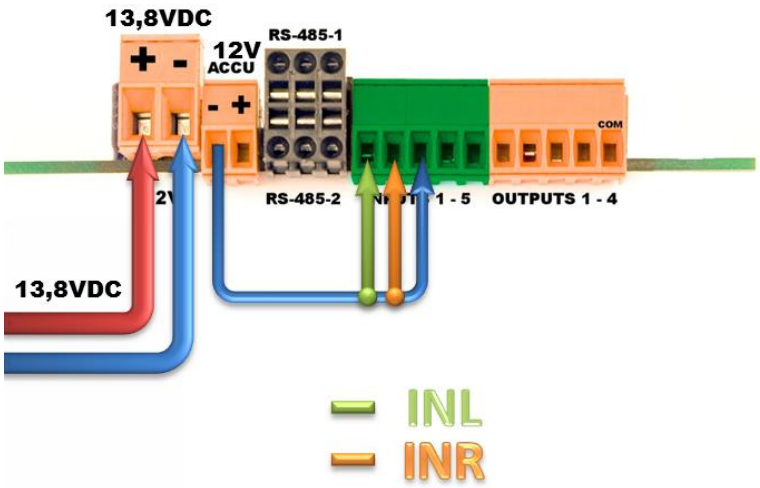
CONNECTION WITH BACKUP POWER SUPPLIES BY A THIRD-PARTY MANUFACTURERS:

The backup power supplies usually have open connector type outputs. However, they do not have a run indication output for the backup accumulator. For this reason, the AC input voltage signaling output must be used. In this case, it is necessary to change the configuration of the EMERGENCY input signal to NC through the TCONF application.

4.7.3. PERMANENT RELEASE IN ONE DIRECTION

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

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

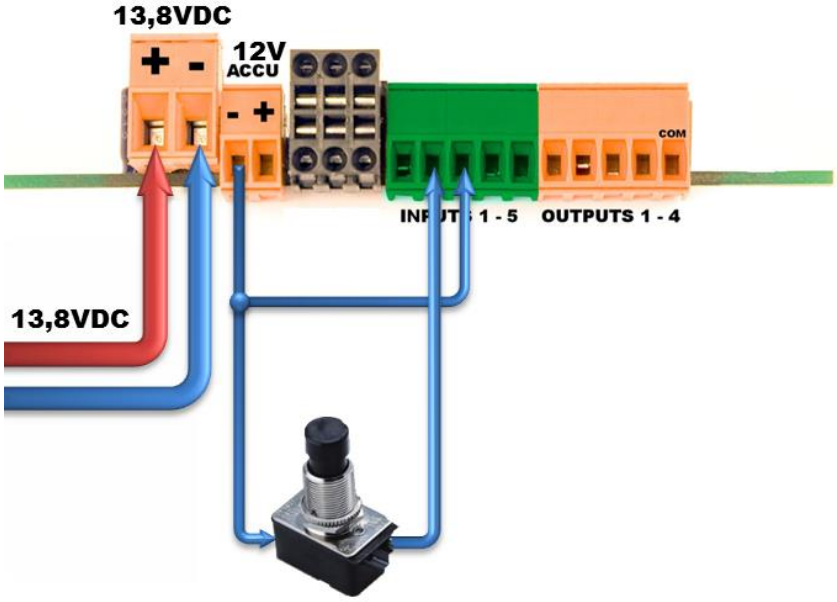


4.7.4. PERMANENT BLOCKING IN ONE DIRECTION

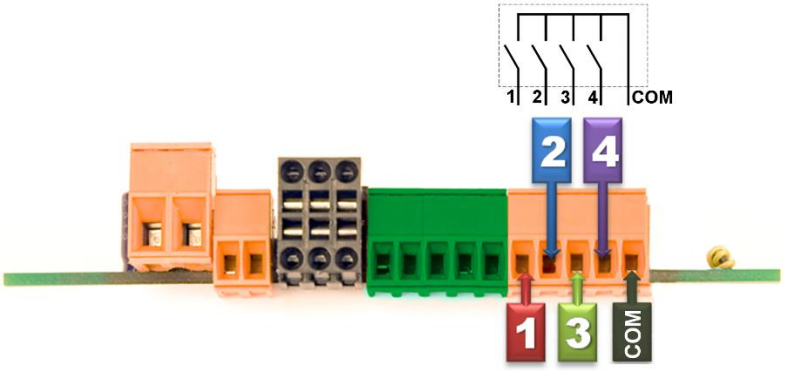
For permanent blocking in one direction, it is necessary to connect the RS485 communication interface, and induce this state via control panel (Touch panel) or via the TMON application (see separate manuals).

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

4.7.5. CONTROLLING THE TURNSTILE BY AN EXTERNAL BUTTON



4.8. CONNECTION OF LOGICAL OUTPUTS

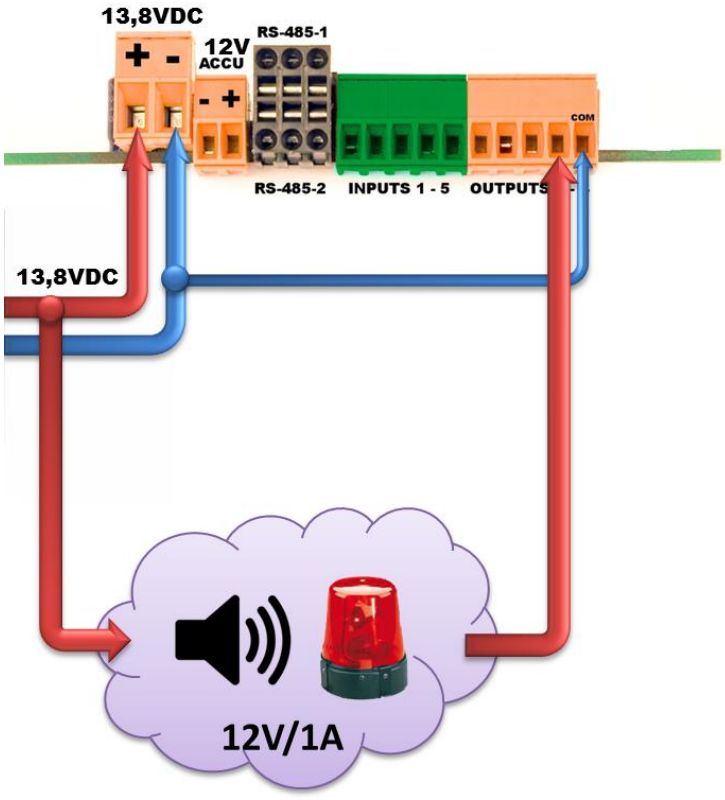


- **Output 1-** *ROTL* signal for the superior system informing about opening of the passage in the L direction
- **Output 2-** *ROTR* signal for the superior system informing about opening of the passage in the R direction
- **Output 3-** *BUSY* signal for the superior system informing about released or ongoing passage
- **Output 4-** *ALARM* attempt for unauthorized passage or forced turning of the turnstile gate

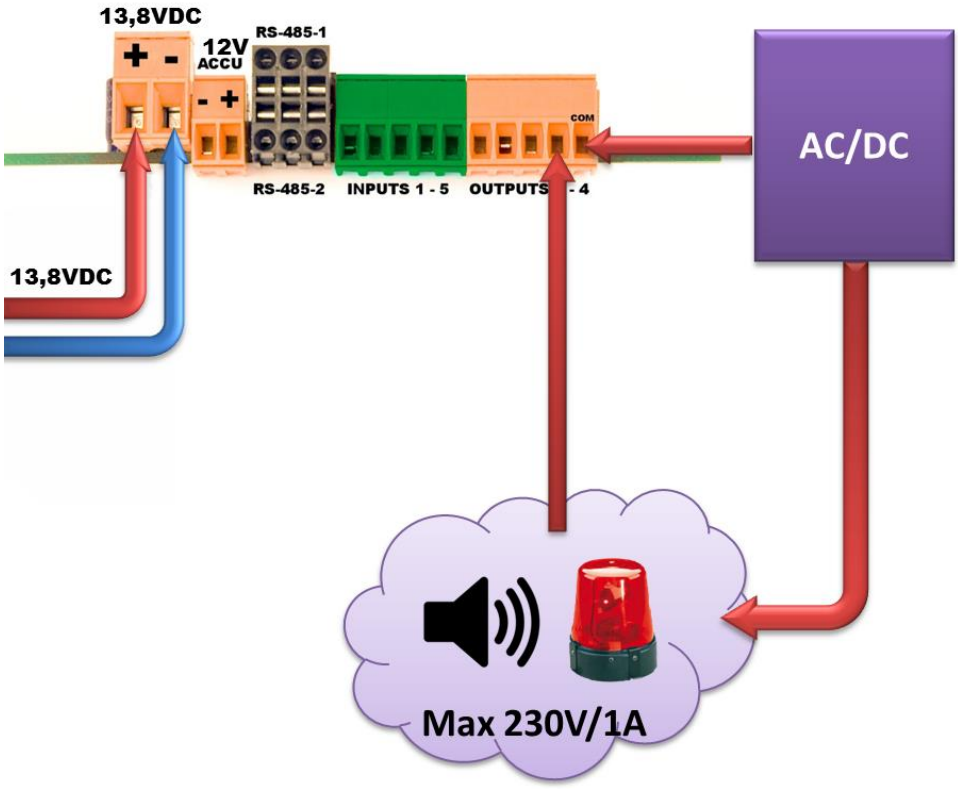
The output signals are set to NO by the manufacturer. Using the TCONF application it is possible to invert any output to NC, independently to other outputs.

4.8.1. CONNECTION OF EXTERNAL ALARM OUTPUT (BUZZER, LIGHT)

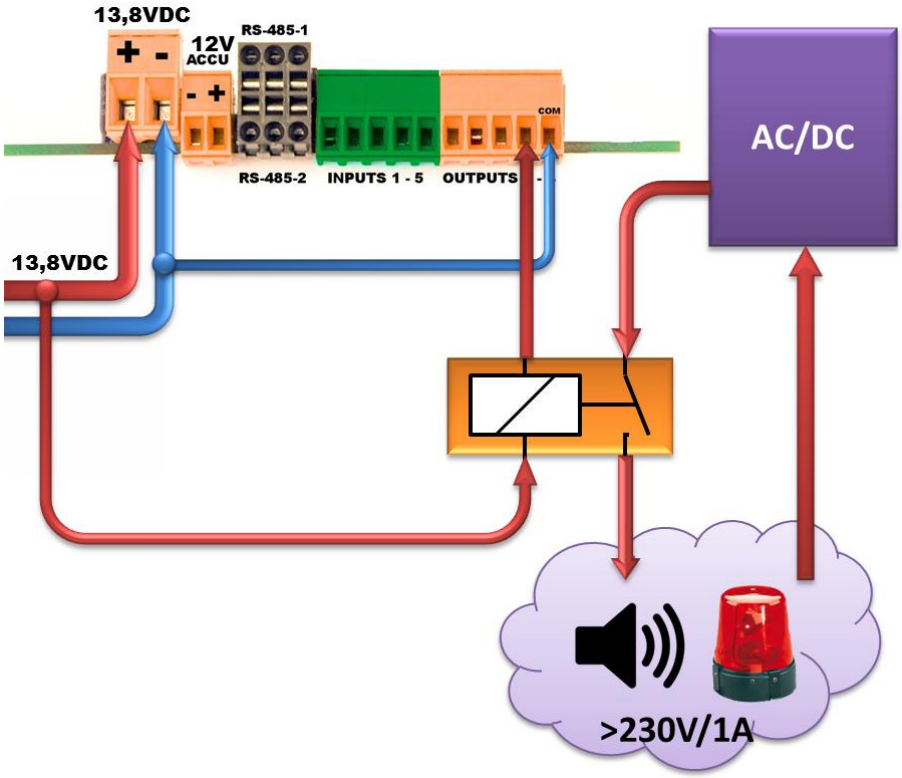
Option 1: if the external alarm device is designed for 12VDC power supply voltage, it can be connected in accordance with the following Figure, and thus use the turnstile power supply.



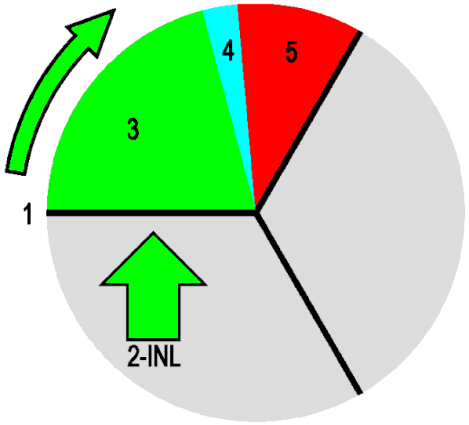
Option 2: if the external alarm device is designed for power supply voltage bigger than 12VDC with current consumption up to 1A, it can be connected in accordance with the following Figure.



Option 3: if the external alarm device is designed for power supply voltage bigger than 12VDC with current consumption bigger than 1A, it is essential to use an external relay designed for the relevant current load.



4.9. DURATION OF INPUT AND OUTPUT SIGNALS



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

Input signals duration:

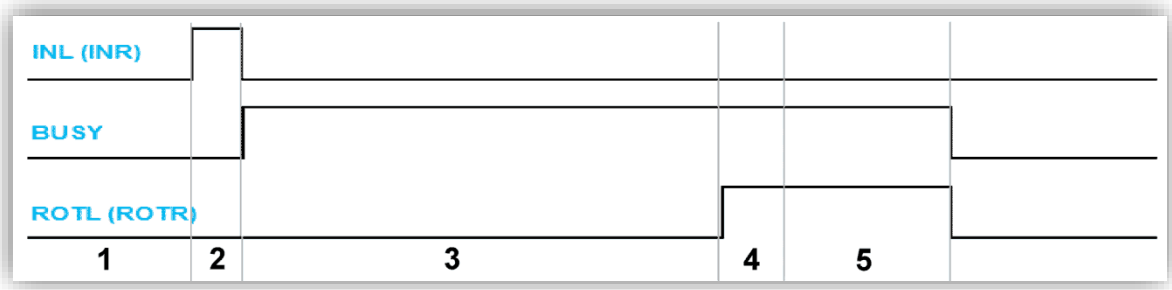
Name of the Input Signal	Single Passage	Permanent Passage
INL	>100ms <2000ms)[1]	>2000ms
INR	>100ms <2000ms)[1]	>2000ms
ON/OFF	FOR THE DURATION OF THE INPUT ACTIVATION	
PANIC/EMERGENCY	FOR THE DURATION OF THE INPUT ACTIVATION	

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

Output signals duration:

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

Progress chart of passage through the turnstile:

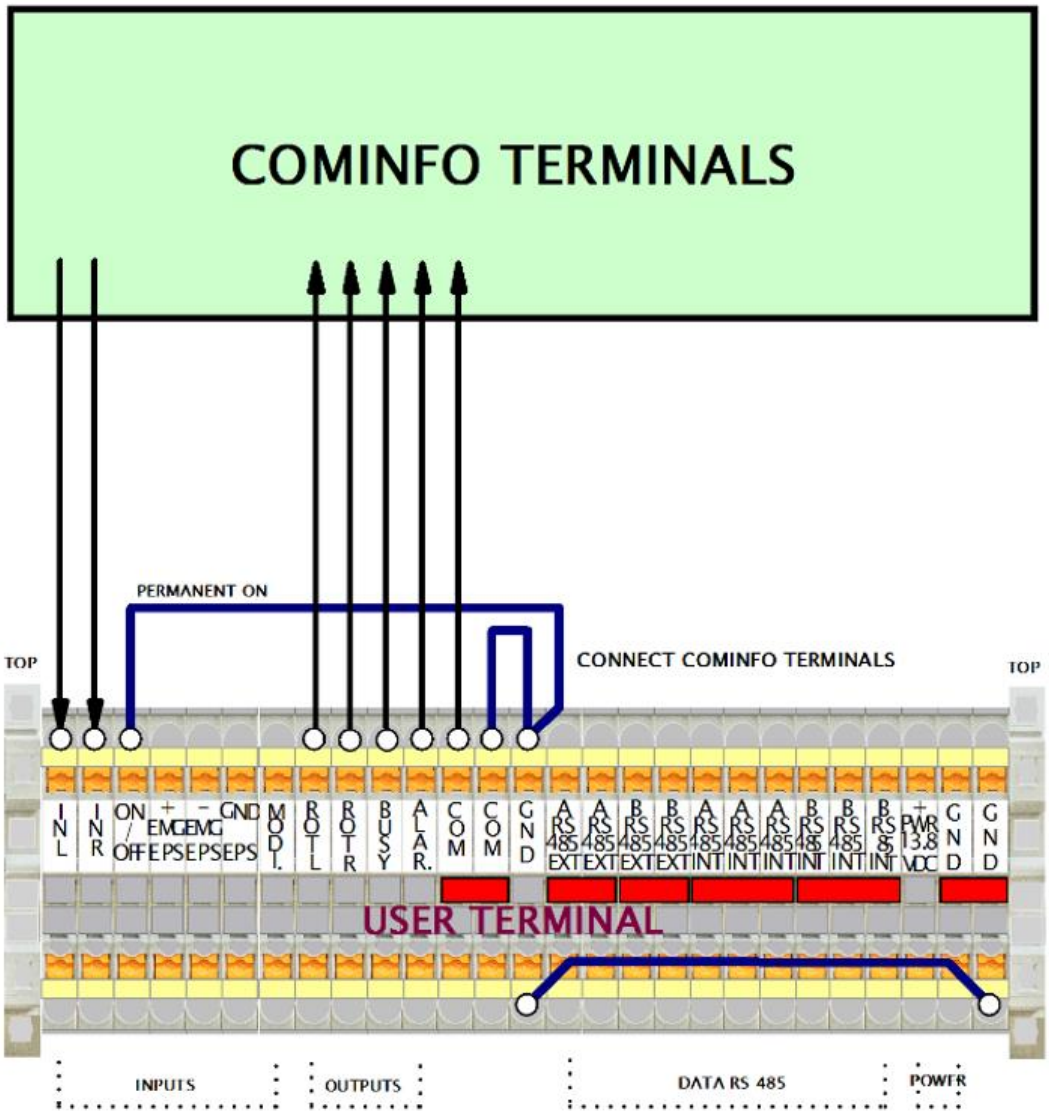


4.10. TURNSTILE CONTROL BY SUPERIOR SYSTEM

4.10.1. CONNECTION FOR CONTROLING WITH SUPERIOR SYSTEM FROM COMINFO

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

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

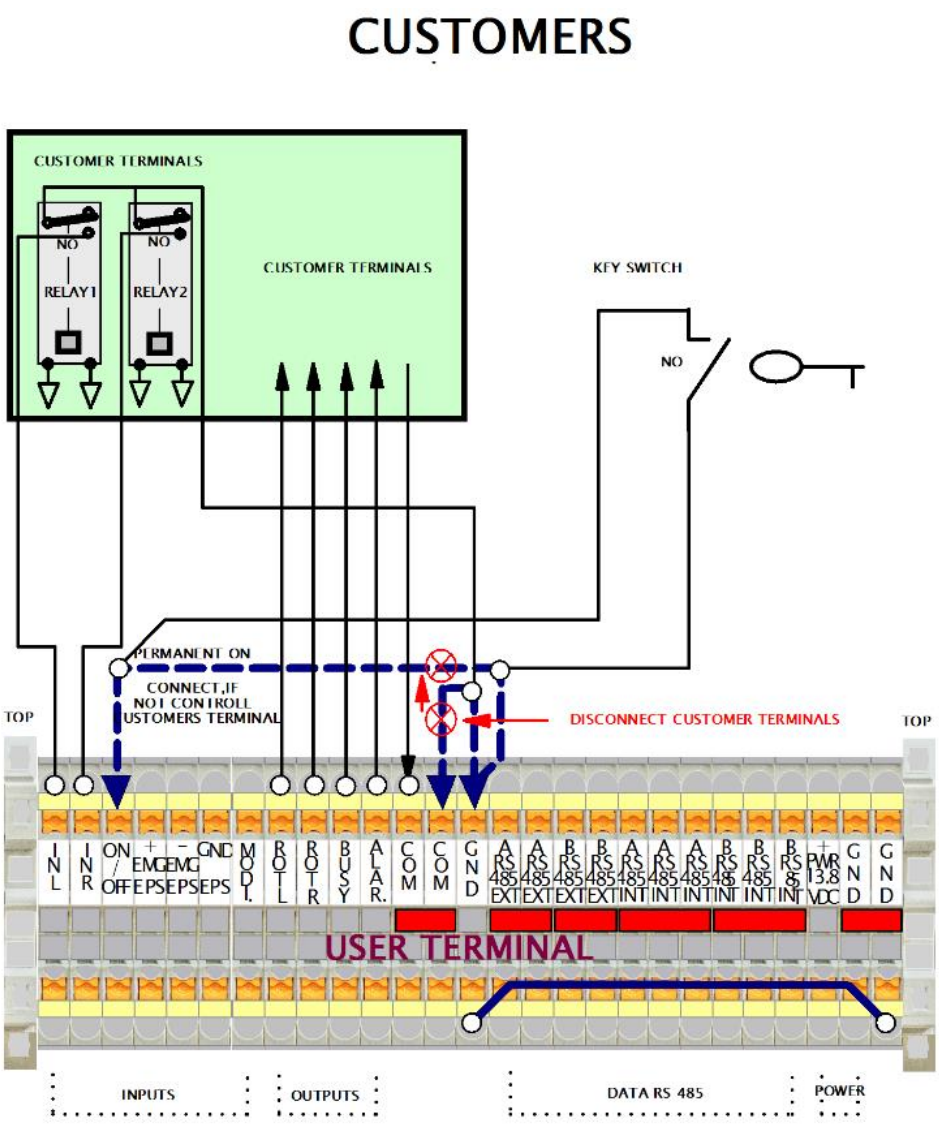


MLU INT. CONNECTION

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

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

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



4.11. DESRIPTION OF REMOTE CONTROLING OF THE TURNSTILE

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

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

4.11.1. CONTROLLING THE TURNSTILE BY THE TOUCH PANEL

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

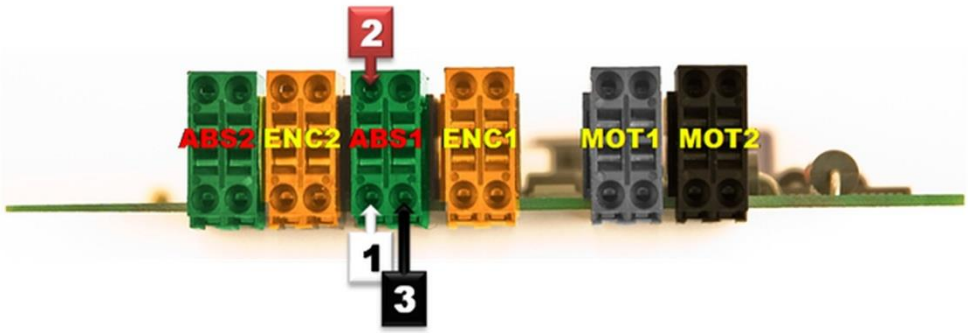
4.11.2. CONTROLLING THE TURNSTILE BY THE EASY TOUCH PANEL

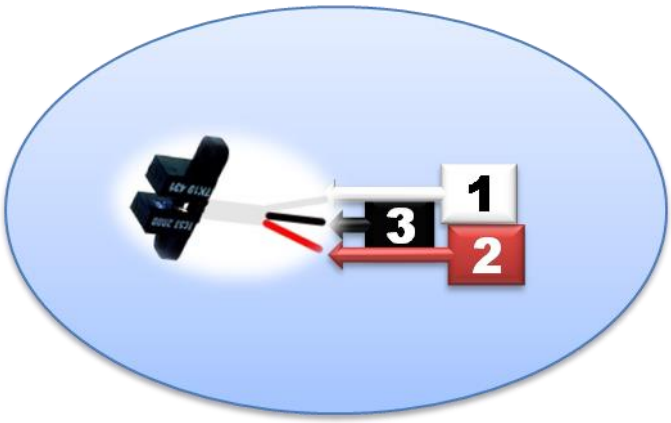
- It is a comfortable control panel with a touch screen and plenty of functions.
- You can control up to 30 turnstiles with one EASY TOUCH.
- Computer is not needed for setting the EASY TOUCH - it is done directly on the touch screen.
- Connection and setting of the EASY TOUCH is described in a separate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

4.11.3. CONTROLLING THE TURNSTILE BY T-MONITOR APPLICATION

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

4.12. CONNECTION OF THE HOME POSITION SENSOR





4.13. CONNECTING THE RS485 COMMUNICATION LINES

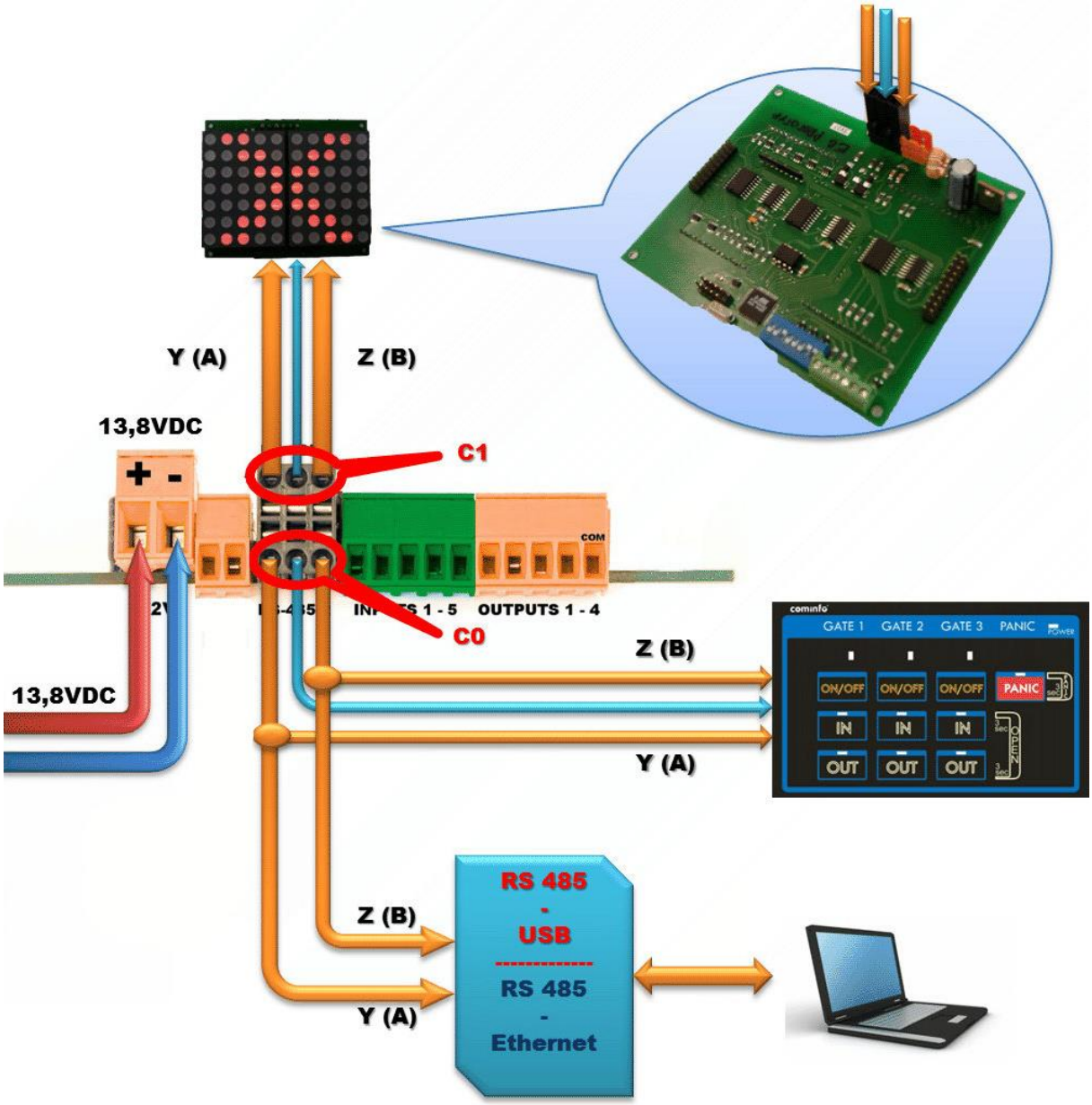
Control electronics is equipped with two communication channels C0 and C1 with RS 485 interface.

- **DATA EXT.** - C0 (external) serves for PC connection via RS485-USB or RS485_Ethernet converter and also for connection of control panel (Touch Panel / Easy Touch) and TMON application.
- **DATA INT.** - C1 (internal) serves for connection of Access Light and Lane Light.

The internal and external communication lines must not be connected in any case at any point.

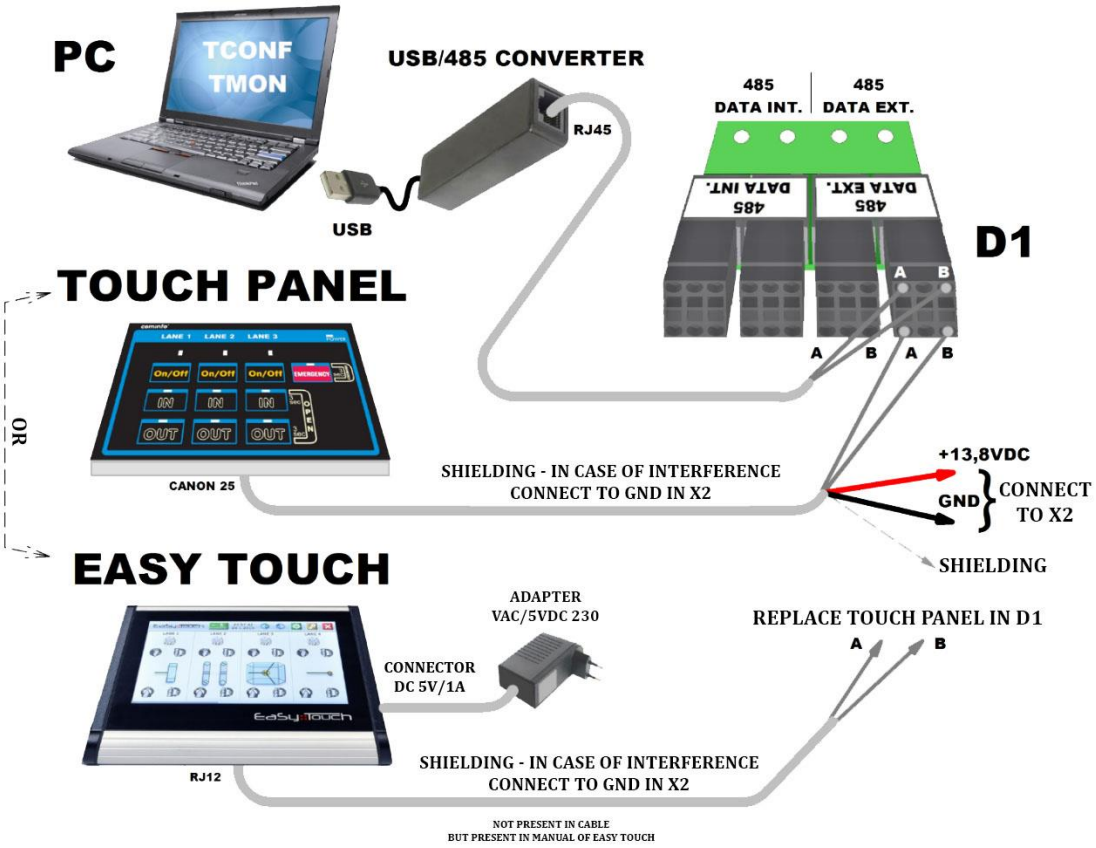
Connection is realized by means of a twisted twin-lead.

4.13.1. INTERNAL COMMUNICATION LINE



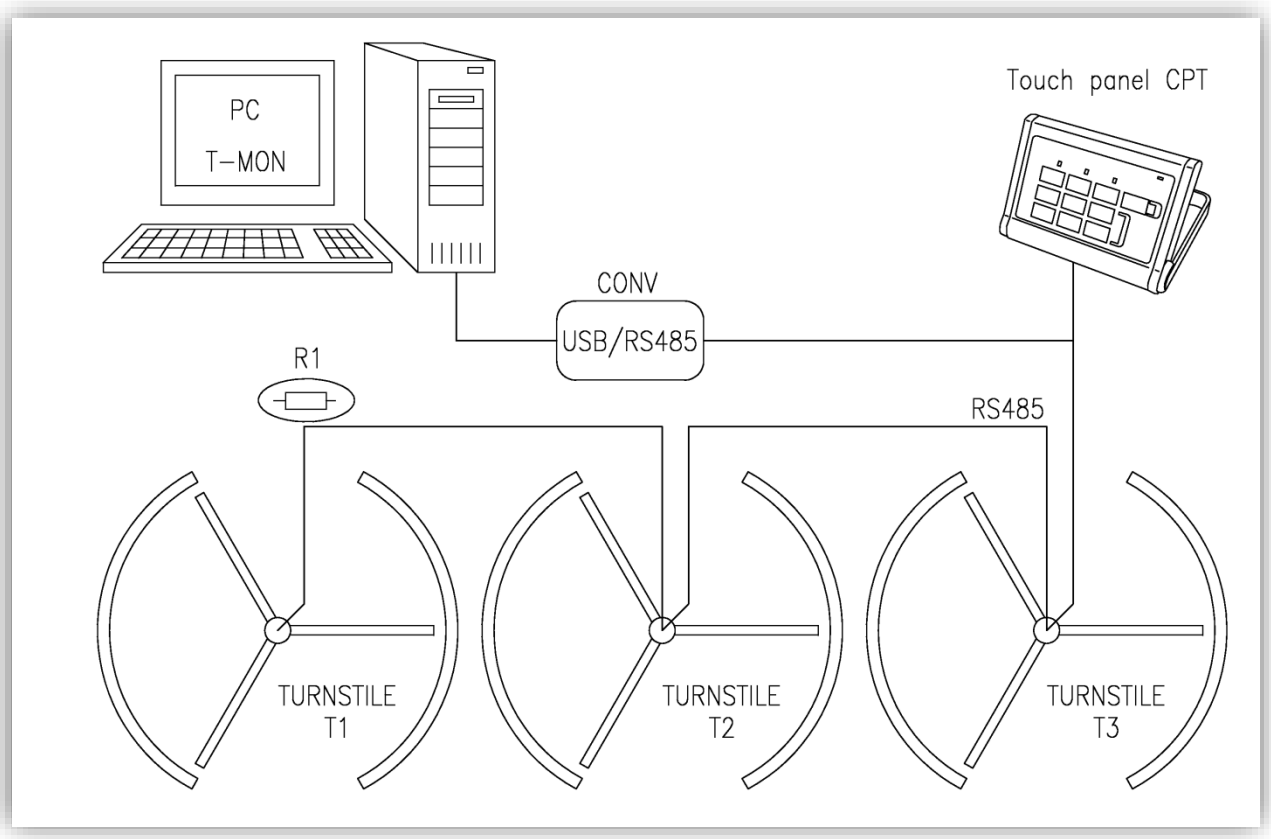
4.13.2. EXTERNAL COMMUNICATION LINE

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



For easy change of configuration, the firmware upgrade and control via PC it is advisable to lead the RS485 communication channels to an accessible place (e.g. power supply).

Example of RS485 communication line connection:



The connection of PC, Touch panel and turnstiles via the RS485 line is shown of the figure. Typically, only R1 terminating resistor is connected to the T1 turnstile at the end of the line.

- At the beginning of the line, the terminating resistor is connected to the CONV converter.
- Resistors that ensure idle state of the line are also placed in the CONV converter.
- If the CONV converter is disconnected, the resistors for defining the idle state and the terminating resistor must be set by means of the DIP-Switch in the Touch panel.
- When replacing the MLU5 control electronics in the T1 turnstile, it is necessary to set the terminating resistor also on the MLU5 electronics.
- For more detailed information, request a separate manual: *RS485 Connection Principles*.

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

In case of the external Touch Panel device, always connect the shielding to the MLU5 GND electronics in the turnstile that powers the Touch panel.

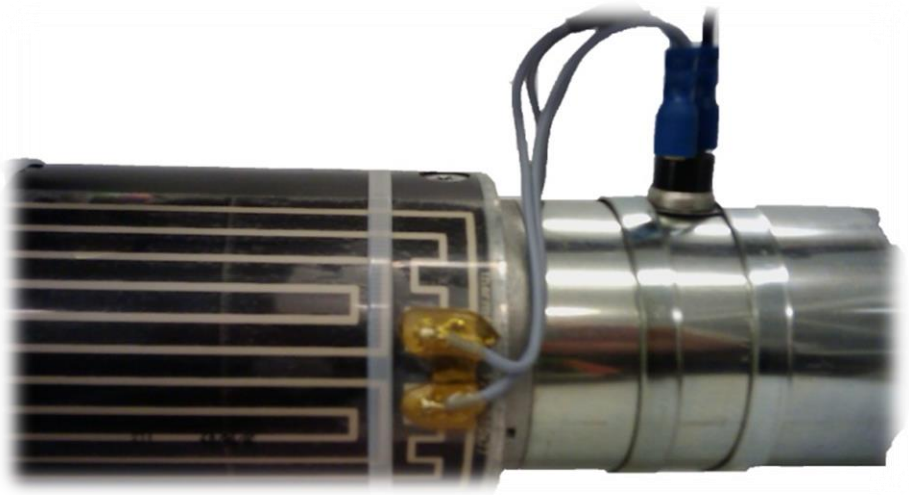
In case of external 485/USB converter device, do not connect the shielding for PC control. In case of major interference of the cable leading to the 485/USB converter, connect the shielding only to the MLU5 electronics.

4.14. HEATING SYSTEM

Valid only for these types of turnstiles:

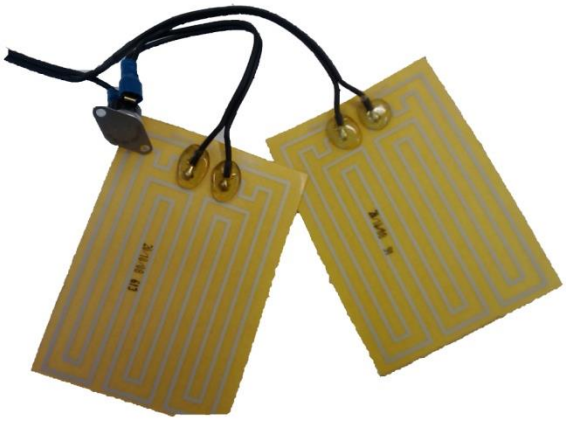
- ROUND-J
- ROUND-J-S
- ROUND-J-90°
- ROUND-J-90°-DUO
- ROUND-J-90°-U

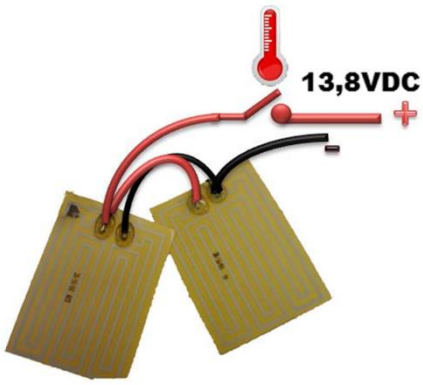
This optional accessory enables the turnstile to operate up to the minimum temperature of **-25 °C**. Switching is done through a mechanical thermostat that is mounted on the motor. The thermostat switches on when temperatures drop below **+15 °C** and switches off when temperatures reach **+21 °C**.



Heating system with 13.8VDC external power supply:

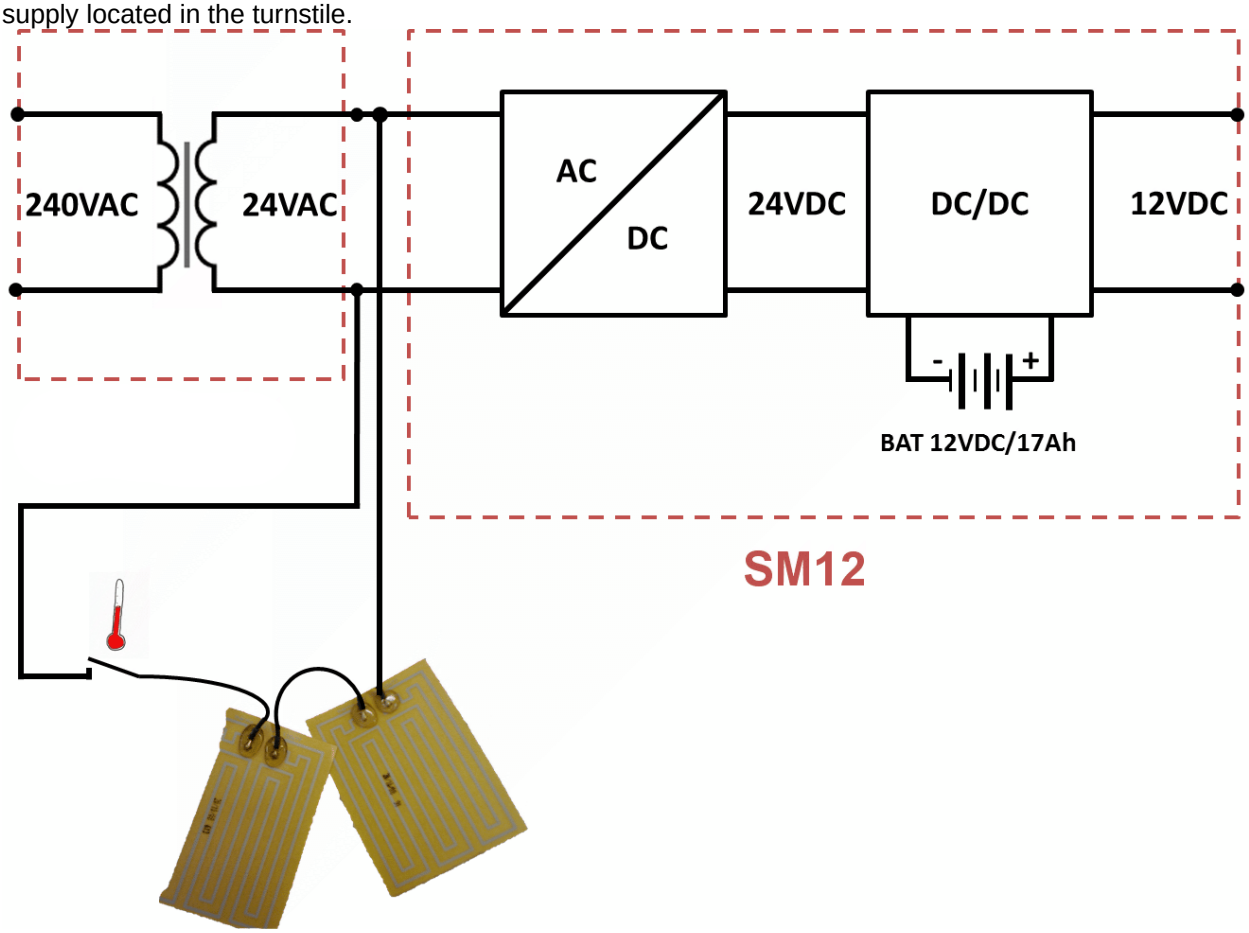
Heating foils are mutually connected in parallel. Heating is connected directly to the power connector of the control electronics, or to the terminal box located in the turnstile.





Heating system with 24VAC external power supply:

Heating foils are mutually connected in series. Heating is connected to the input clamps of the SM12 power supply located in the turnstile.



5. PUTTING THE TURNSTILE INTO OPERATION

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

5.1. CHECKING THE TURNSTILE BEFORE PUTTING IT INTO OPERATION

- 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

RISK OF INJURY DURING THE TURNSTILE INITIALIZATION

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.

While putting the turnstile into operation it is necessary to perform initialization and calibrate the rotation of the turnstile. The turnstile revolves at maximal speed during the initialization. Workers performing the initialization are obliged to ensure that the revolving turnstile does not injure anybody.

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

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

5.3. CHECKING THE ELECTRONICAL COMPONENTS AFTER INITIALIZATION

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

- SM12 power supply
  - green power LED is on
- MLU5 control electronics
  - green power LED is on
- Supercapacitors
  - green power LED is on

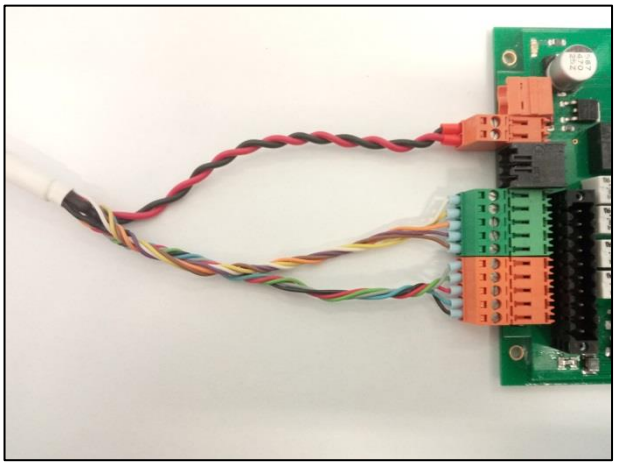
If the signaling is different, proceed according to the chapter *Troubleshooting* and relevant electronic manual.

Your turnstile may not be equipped with above mentioned features, based on the type of your turnstile and its optional accessories.

5.4. TESTING ALL THE TURNSTILE FUNCTIONS

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

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



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

- The turnstile is controlled by a separate MLU 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.
- When installing additional rubber protection of the gate, it is necessary to change the parameters of the drive unit due to increased weight of the rotary gate.

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

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

6. TROUBLESHOOTING

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

6.1. CHECKING ERROR STATES AFTER TURNING ON THE POWER SUPPLY

- Remove the gate casing according to the chapter *How to access the anchoring holes and motor drive unit with control electronics*. Check the electronics LED signalization.
- The electronics is fitted with three LED diodes which signal its status.
- Their placement is described in chapter *Description of the control electronics*.

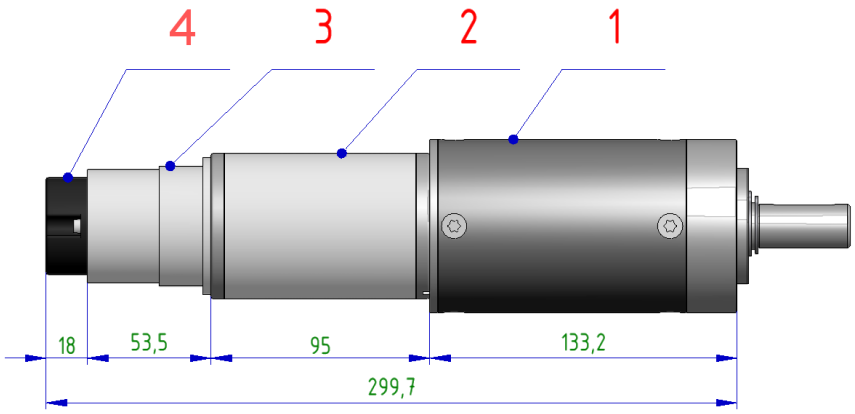
LED (state)			MALFUNCTION	REMOVING THE MALFUNCTION
1	2	3		
			Power failure of the turnstile (green LED1 does not emit light)	Measure the power supply. Check or replace the circuit breaker of the power supply unit. Check and tighten all clamps.
			Timeout for automatic turnstile blocking is activated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

6.2. CHECKING THE MOTOR DRIVE UNIT

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

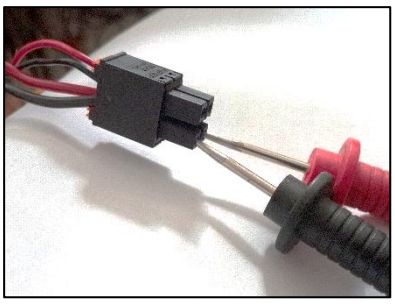
6.2.1. DESCRIPTION OF THE DRIVE UNIT

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



6.2.2. CHECKING THE ELECTROMOTOR

- Disconnect the power supply.
- Pull out the black MASTER motor drive connector from MLU5 control electronics.
- Set the multimeter to measure resistance.
- Connect the multimeter to the bottom pins of the connector as shown on the figure below. The value should be between **2 - 20 Ohms** (depending on the wear and position of the brushes and commutator).



- If the measured value is higher, move the wing several times with disconnected multimeter and repeat the measurement.
- If you do not measure any resistance, look for the fault according to the wiring diagram.

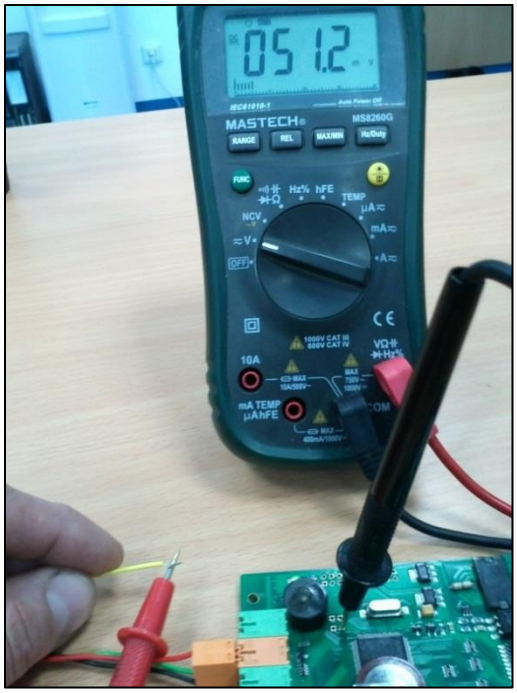
6.2.3. CHECKING THE BRAKE

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

6.2.4. CHECKING THE ENCODER

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

LOG 0
Approx. 50-60mV



LOG 2
Approx. 4.5-4.6V

6.3. ANALYZING MALFUNCTIONS AFTER TURNSTILE INITIALIZATION

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

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

6.3.1. ELECTRONICS RESET FUNCTION

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

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

During the electronics reset, the following occurs:

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

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

Electronics cannot be reset when the turnstile is running on the backup accumulator or if the voltage of the turnstile terminal drops below 12.5VDC (due to the voltage drop on the power supply cables).

The electronics is reset in following cases:

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

6.3.2. CHANGING THE ELECTRONICS FIRMWARE

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

Firmware may only be changed after consulting the manufacturer.

After uploading the firmware, the following occurs:

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

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

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

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

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

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

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

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

EXAMPLE - CLAIM REPORT FORM

Product label information:

Name – type:	ROUND-J-168

Serial number:	0	9	0	0	1	2	3	4	5	6

Information on the control electronics (MLU 5):

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

Your request:

1. Turnstile sometimes does not reach the home position and must be turned manually.
2. Two ROUND type turnstiles are connected to one KPN18/7 power supply.
3. The attached video shows the passage with manual turning of the gate.
4. Our TCONF version: 13. 4. 2016
5. Downloaded logs attached (no errors detected)
6. Connection check OK
7. Control signal from the superior system 500ms
8. Wiring OK
9. Sensor check OK - turnstile stopped in the home position
10. Switching distance OK
11. Brake OK
12. The motor can be turned
13. Correct initialization performed as per attached video. The voltage dropped to 13V during initialization
14. Rel LED does not signalize any error after initialization
15. Malfunction is present even after the initialization - logs do not detect any error
16. Error remains also during operation with the testing device
17. Recommended firmware MLU5V6.2 uploaded.
18. Implicit configuration performed – error remains
19. All turnstile functions verified by the TURNSTILE TESTER and the malfunction did not occur – OK.

Customer:	Company Ltd		
Address:	11 Business Park, London SW12 9RT, United Kingdom		
Contact person:	Jack Smith	Telephone:	4420 7777 7777
E-mail:	jack@company.com	Date:	14.12.2021

CLAIM REPORT FORM

Product label information:

Name – type:

Serial number:

Information on the control electronics (MLU 5):

Serial number:

Your request:

Customer:

Address:

Contact person:

Telephone:

E-mail:

Date:

Cominfo, a.s.
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