

INSTALLATION INSTRUCTIONS FOR TURNSTILES TYPE:

BAR-ONE-ADVANCED

(BAR-ONE-Unipod, BAR-ONE-Tripod, BAR-ONE-Gate) with electronics MLU5



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Appendices at the end of these installation instructions:

CLAIM REPORT FORM

1. INTRODUCTION

These Installation Instructions are intended for technicians of the Service Department of the COMINFO Company, or workers who passed the Installation schooling provided by the COMINFO company. These Instructions describe installation procedure, electronic construction, function and connection of individual components of the whole BAR-ONE-ADVANCED 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 BAR-ONE 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. Take to turnstile to a predetermined place after you unwrap it. At least two persons should cooperate when manipulating the turnstile. During handling of 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 the rotary gate:

Turnstile	Weight [kg]	
Turnstile	Indoor	Outdoor
BAR-ONE-Unipod	84	86
BAR-ONE-Tripod	86	88
BAR-ONE-Gate	85	87

the weight is valid for turnstiles that include complete optional accessories

3. INSTALLATION OF THE TURNSTILE



The BAR-ONE-Tripod 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.



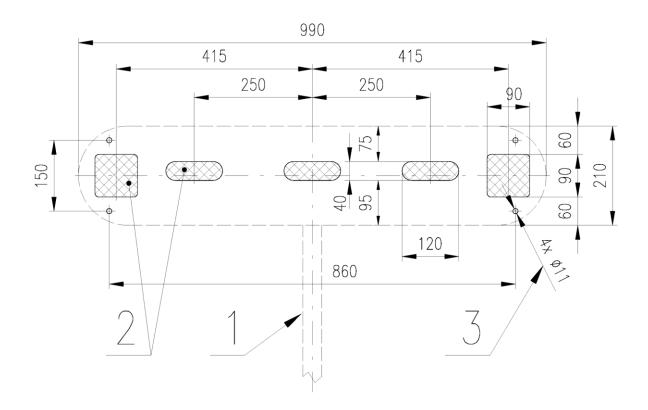
Connection to the mains power supply may only be performed by an authorized person with the appropriate qualifications.



3.1. DIMENSIONS FOR ANCHORING

CAPTIONS FOR THE FIGURES:

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





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

We gain access to the motor drive unit with control electronics after disassembling the upper lid of the turnstile. After unlocking the two locks (pos. 1) which are located on the sides of the upper lid, pull the lid upwards. Put the dismounted lid on a predetermined place.

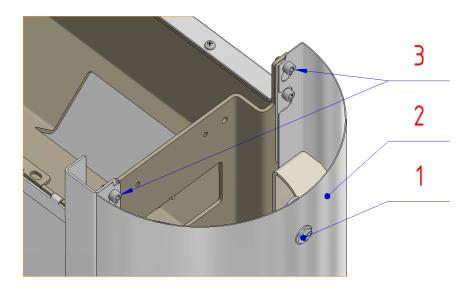
Manipulation with the DOM type lock:

- Insert the key into the lock.
- To unlock, turn the key to the left.
- To lock, turn the key to the right.

It is not possible to remove the key from the lock when in an unlocked state. After unlocking the two turnstile locks, we have two options:

- 1. Use two separate keys.
- 2. We unlock one lock, release the cover and lock it again and use the same key for the second lock.

Access the anchoring holes after disassembling two front covers (pos.2) of the turnstile. To dismantle the front covers, first dismount the upper turnstile lid. After you loosen the two M5 bolts (pos.3) in the upper part of the cover, slide the cover upwards by 10mm and then outwards from the turnstile.



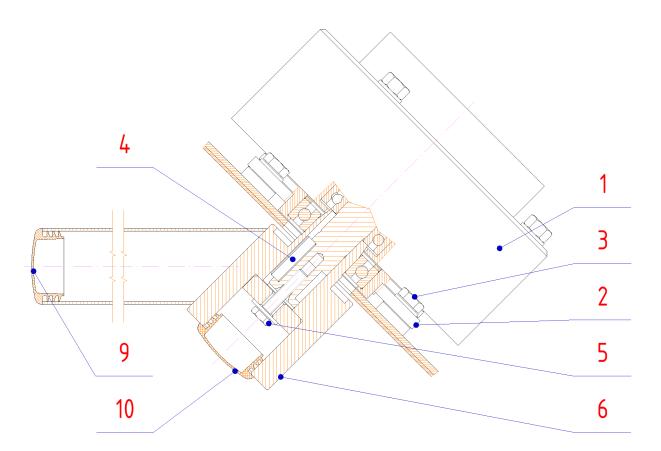


3.3. DESCRIPTION OF THE ROTARY GATE WITH MOTOR DRIVE UNIT

CAPTION TO THE FIGURES:

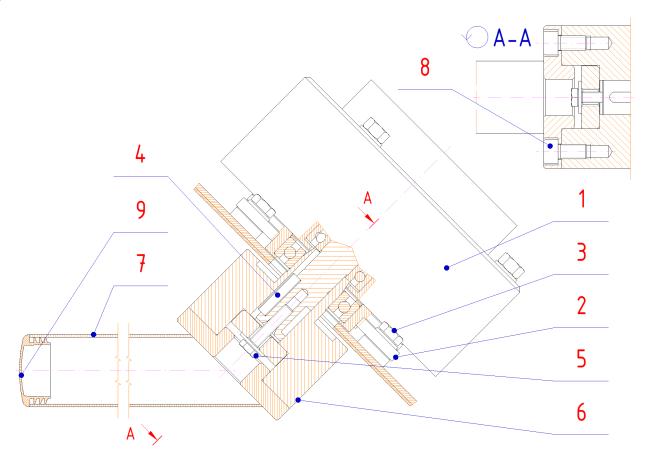
- 1. MDD 168 drive unit with integrated control electronics
- 2. Mounting plate of the drive
- 3. M8x16 bolt with a washer for attaching the drive into the turnstile cabinet
- 4. 6x6x28 key on the drive shaft
- 5. M6x30 bolt with a washer for attaching the head of the rotary gate onto the drive shaft
- 6. Head of the rotary gate
- 7. Bar arm of the rotary gate
- 8. M8x16 bolt for attaching the bar arm on the head of the rotary gate
- 9. Plastic cover on the bar arm of the rotary gate
- 10. Plastic cover on the head of the rotary gate

3.3.1. Rotary gate - Standard





3.3.2. Rotary gate - Gate with a straight bar arm



3.3.3. Assembling the rotary gate

- Slide the head of the rotary gate (pos.6) onto the drive shaft (pos.1) and push it all the way to the stop position at the inner drive bearing.
- Secure the head of the rotary gate with the M6x30 bolt with a washer (pos.5). There is a layer of adhesive applied on the bolt by the manufacturer. You will identify the correct bolt by a visible red layer of the adhesive.
- In case of a standard head of the rotary gate, install the plastic cover (pos.10) on the bolt hole.
- In case of a GATE with the straight bar arm, screw the bar arm of the rotary gate (pos.7) to the head using two M8x16 bolts (pos.8).



ALWAYS USE A BOLT WITH ADHESIVE APPLIED BY MANUFACTURER TO ATTACH THE HEAD OF THE ROTARY GATE. REPLACE THE BOLT WITH ADHESIVE FOR A NEW ONE WITH EACH DISASSEMBLY OF THE ROTARY GATE.



Before mounting the head of the rotary gate (pos.6) on the drive shaft (pos.1), thoroughly clean the shaft and grease it with Vaseline.



3.3.4. Dismantling the rotary gate

- In case of a standard head, first remove the plastic cover (pos.10) covering the bolt hole.
- In case of a GATE with the straight bar arm, first remove the two M8x16 bolts (pos.8) and remove the bar arm of the rotary gate (pos.7) from the head (pos.6).
- Remove the M6x30 bolt with the washer (pos.5).
- Screw the M10 high strength bolt (pos.11) with minimal length of 30mm, into the bolt hole (pos.5).
- By slowly tightening the bolt (pos.11) while tapping the head of this bolt we remove the head from the rotary gate (pos.6) from the drive shaft (pos.1).



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
- 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

- 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
- Access Light see manual: Access Light
- Lane Light see manual: Lane Light
- 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. 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 under the turnstile legs. 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 2 workers is essential for observing the accuracy.

- 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. Depending on undulation of the floor, underlay the turnstile 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.

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 supply and control cables through the feet of the turnstile to the terminal board in the turnstile cabinet.
- 5. Anchor the turnstile to the floor by M8 anchoring bolts.
- 6. Check the verticality of the turnstile.
- 7. Perform the electrical connection in compliance with the chapter *Electrical connection of the turnstile*.
- 8. The BAR-ONE-Tripod turnstile is delivered with dismounted rotary gate. Clean and grease the motor drive unit shaft. Slide the head of the rotary gate onto the motor drive unit shaft and secure it by tightening the M6x30 bolt over its washer. It is necessary to use a bolt with beforehand applied adhesive provided by the turnstile manufacturer (see the chapter *Description of the Rotary Gate with Motor Drive Unit*).
- 9. Put the turnstile into operation according to the chapter *Putting the turnstile into operation*.
- 10. Install all the removed covers.
- 11. At the end of the installation, completely clean the turnstile and the external stainless-steel surfaces with specified agent.



4. ELECTRICAL CONNECTION OF THE TURNSTILE



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

4.1. CONNECTING THE POWER SUPPLY



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

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



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

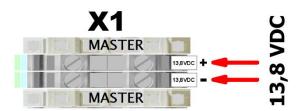
The turnstile is made in three variants of power supply - 13.8VDC, 24VAC, 230VAC.



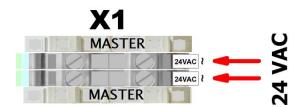
BEFORE CONNECTING THE POWER SUPPLY CABLE, IT IS NECESSARY TO CHECK IF THE SUPPLY VOLTAGE VALUE CORRESPONDS WITH THE VALUE OF THE NOMINAL VOLTAGE ON THE PRODUCTION LABEL AND ADHERE TO THE LISTED POLARITY.

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

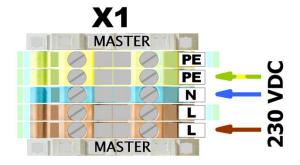
Connect the supply voltage to the X1 terminal according to following figures



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



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



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

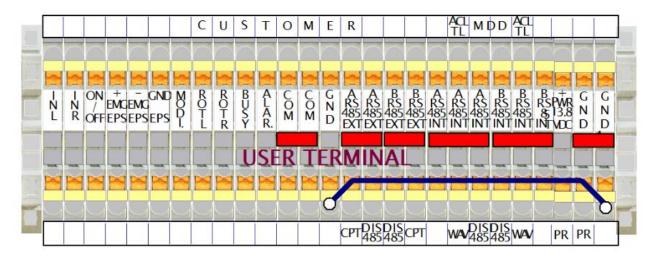


4.2. CONNECTING THE SUPERIOR CONTROL SYSTEM OF THE TURNSTILE

• All the input and output control signals are leading to the XU user terminal in the turnstile.

User terminal XU:

USER EXT. CONNECTION



MLU INT. CONNECTION

• When performing the connection, follow the *Description of the turnstile connection* chapter.



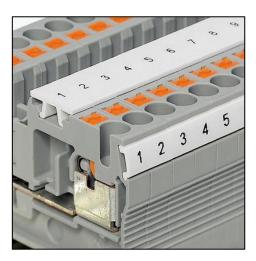
4.3. DESCRIPTION OF CONNECTION OF TERMINAL BOXES AND CRIMP CONNECTORS



- 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.

Serial Phoenix terminal box with flexible push-in clamps:

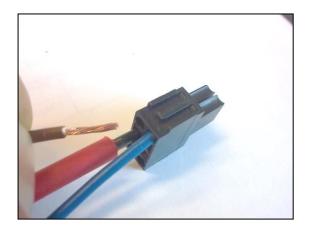
- Usage: Terminals X1, X2, XU.
- The clamp enables direct insertion of rigid wires and wires with hollow pin connectors without additional tools.
- When connecting the stranded wires without the hollow pin connector or disconnecting the wires, you can open the clamp by pressing the orange button with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

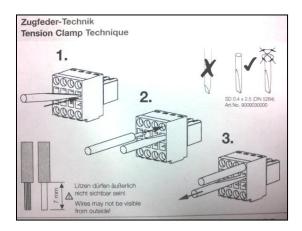




Weidmüller connector with flexible clamps:

- Usage: MLU5, Wavplayer, 485 D1 distributor. (interconnecting the 485 communication line).
- The clamp is opened by inserting the 2.5x75 slot screwdriver into the lock as shown on the figure.
- The screwdriver must be used when connecting and disconnecting wires.



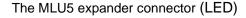


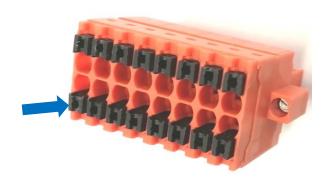


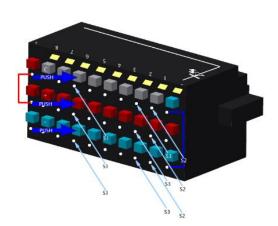
Weidmüller connector with flexible push-in clamps:

- Usage: MDD168 drive, MLU5 expander (connecting the sensors for climbing over and crawling under).
- 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 button with any tool according to the arrow on the figure.

The MDD168 drive unit connector

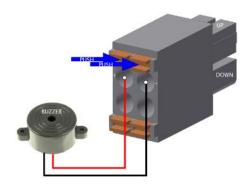






Phoenix connector with flexible push-in clamps:

- Usage: MLU5 (connecting the buzzer for turnstile equipped with sensors for climbing over and crawling under).
- 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 by the arrows on the figure.





5. PUTTING THE TURNSTILE INTO OPERATION



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

5.1. CHECKING THE TURNSTILE BEFORE PUTTING IT INTO OPERATION

- 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, the gate will turn into its home position after connection of power supply. If the gate does not turn into the home position, follow the steps in the *Troubleshooting* chapter.

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
 - o green power LED is on
- MLU5 control electronics
 - o green power LED is on
- Supercapacitors (SUPERCAP)
 - o green power LED is on
- Sensors for climbing over and crawling under
 - o There are sensors connected to the LED lights inputs on the MLU5 electronics expander
 - when the individual sensors get covered, respective LED's will turn off
 - when covering the left sensor for climbing over, the LED of input nr.1 will turn off
 - when covering the right sensor for climbing over, the LED of input nr.2 will turn off
 - when covering the sensor for crawling under, the LED of input nr.6 will turn off

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



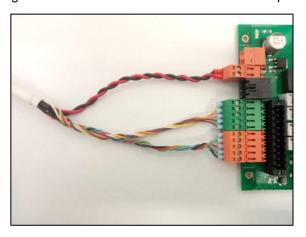
Your turnstile may not be equipped with above mentioned features, based on the type of your turnstile and its optional accessories.



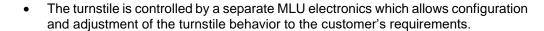
4.4. TESTING ALL THE TURNSTILE FUNCTIONS WITH TURNSTILE TESTER



- Before connecting the superior system, we verify all the turnstile functions using the *Turnstile Tester* control panel.
- Perform the test according to the chapter Description of controlling the turnstile by status signals.
- Remove the connectors from the MLU electronics and connect the control panel connectors according to the colours on below figure:
- Usage of the *Turnstile Tester* is described in a separate manual.



5.5. ADJUSTING 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.

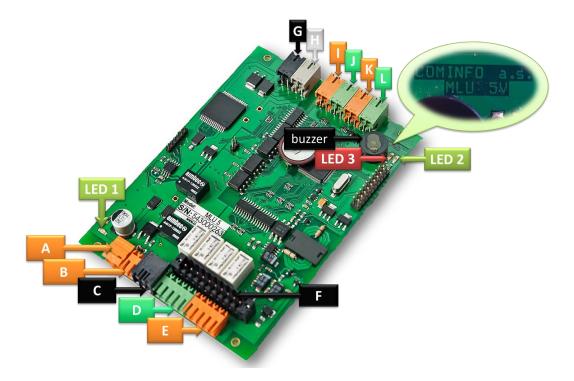
We recommend to print out the parameters after the adjustment and have it signed by the customer. The customer is then responsible for any incidents.



6. DESCRIPTION OF THE TURNSTILE CONNECTION

6.1. DESCRIPTION OF CONNECTION OF THE MLU5 CONTROL ELECTRONICS

- The control electronics is designed for universal controlling of all COMINFO turnstiles.
- Only connectors necessary to control the BAR ONE turnstile are connected to the electronics.
- No other connectors or wires shall be connected to the electronics.



Description of connectors used on the BAR ONE turnstile:

- Connector A power supply 13.8VDC
- Connector C communication lines RS485 (internal + external)
- Connector D input control signals
- Connector E output control signals
- Connector F connector of MLU5 expander for connecting the sensors for climbing over and crawling under
- Connector H BUZZ buzzer ¹)
- The BUZZ buzzer serves for acoustic alarm signalization when attempt for unauthorized passage occurs.

The buzzer is standardly included in turnstiles equipped with sensors for climbing over and crawling under.

Description of signaling LEDs:

- LED 1 signaling of connection of power supply voltage (green)
- LED 2 signaling of statuses (green) not used for BAR-ONE type turnstile
- LED 3 signaling of error states (red)



6.2. POTENTIAL OF CONTROL SIGNALS

6.2.1. Potential of input control signals

All the input control signals (except the EMGI signal) are activated / deactivated by connecting to the GND potential (-13.8 VDC) of the electronics power supply.



The input control signals must have no external potential. If the superior system uses its potential, it is necessary to separate the potentials by a relay.

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

6.2.2. Potential of output control signals

Output control signals are resolved through a switching relay.

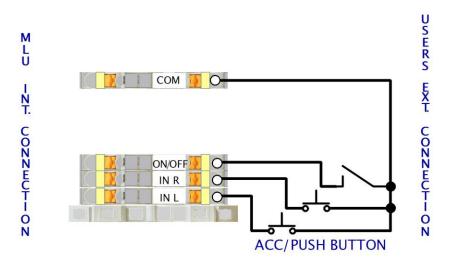
All relay outputs are put to the same COM potential.



Out of the factory, the COM output potential is interconnected with the GND input potential (-13.8VDC) of the electronics power supply. In case the inputs of the superior system use their potential, it is necessary to cancel the connection.

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

6.3. CONNECTING A SIMPLE CONTROLER WITH EXTERNAL BUTTONS WITHOUT A SUPERIOR SYSTEM



- The control signals are connected to the **XU** terminal.
- When controlling by the signals on the INL and INR inputs, the ON/OFF input must be activated.
- If the turnstile shutdown function will not be used, the ON/OFF input shall be permanently interconnected with the COM terminal.
- If you require the turnstile to be permanently open in one direction, the IN or INR input shall be permanently interconnected with the GND terminal.
- If only a temporary permanent release is required, rotary knobs are used in addition to the buttons.

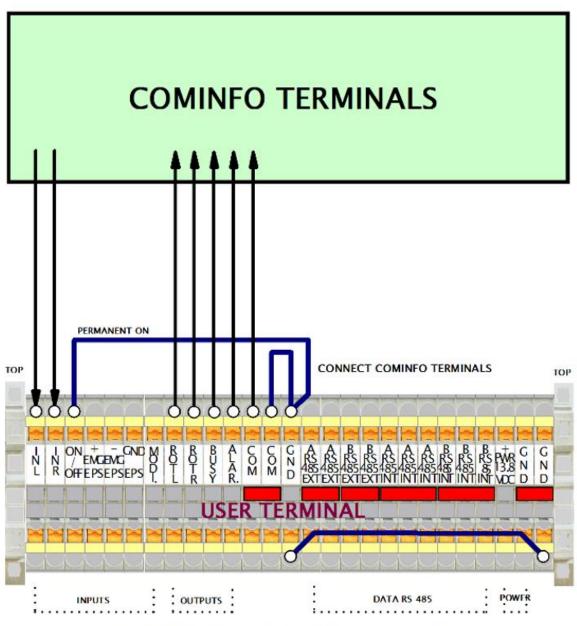


6.4. CONNECTION FOR CONTROLING WITH SUPERIOR SYSTEM FROM COMINFO



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



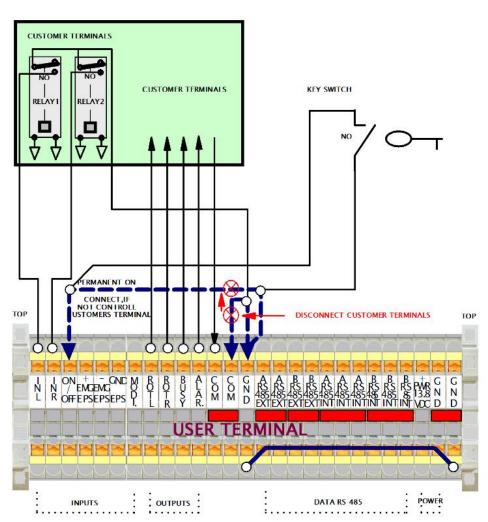
6.5. CONNECTION FOR CONTROLING WITH SUPERIOR SYSTEM FROM THIRD-PARTY MANUFACTURERS



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

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

CUSTOMERS



MLU INT. CONNECTION



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.)

6.6.1. Connecting the EMGI module



The EMERGENCY function is connected using the EMGI module.

The module enables connection of all generally used signals of the FIRE(EPS) systems:

- FIRE (EPS) signal NC type contact, potential-free
- FIRE (EPS) signal NO type contact, potential-free
- FIRE (EPS) signal NC type contact, 24VDC potential
- FIRE (EPS) signal NO type contact, 24VDC potential

Module adjustment:

- The potential-free or powered signal is set with the jumper on the EMGI module.
 - Potential-free jumper in position CONTACT (factory setting).
 - Powered jumper in position VOLTAGE.
- The contact type is selected by reconnecting the input nr.2 of the MLU5 electronics to the respective terminal on the EMGI module.
 - o The NC type contact is selected by reconnecting to the terminal nr.6 on the EMGI module.
 - The NO type contact is selected by reconnecting to the terminal nr.7 on the EMGI module (factory setting).

Connecting the FIRE (EPS) signal:

- The FIRE (EPS) signal is connected to the user terminal XU.
 - o The potential-free signal is connected to the EMGI GND and EPS EMGI terminals
 - The powered signal is connected to the EPS EMGI + and EPS EMGI terminals

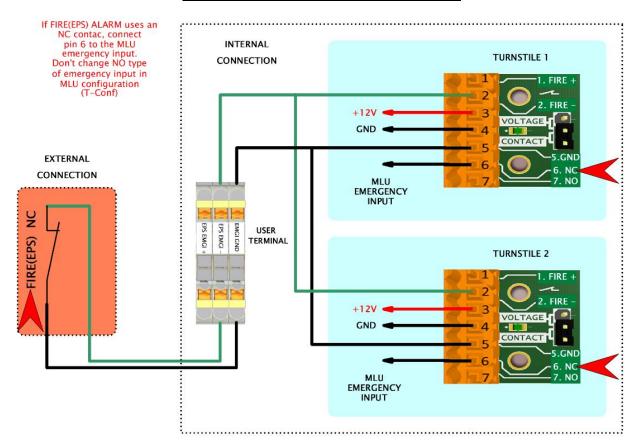


When connecting the powered signal, it is important to adhere to correct polarity.

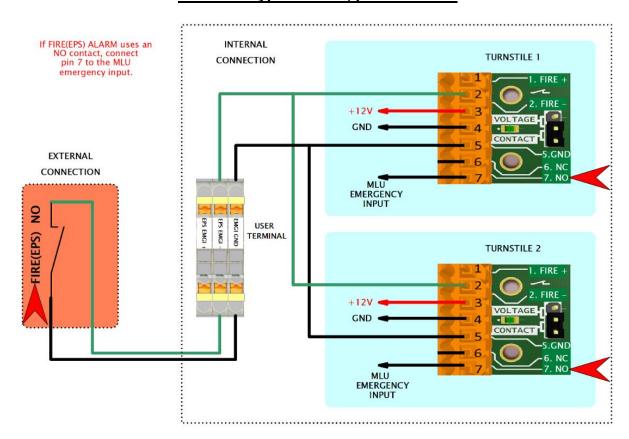
All wiring options and settings of the EMGI module are described in the following diagrams:



EPS - NC type contact, potential-free

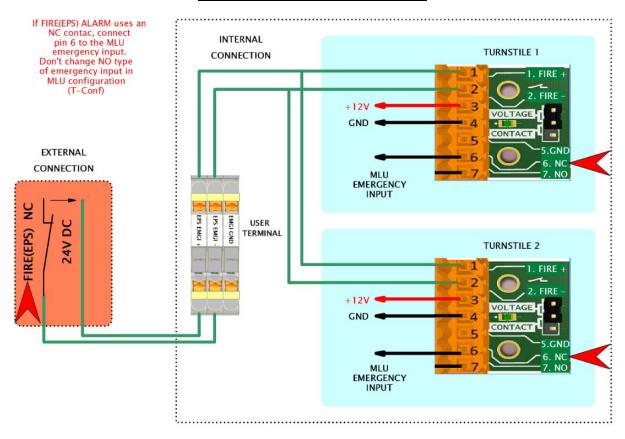


EPS - NO type contact, potential-free

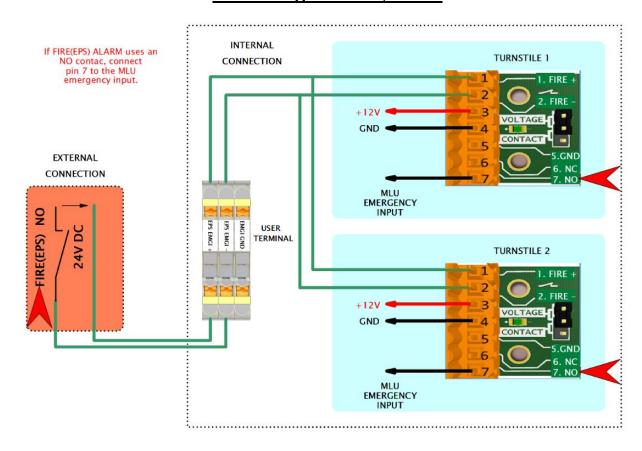




EPS - NC type contact, 24VDC



EPS - NO type contact, 24VDC

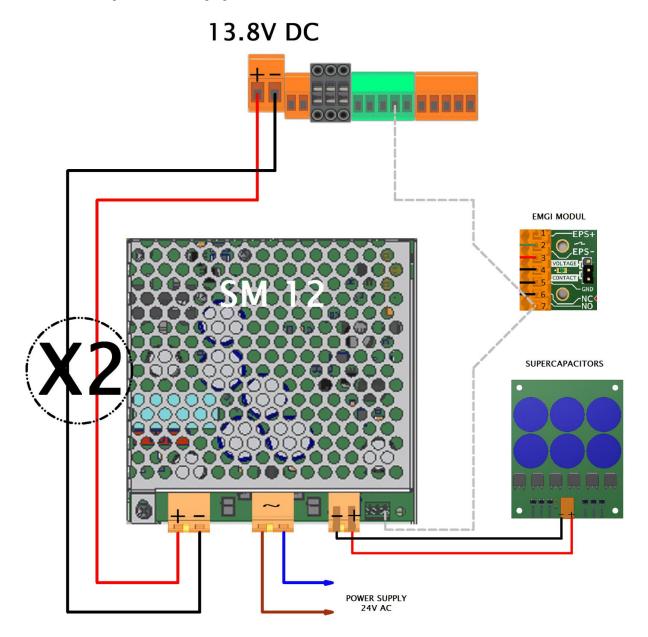




6.6.2. Connection for activation of the EMERGENCY in case of loss of power voltage

CONNECTION WITH A COMINFO SM12 BACKUP POWER SUPPLY:

- For this function the turnstile has to be equipped with supercapacitors.
- The SM12 backup power supply has an output that is activated when switching to the backup power supply.
- The output O1 of the SM12 backup power supply is connected to the EMGI module terminal nr.7, according to the following figure.



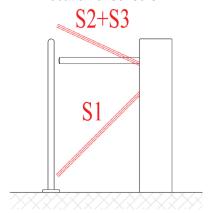
CONNECTION WITH BACKUP POWER SUPPLIES BY A THIRD-PARTY MANUFACTURERS:

 Connection with third-party power supplies is only possible after consultation with the COMINFO Technical Support.



6.7. CONNECTING THE SENSORS FOR CLIMBING OVER AND CRAWLING UNDER

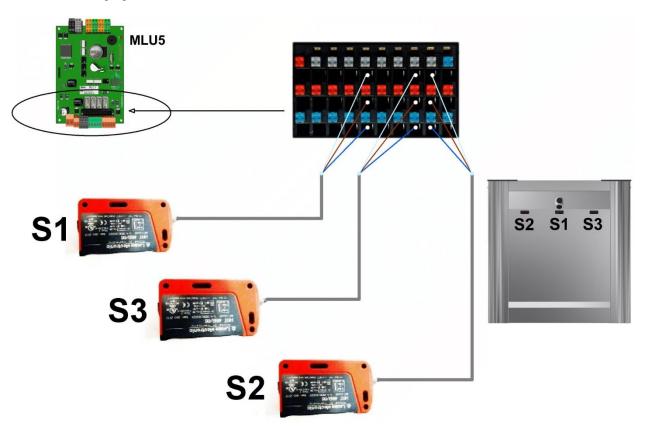
- These sensors detect a person who crawls under or climbs over the rotary gate of the turnstile.
- Location of sensors:



S1 – Sensor for crawling under the turnstile

S2+S3 – Sensors for climbing over the turnstile

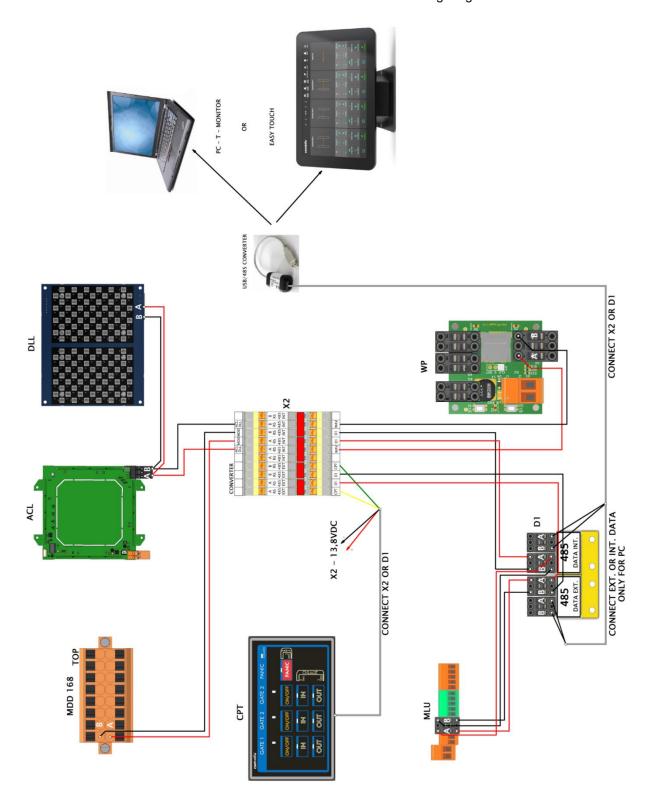
• The sensors are connected to the connector of MLU5 electronics expander according to the following figure.





6.8. CONNECTION OF 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.
- Connection of the communication lines is shown on the following diagram.





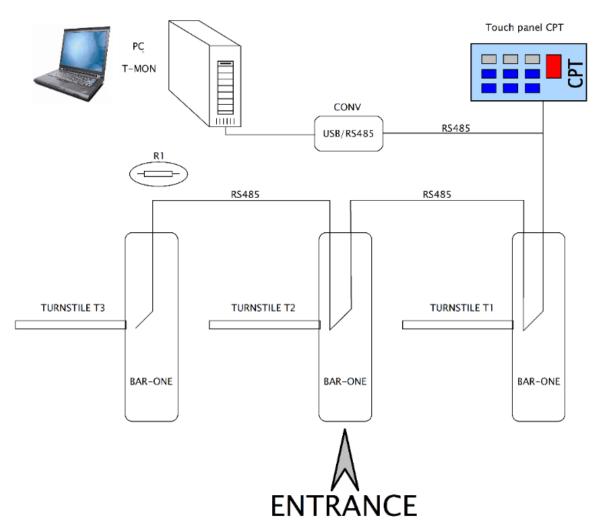
6.8.1. Connection of the internal communication line DATA INT.

- The internal communication line is used to connect internal devices according to chapter *Basic* principle of the turnstile control, which is always done by the manufacturer.
- The internal communication line of internal devices is connected through the XU terminal.

6.8.2. Connection of the external communication line DATA EXT.

- The external communication line is used to connect turnstile controls according to chapter *Basic* principle of the turnstile control, which are connected during installation.
- The external communication line of the turnstile control device is connected through the XU terminal.

Connection of terminating resistor of external communication line RS485:



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



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

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

In case of the external Touch Panel device, always connect the shielding to the MLU5 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.

6.8.3. Connecting the computer during configuration

- The 485 D1 distributor divided to internal and external line is used to connect the computer during configuration.
- The internal communication line is used to connect the computer with T-CONF application when configuring the MDD drive unit.
- The external communication line is used to connect the computer with T-CONF application when configuring the Touch panel.
- The computer is connected via the RS485-USB converter.



To connect 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 external RS485 communication line to an accessible place outside the turnstile. In this case, the connection is done through the XU terminal.



7. BASIC PRINCIPLE OF THE TURNSTILE CONTROL

7.1. TURNSTILE MLU5 CONTROL ELECTRONICS



All of the turnstile functions are controlled by the MLU5 electronics. Controlling is done simultaneously through status signals and two communication lines 485.

7.1.1. Controlling by status signals

Controlling by status signals is used with all superior systems by third-party manufacturers

- The MLU5 electronics receives and processes input control signals from the superior system.
- The MLU5 electronics sends the turnstile output control status signals to the superior system.
- It controls the execution of the EMERGENCY function based on the signal from the fire alarm system.

7.1.2. Controlling by the external communication line RS485 DATA EXT.

Controlling by the external communication line is used only when you need to control the turnstile remotely by products supplied by the manufacturer COMINFO:

- Touch Panel
- Easy Touch
- o T-MON

7.1.3. Controlling by the internal communication line RS485 DATA INT.

The MLU5 electronics controls the following devices through the internal communication line 485:

- o MDD drive unit
- Access Light
- o Lane Light -Direction
- Digital Lane Light Direction
- o Wav player



The internal communication line is also used to connect the computer with T-CONF application for configuring the MDD drive unit.

7.2. THE MDD168 DRIVE UNIT ELECTRONICS



The MDD drive unit electronics is subordinate to the MLU5 control electronics of the turnstile.

Controlling is done through the internal communication line 485.

The drive unit electronics performs following functions:

- Controls the electronic commutation of the motor
- Switches the electromagnetic brake of the drive
- Sends the information about status and position of the rotary gate of the turnstile to the MLU5 electronics



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



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



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.

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

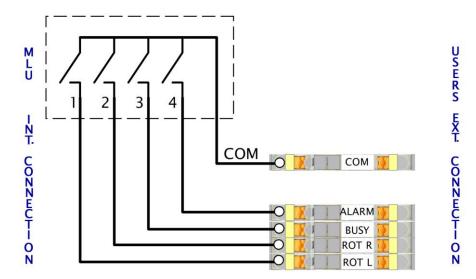
Permanent release mode in one direction can be preset in three ways:

- 1. By connecting proper INL or INR input based on the requirement for GND.
- 2. Using the control panel Touch panel or Easy Touch (see separate manuals).
- 3. Using the TMON 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



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



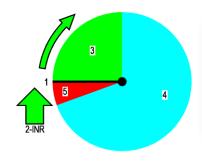
Maximum load of individual outputs is 30VDC / 0.5A.

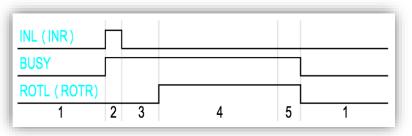
8.2.2. Lengths of output control signals:

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



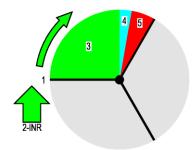
8.3. PASSAGE SIGNALS TIMING DIAGRAMS

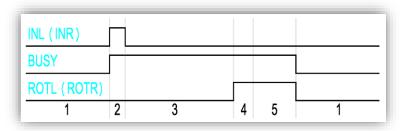




- 1. Home position device is waiting for passage permission (INL, INR input activation)
- 2. Input activation passage permitted
- 3. Phase of the passage person in the corridor
- 4. Counting of passing person
- 5. Phase of finishing to the home position (complete 360° rotation)

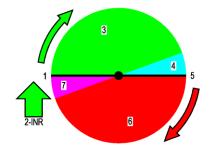
8.3.1. Timing diagram - BAR-ONE-Tripod

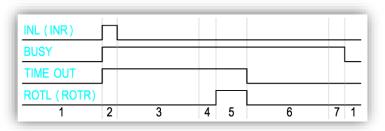




- 1. Home position device is waiting for passage permission (INL, INR input activation)
- 2. Input activation passage permitted
- 3. Phase of the passage person in the corridor
- 4. Counting of passing person
- 5. Phase of finishing to the home position (complete 120° rotation)

8.3.2. Timing diagram - BAR-ONE-Gate





- 1. Home position device is waiting for passage permission (INL, INR input activation)
- 2. Input activation passage permitted
- 3. Opening of the turnstile phase
- 4. Turnstile slowly finishing to open position phase
- 5. Turnstile in open position (180° rotation) the device is waiting for the Time-out finish
- 6. Closing of the turnstile phase
- 7. Phase of finishing to the home position (complete 360° rotation)



9. DESRIPTION OF REMOTE CONTROLING OF THE TURNSTILE



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

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

9.1. CONTROLLING THE TURNSTILE BY THE TOUCH PANEL

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





9.2. CONTROLLING THE TURNSTILE BY THE EASY TOUCH PANEL

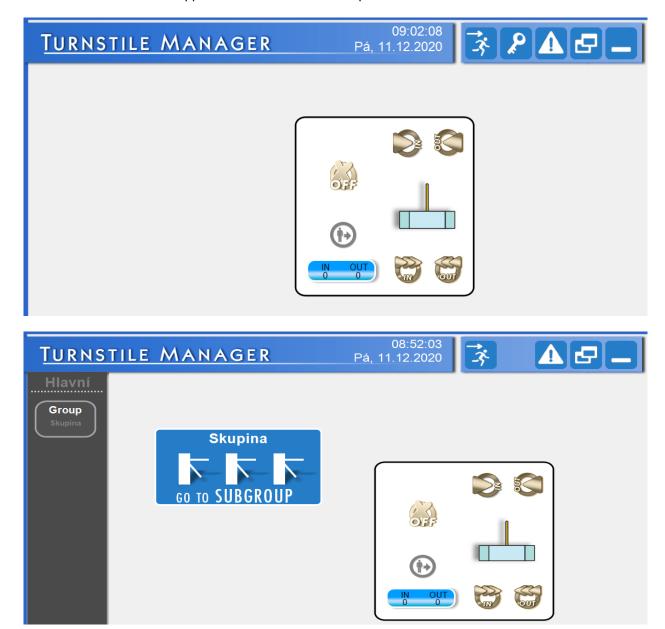
- It is a comfortable control panel with a touch screen and plenty of functions.
- You can control up to 30 turnstiles with one EASY TOUCH.
- Computer is not needed for setting the EASY TOUCH it is done directly on the touch screen.
- Connection and setting of the EASY TOUCH is described in a separate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





9.3. CONTROLLING THE TURNSTILE BY T-MONITOR APPLICATION

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





10. TURNSTILE POWER SUPPLY



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

10.1. CONNECTION OF EXTERNAL 13.8VDC POWER SUPPLY

- The manufacturer does not recommend to power the turnstile by an external 13.8V power supply due to voltage drop.
- Using 13.8V is only acceptable for protection against electric shock in areas that require
 it.
- When powering the turnstile by an external 13.8V power supply, it must meet following conditions:



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

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

THE POWER SUPPLY MUST HAVE OVERLOAD PROTECTION, BY LIMITING THE CURRENT (NOT BY SHUTTING DOWN THE LOAD)

• The cross-section of the power supply cables, depending on their length, must be chosen so the voltage will not drop below 13V during maximal power consumption of the turnstile, while the power supply is powered from mains.



WE RECOMMEND TO CONSULT THE MAUFACTURER COMINFO WHEN USING THE 13.8V EXTERNAL POWER SUPPLY

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

 The turnstile may be delivered in a version for 24VAC external power supply (transformer 230VAC/24VAC) placed outside of the turnstile.



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

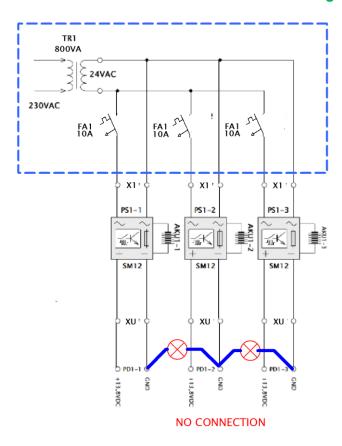
THE TRANSFORMER MUST BE DIMENSIONED ACCORDING TO THE CHAPTER CURRENT CONSUMPTION OF THE TURNSTILE.

EACH TURNSTILE MUST HAVE ITS SEPARATE CIRCUIT BREAKER, DESCRIBED IN THE FOLLOWING CHAPTERS

- 24VAC from the external power supply is connected to the main turnstile terminal X1.
- Connection of the power supply circuit breaker elements and connection of the turnstile control must unconditionally meet the conditions described in the following chapters.







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



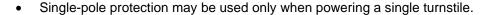
In case of single-pole protection, power sources may not be set under the same GND potential.

When a single-pole is shut down, the turnstile is still powered from power supplies.

When a single-pole is shut down, the turnstile is still powered from power supplies of other turnstiles through common GND potential.

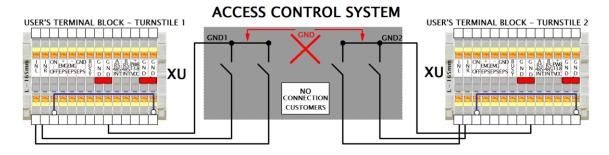
The failure of one turnstile can cause the failure of all turnstiles

ilure of one turnstile can cause the failure of all turnstile that are connected to a common GND potential.



- When powering multiple turnstiles from one transformer, common GND potential must not be used for control.
- 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.

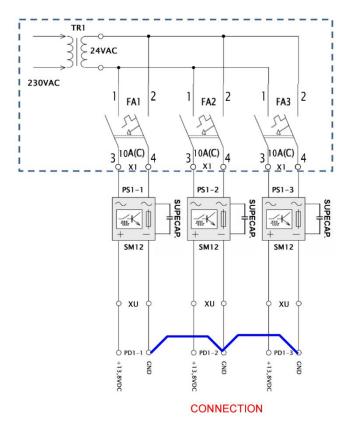












In case of a failure, both poles of SM12 power supply will disconnect and the turnstile will be completely disconnected from the common supply transformer.

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

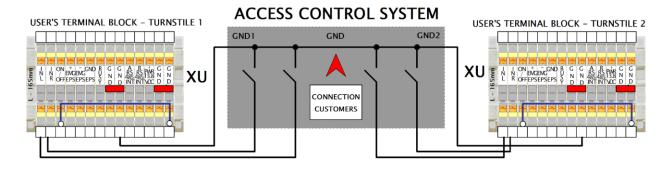
• It is necessary to use double-pole protection when powering multiple turnstiles from one transformer while controlling with common GND potential.



IN CASE OF DOUBLE-POLE PROTECTION YOU CANNOT USE TWO SINGLE-MODULE CIRCUIT BREAKERS

Two interconnected double-module circuit breakers must be used, which will ensure that when one
of them is shut down, the other will be shut down as well.

Example of connection of superior system with common GND potential:

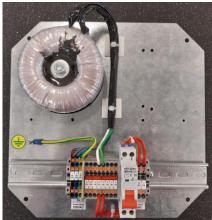




10.2.3. External 230VAC/24VAC power supplies provided by the manufacturer COMINFO

- COMINFO provides custom-made 230VAC/24VAC power supplies TRAFOCASE.
- The power supplies are installed in an IP67 plastic box and are designed for installation into a turnstile or a set of turnstiles.
- They contain a high-quality 230VAC/24VAC toroidal transformer of the required power.
- When you are powering two and more turnstiles, the power supplies are equipped with a SOFT START MODULE that ensures problem-free connection to the mains by limiting the current surge on initiation.
- The power supplies are equipped by a single-module double-pole DPC type circuit breakers and a connection terminal.
- Following figures show the baseplates of standard TRAFOCASE power supplies.

TRAFOCASE 200VA - 1 turnstile



TRAFOCASE 800VA - 4 turnstiles



TRAFOCASE 400VA - 2 turnstiles



TRAFOCASE 1200VA - 6 turnstiles





When powering multiple turnstiles by one power supply, the manufacturer recommends to use exclusively the TRAFOCASE power supplies by COMINFO.



When using TRAFOCASE, the manufacturer guarantees trouble-free operation not only in terms of the protection system, but also in terms of circuit breaker selectivity, dimensioning of supply cables and transformer.

Incorrectly designed power supplies including protection and dimensioning are the most frequent cause of problems during the installation of the turnstiles and putting them into full operation mode.

The subsequent cost of troubleshooting and removing malfunctions is several times more expensive than using high-quality and properly designed TRAFOCASE units.



10.3. BASIC PRINCIPLE OF EXTERNAL 230VAC MAINS POWER SUPPLY CONNECTION



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

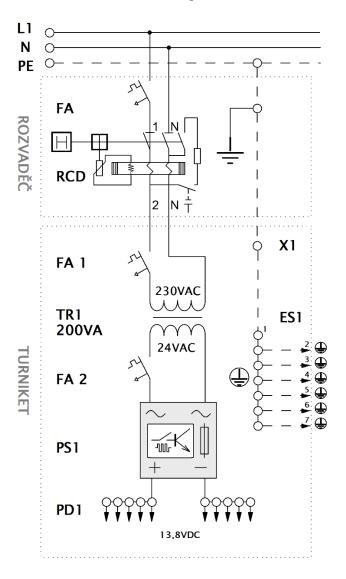
Examples of regulations for select countries:

- 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 IAN=0,03A AND A CIRCUIT BREAKER FOR PROTECTION FROM INJURY BY THE ELECTRIC CURRENT.

Circuit diagram:





10.4. POWER INPUT OF THE TURNSTILE

Table of maximum power input values during the operation of BAR ONE ADVANCED turnstile without optional accessories

Process	POWER INPUT [VA]	Note For one passage (one drive unit) Locked in home position Unlocked in home position	
Maximum consumption during a passage through the turnstile	210	For one passage (one drive unit)	
Idle state of a Unipod and Gate turnstile versions	21	Locked in home position	
Idle state of a Tripod turnstile version	1.8	Unlocked in home position	

Table of power input increase with optional accessories:

Optional accessories	Power input [VA]	Note
Access Light 1)	+5.5	Permanently (for 1pc of Access Light)
Lane Light (with two segments) 2)	+5.5	Permanently (for 1pc of Lane Light)
Sensors for climbing over and crawling under	+1.7	Total consumption of all three sensors
Touch Panel	+0.3	Controls up to 4 turnstiles and is powered from only one

¹⁾ The Access Light may be installed either only for one passage direction (1 piece) or for both passage directions (2 pieces).

²) The Lane Light may be installed either only for one passage direction (1 piece) or for both passage directions (2 pieces).



COMPLETE WIRING DIAGRAM



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

11.1. CAPTIONS TO THE DIAGRAMS

BASIC ELEMENTS

MLU5 - MLU5 control electronics

DIS.RS485 - Distributor RS485

EMGI - Electronics for the EMERGENCY signal evaluation (Emergency Input)
 MDD168 - Connector for the MDD 168 drive unit with integrated control electronics
 ELZAT - 230V/24V - 200VA toroidal transformer located inside the turnstile

TRAFO - 24VAC external power transformer

X1 - 13.8 VDC, 24VAC or 230VAC main power terminal

X2 - Internal connection terminal
XU - User connection terminal
PE - Turnstile earthing terminal

FA1 - A double-pole DPC circuit breaker with 24VAC power supply

- A single-pole circuit breaker with 230VAC power supply

SM12 - SM12 (24VAC/13.8VDC) power supply

BOX IP65 (COVER) - Plastic boxes of required protection level for the outdoor version of the turnstile

EQUIPMENT

BUZZ - Buzzer - acoustic alarm signalization

SUPERCAP - Supercapacitors for SM12
ACL101 - Access Light for the IN direction
ACL102 - Access Light for the OUT direction
TL103 - Lane Light for the IN direction
TL104 - Lane Light for the OUT direction

EXPANDER - Expander for the sensors for climbing over and crawling under

S1 - Sensor for crawling under S2 / S3 - Sensors for climbing over

EXTRA EQUIPMENT

REA - Electronics of the COMINFO access system

RFID - Identification cards reader WAV PLAYER - Sound signalization module

EXI - RFID sensor for the collector of visitor cards

SPEAKER - Speakers for the player equipment

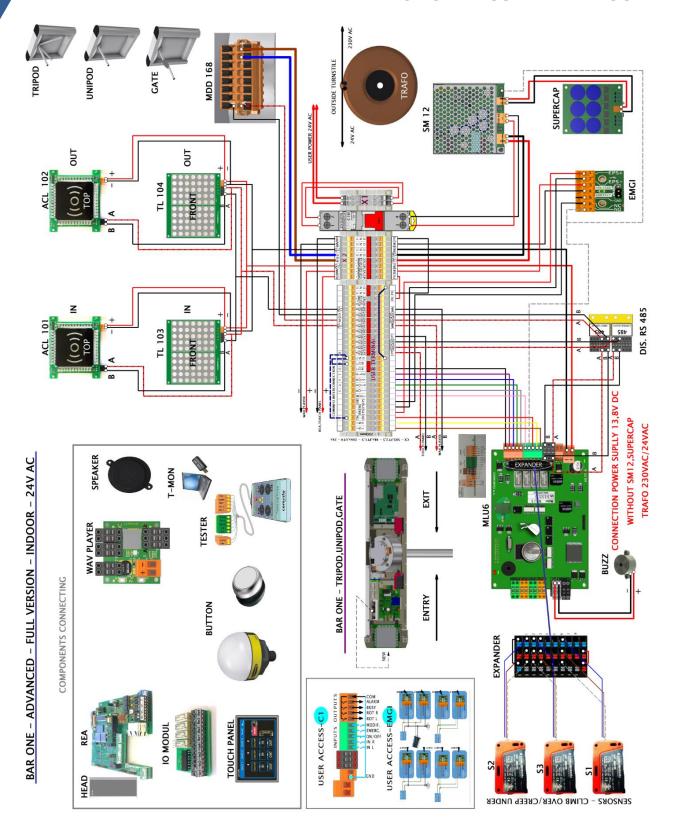
IO MODUL - Module for increasing the number of input and output signals

BUTTON - Special control elements

TESTER - The device for testing the turnstile - Turnstile tester

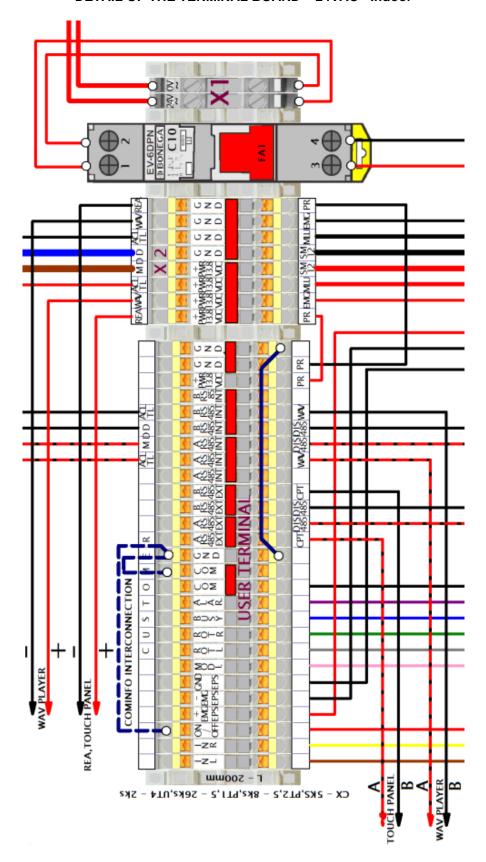


11.2. 24VAC POWER SUPPLY - INDOOR



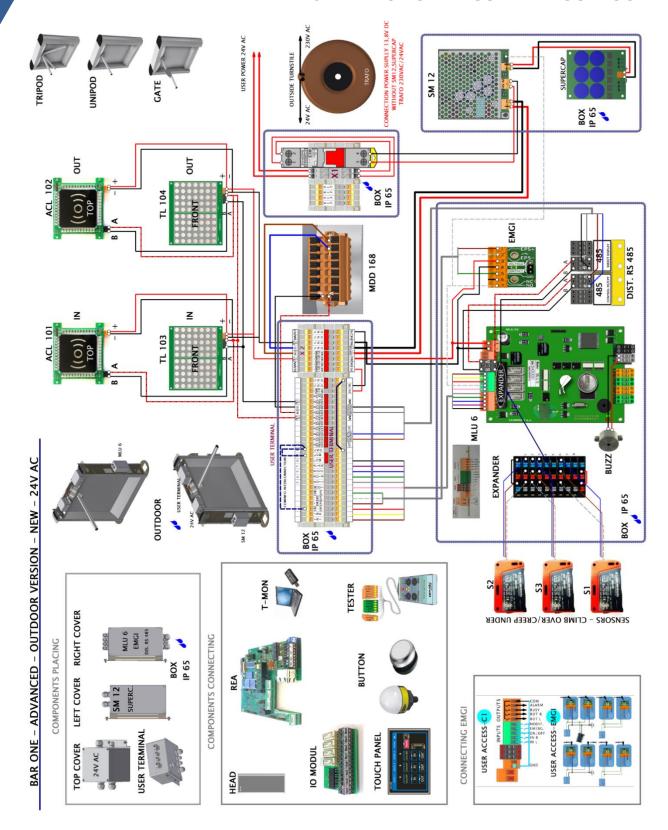


DETAIL OF THE TERMINAL BOARD - 24VAC - Indoor



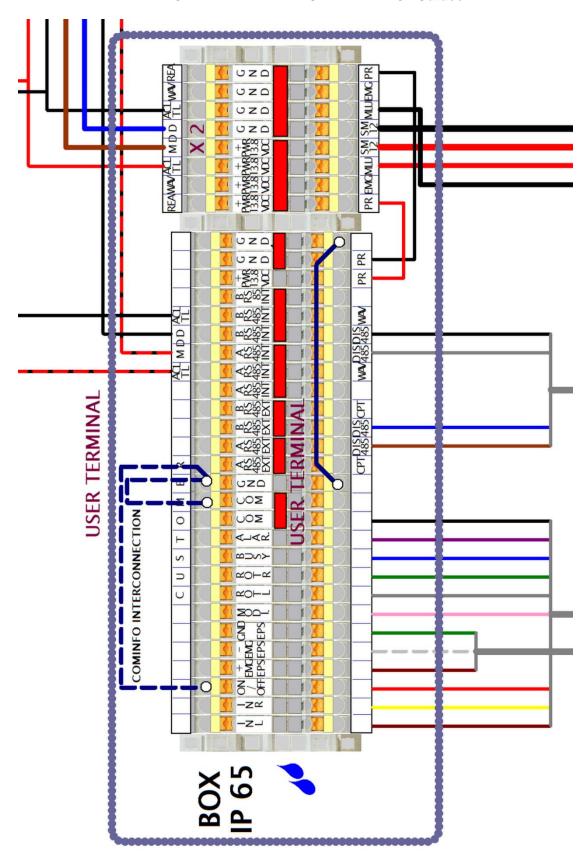


11.3. 24VAC POWER SUPPLY - OUTDOOR



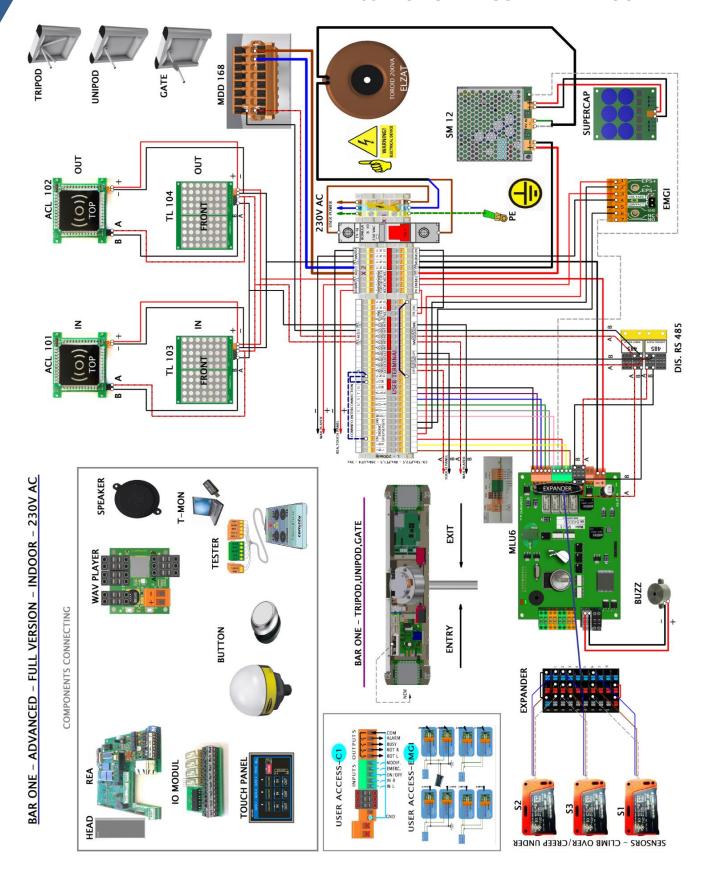


DETAIL OF THE TERMINAL BOARD - 24VAC - Outdoor



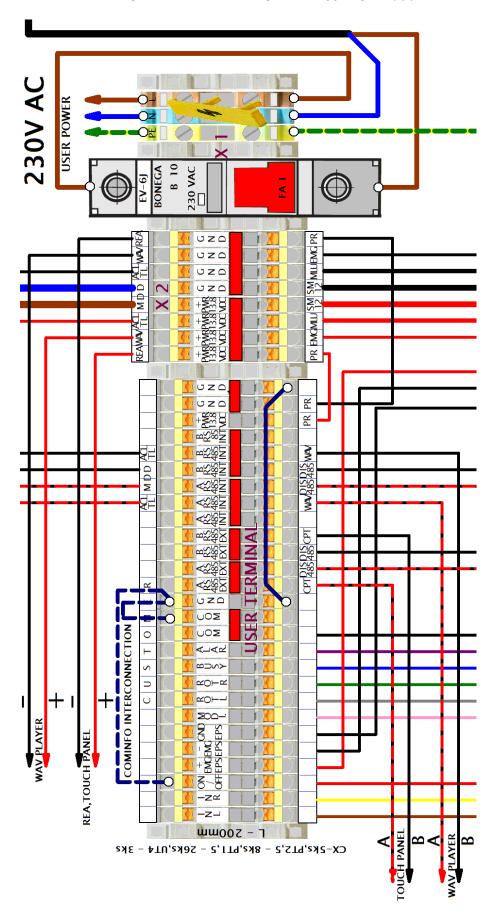


11.4. 230VAC POWER SUPPLY - INDOOR



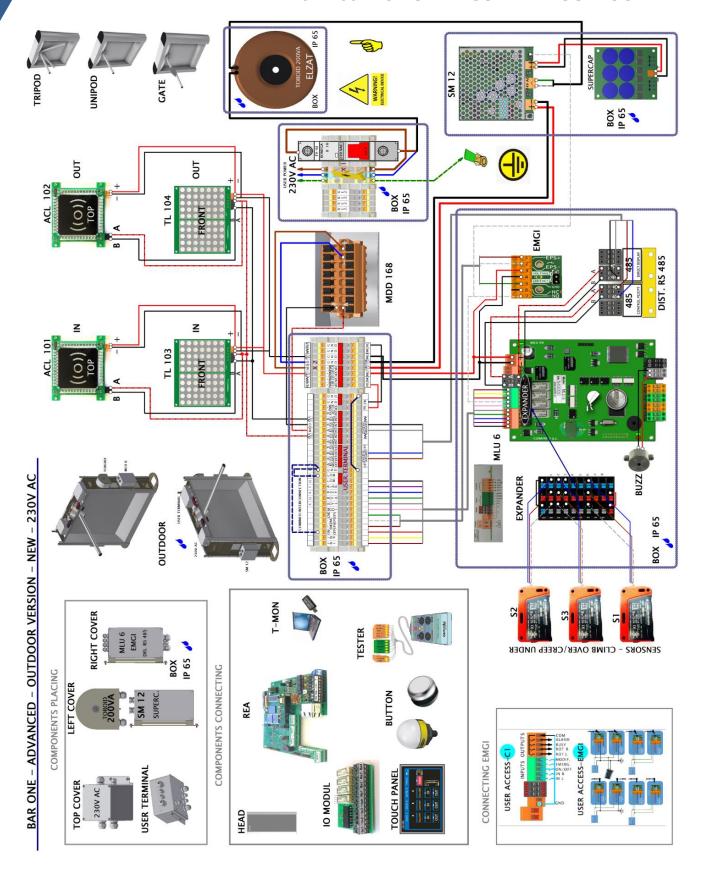


DETAIL OF THE TERMINAL BOARD - 230VAC - Indoor



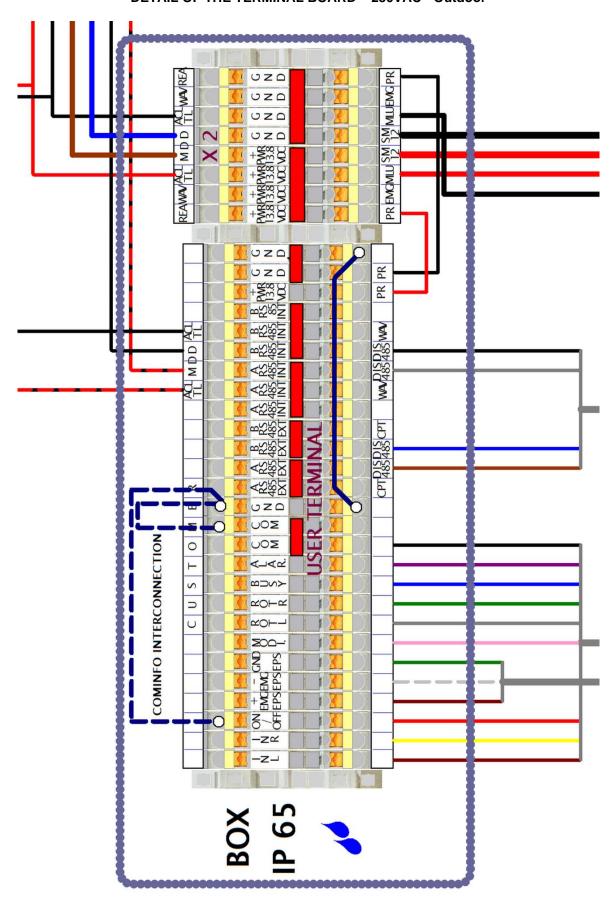


11.5. 230VAC POWER SUPPLY - OUTDOOR





DETAIL OF THE TERMINAL BOARD - 230VAC - Outdoor





12. TROUBLESHOOTING



Malfunction occurrences and possible causes are described in the *Troubleshooting* section of the operating instructions.

12.1. READJUSTING THE SENSORS FOR CLIMBING OVER AND CRAWLING UNDER

- These sensors detect a person who crawls under or climbs over the bar arm of the turnstile.
- One sensor for crawling under (S1) and two for climbing over (S2 and S3) simultaneously are
 installed in the turnstile.
- The turnstiles use diffusion sensors with 3000mm range and adjustable switching distance.
- During the installation the sensors can be adjusted so that they also detect persons climbing over the guidance barrier edging the turnstile corridor. The barrier must be designed so that its construction doesn't obstruct the path of the adjusted sensor ray.
- It is necessary to remove the sensors from the turnstile for their readjustment. The sensors switching distance adjustment is done with a potentiometer located on the sensor. After adjusting the sensors and remounting them into the turnstile check the correctness of the adjustment. In case of incorrect adjustment, repeat the process.
- We check the switching distance of sensors using blank sheet of A4 paper placed in the path of the beam of sensor we are adjusting.
- The moment when the sensor switches is signaled by the LED on the EXPANDER of the MLU5 electronics according to the chapter *Connecting the sensors for climbing over and crawling under.*

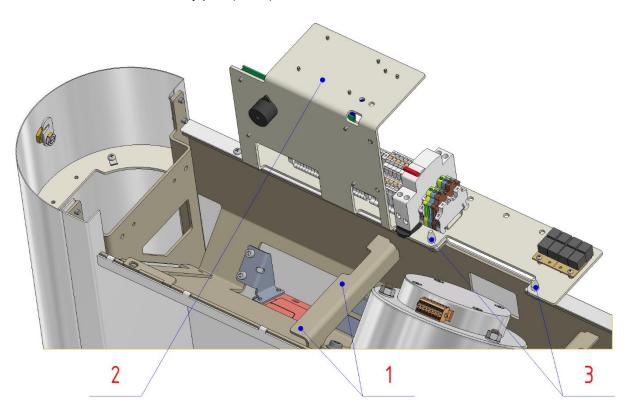


When replacing a faulty sensor, the switching distance of the sensor must be done in a way to prevent switching on by the opposite wall or barrier.

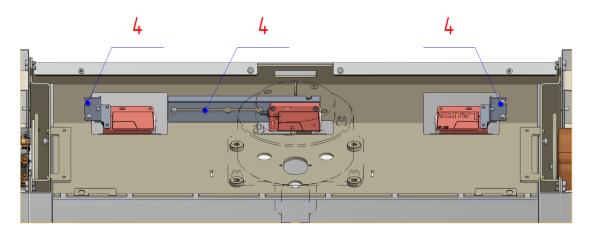


12.1.1. Removing the sensors for climbing over and crawling under

- Remove the top cover according to the chapter *How to access the anchoring holes and motor drive unit with control electronics*.
- In case of a INDOOR version, remove the two M5x12 bolts (Pos.1) and place the plate (Pos.2) with terminals on the auxiliary pins (Pos.3).



- In case of the OUTDOOR design, remove the IP boxes of the power supply terminal X1 and user terminal XU.
- Loosen the six M5x10 bolts (pos.4) and slide the sensors for climbing over and crawling under into position where you will have access to the adjusting potentiometer.





.2. CHECKING ERROR STATES AFTER TURNING ON THE POWER SUPPLY

- Remove the top cover of the turnstile 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 connection of the MLU5 control electronics.

STATE OF THE ELECTRONICS AFTER TURNING ON THE POWER SUPPLY:

(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.				
		4Hz	Firmware is not uploaded (red LED3 flashes at 4Hz)	Upload current version of the firmware after consulting the manufacturer.				
			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.				

12.3. CHECKING THE MDD168 MOTOR DRIVE UNIT

12.3.1. Checking the free rotation of the drive

- Always perform the check with the supply voltage of the turnstile turned off.
- The gate must be very easily and freely rotatable without any sounds of seizing.
- Seizing might occur after extreme stress caused during an attempt for unauthorized passage, or vandalism.
- After extreme stress on the gate, the permanent magnets might shift and cause jamming, or brake may get damaged. If you notice even the slightest jamming, it is necessary to send the drive back to the manufacturer COMINFO for a repair.

12.3.2. Checking the electromagnetic brake

- The brake is an internal part of the MDD168 motor drive.
- The brake is controlled by the MDD168 electronics based on the communication with MLU5 control
 electronics.
- The winding of the brake cannot be measured or the brake cannot be tested other way than in the regular operational state of the turnstile.
- Perform the check with turned on power supply in operational state of the turnstile.



- If the brake is released in the home position:
- the brake must lock when the gate is manually turned.
- If the brake is locked in the home position:
 - o the gate must not turn when pushed
 - o after unblocking by control signal, the brake must release and enable passage
 - o when you turn the gate in the opposite direction by hand, the brake must lock



In the factory setting of the Tripod turnstile, the brake is released in the home position.

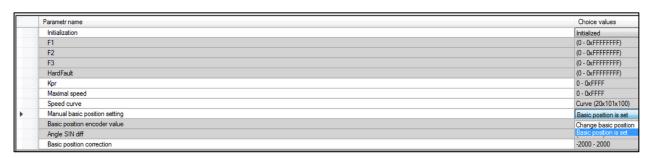
In case of the Unipod and Gate turnstiles, it is locked.

12.3.3. Setting the home position of the rotary gate

- In its home position, the bar arm of the rotary gate must be perpendicular to the turnstile cabinet.
- The home position must be checked or adjusted during the installation of the turnstile.
- It is always necessary to adjust the home position when replacing the drive.
- Setting the gate home position is done through the TCONF application in the drive configuration.
- The computer must be connected through the converter to the internal communication line DATA INT.
- After the application starts-up, the drive electronics shows up as *MDD/Motor driver* with an address 193 as show on the following figure.



• By clicking the *Config* button, the MDD168 drive configuration shows up, it includes a parameter for activation of the *Manual basic position setting* mode and *Basic position* numeric parameter.





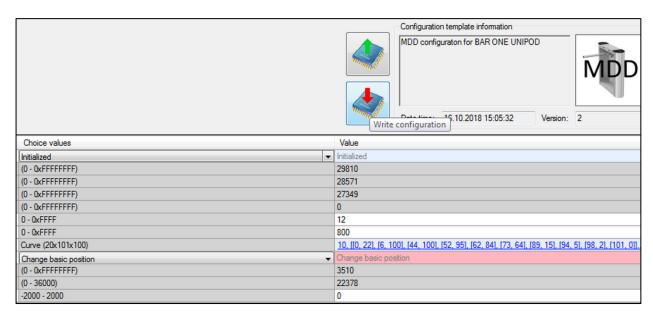
• In the Manual basic position setting parameter field click the arrow to reveal the change selection.

Choice values		Value
Initialized	-	Initialized
(0 - 0xFFFFFFFF)		29810
(0 - 0xFFFFFFFF)		28571
(0 - 0xFFFFFFFF)		27349
(0 - 0xFFFFFFFF)		0
0 - 0xFFFF		12
0 - 0xFFFF		800
Curve (20x101x100)		10, [[0, 22], [6, 100], [44, 100], [52, 95], [62, 84], [73, 64], [89, 15], [94, 5], [98, 2], [101, 0]]
Basic position is set		Basic position is set
Change basic position		3510
Basic position is set		22378
-2000 - 2000		0

• Change the *Basic position is set* value to *Change basic position*. (the window with the value is backlit red until the end of the process of setting the home position)

Choice values	Value
Initialized ▼	Initialized
(0 - 0xFFFFFFFF)	29810
(0 - 0xFFFFFFFF)	28571
(0 - 0xFFFFFFF)	27349
(0 - 0xFFFFFFF)	0
0 - 0xFFFF	12
0 - 0xFFFF	800
Curve (20x101x100)	10, [[0, 22], [6, 100], [44, 100], [52, 95], [62, 84], [73, 64], [89, 15], [94, 5], [98, 2], [101, 0]]
Change basic position ▼	Change basic position
(0 - 0xFFFFFFF)	3510
(0 - 36000)	22378
-2000 - 2000	0

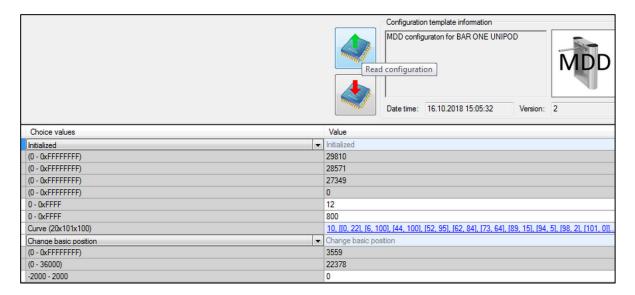
• By clicking the button with red arrow-Write configuration activate the Manual basic position setting mode.



- In case of the Unipod and Gate turnstiles, the brake will release and the gate lowers to the bottom position. In case of manual setting, we turn the gate to the desired home position, where we have to hold it.
- In case of Tripod turnstiles, the gate is freely rotatable when in mode of manual setting of the home position. In case of manual setting, we just slightly turn the gate to the desired home position.



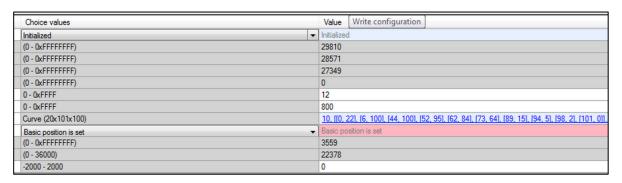
• By clicking the button with green arrow-*Read basic position configuration* you will load new numeric values of the home position (value 3461 was changed to 3538).



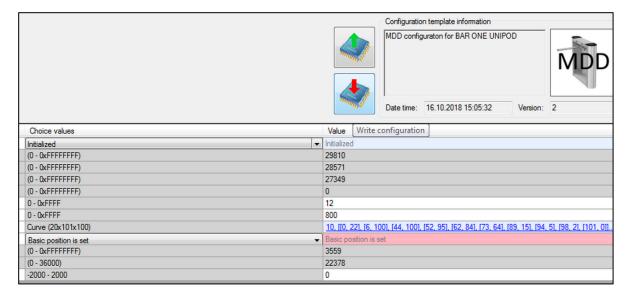


Setting of the new home position is not finished and saved by loading the numeric value!

• Change the Change basic position value to Basic position is set.



• By clicking the button with red arrow-*Write configuration*, save the parameters of new home position that were set and end the *Manual basic position setting* mode.





4. CHECKING THE BACKUP ACCUMULATOR OF THE MLU5 ELECTRONICS

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

CHECKING THE ACCUMULATOR STATE

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

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



CHECKING THE ACCUMULATOR FUNCTIONALITY

Functional accumulator:

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

Non-functional accumulator:

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



Only the manufacturer COMINFO can replace the accumulator.

EMERGENCY OPERATINAL STATE OF THE TURNSTILE WITH NON-OPERATIONAL ACCUMULATOR

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



12.5. ANALYSES OF MALFUNCTIONS AFTER RESET OF MLU5 CONTROL ELECTRONICS

- The malfunctions are detected only after previous electronics reset per chapter MLU5 electronics reset function.
- The malfunctions are detected by the number of red LED3 flashes according to the following table (frequency 2Hz + pause).

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

12.5.1. MLU5 ELECTRONICS RESET FUNCTION

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

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

During the electronics reset, the following occurs:

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



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

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



The electronics is reset in following cases:

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



The electronics does not detect malfunctions in the optical sensors for climbing over and crawling under. Their correct function is checked according to chapter *Checking the electronical components after initialization*.

12.6. CHANGING THE FIRMWARE OF THE MLU5 AND MDD168 ELECTRONICS

12.6.1. Changing the MLU5 electronics firmware



Firmware may only be changed after consulting the manufacturer.

- Connect the computer to the external communication line according to the chapter Connection of RS485 communication lines.
- Firmware can be changed using the TCONF application.
- Uploading the firmware takes approximately 1min and its progress can be observed on the barcode.

After uploading the firmware, the following occurs:

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



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

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



12.6.2. Changing the firmware of the MDD168 drive electronics



Firmware may only be changed after consulting the manufacturer.

- Connect the computer to the internal communication line according to the chapter Connection of the RS485 communication line.
- Firmware can be changed using the TCONF application.
- The Unipod, Tripod and Gate types of turnstiles have different drive electronics firmware.

(the MDD drive cannot be used in different type of turnstile without changing the firmware)

12.7. REPLACING THE MLU5 CONTROL ELECTRONICS



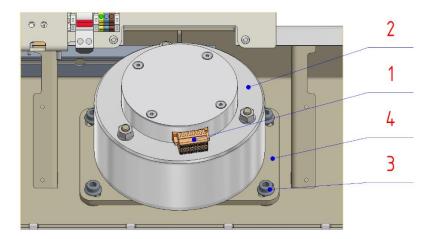
When replacing electronics, setting of the new electronics must be checked by the TCONF application before connecting the new electronics to the turnstile.

Basic configuration must be set for the BAR ONE 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.

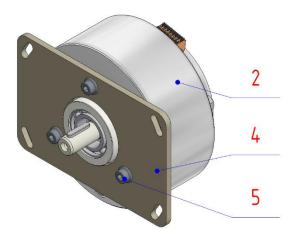


12.8. REPLACING THE MDD168 MOTOR DRIVE UNIT

- New drive unit must have the appropriate firmware of the Unipod, Tripod and Gate version of the turnstile.
- Remove the top cover according to the chapter How to access the anchoring holes and motor drive unit with control electronics.
- Dismount the rotary gate according to the chapter Dismantling the rotary gate.
- In case of the INDOOR version, place the plate with terminals on the auxiliary pins, according to the chapter *Removing the sensors for climbing over and crawling under.*
- Disconnect the connector (Pos.1) on the MDD168 drive (Pos.2).



- Remove the four RIPP M8x16 bolts with a washer (Pos.3).
- Now you can remove the drive (Pos.2) with the flange (Pos.4) from the turnstile.
- Remove the three RIPP M8x16 bolts (Pos.5) and replace the MDD168 drive (Pos.2).



- After replacing the drive unit, it is necessary to adjust the home position according to the chapter Setting the home position of the rotary gate.
- The grooves in the flange (Pos.4) serve for final mechanical adjustment of the home position.



9. 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.	
2	Send information regarding the turnstile power supply	- external power supply voltage - length and cross-section of the input cabling - type of power supply - number of powered turnstiles - method of protection/control in case of 24VAC power supply, according to chapter Turnstile power supply	
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 all the connectors by pulling the wires plus tightening of screw clamps.	
9	Checking the free rotation of the drive	Perform inspection according the chapter Checking the motor drive unit	
10	Checking the electromagnetic brake	Perform inspection according the chapter Checking the motor drive unit	
11	Check the supply voltage in an idle state of the turnstile	Supply voltageV	
12	Check the voltage drop during passage	Stop the gate during passage and measure the voltage drop. Supply voltage drop V	
13	Checking the malfunction detection displayed by the LED after initialization.	Check the LED malfunction detections on the MLU5.	



Operation No.	Service technician operation	Operation description	Confirmation of operation completion		
14	Inspection of malfunction detection in the listing of logs - sending of logs.	Send the logs to the manufacturer.			
15	Checking the function by the turnstile tester				
16	Upload current firmware After consulting the manufacturer	Uploaded firmware(for example MLU5V6.4WN)			
17	Perform implicit configuration	The condition is updating of the TCONF application			



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. Along with the completed form, send a video which clearly shows the occurring malfunction and LED signalization of the electronics state. You can find the *Claim Report Form* at the end of this manual.



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.

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

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



EXAMPLE - CLAIM REPORT FORM

Product label information:

Name – type: BAR-ONE-ADVANCED- Unipod

Serial number: 0 6 0 2 0 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 BAR type turnstiles are connected to a 24V/200VA transformer.
 With single-pole protection without control on the common GND potential.
 Turnstile is supplied by 10m cable with 2.5mm cross-section.
- 3. The attached video shows the passage with manual turning of the gate.
- 4. Our TCONF version: 2.0.1.2.
- 5. Downloaded logs attached (no errors detected).
- 6. Connection check OK.
- 7. Control signal from the superior system 500ms.
- 8. Wiring OK.
- 9. Without voltage the turnstile gate freely rotates without signs of jamming.
- 10. The electromagnetic brake is locked in the home position and releases during passage.
- 11. In idle state, the supply voltage on terminal X1 was measured 24V.
- 12. During the passage after the gate stops the voltage dropped to 23V.
- 13. Rel LED does not signalize any error after initialization.
- 14. Malfunction is present even after the initialization logs do not detect any error -logs are attached.
- 15. The malfunction irregularly occurs even with controlling by the turnstile tester.
- 16. Recommended firmware MLU5V6.2 uploaded. The malfunction remains.
- 17. Implicit configuration performed. The malfunction remains.

Customer:	Company Ltd							
Address:	11 Business Park, London SW12	9RT, United	d Kingdom					
Contact person:	Jack Smith	Telephone:	4420 7777 7777					
E-mail:	jack@company.com	Date:	2.12.2021					



CLAIM REPORT FORM

Product label	informa	tion:							
Name – type:									
Serial number:									
Information o	n the co	ntrol e	lectroi	nics (MLU	5):			
Serial number:									
Your request:									
Customer:									
Address:									
Contact person:							Telephone	:	
E-mail:							Date	:	