



WAIST-HIGH TURNSTILE

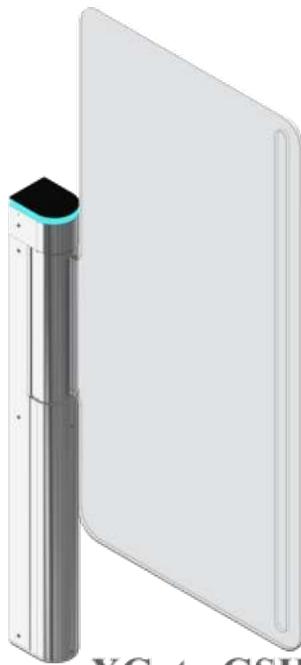
with BMDrive servo drive type "SWING GATE"



XGate-GS



XGate-TS



XGate-GSH



XGate-PS

OPERATION AND INSTALLATION MANUAL

Combined, rev.1.1

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UKRAINE

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INTRODUCTION

This Operation Manual (hereinafter referred to as OM) covers the servo-operated waist-high turnstile of swing gate type (hereinafter referred to as the "turnstile"). The Operation Manual contains information about design, specifications, installation for proper operation and maintenance of the turnstile.

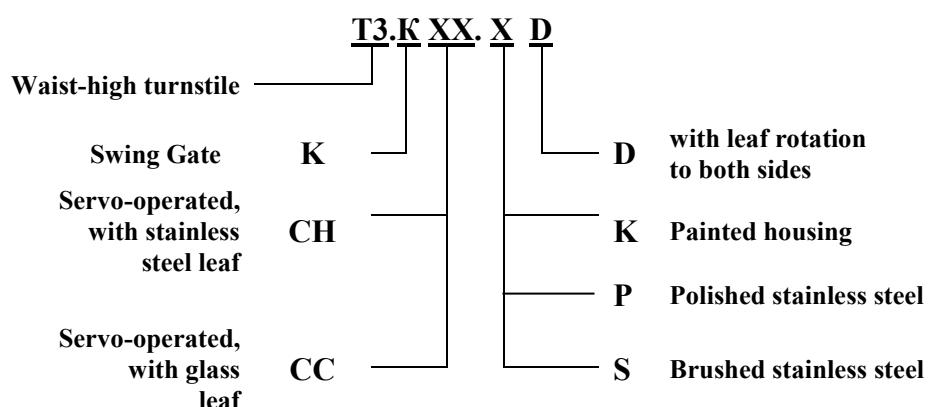
This Operation Manual is prepared in compliance with the specification requirements TU U 28.9-32421280-005:2018.

The turnstile shall be serviced only by the qualified staff having the relevant class of permit to work with electrical facilities with voltage up to 1000 V and scrutinizing this Operation Manual, obtaining safety instructions and trained for operation and maintenance of the turnstile.

Reliability and durability of the turnstile operation is provided with observation of modes and conditions of transportation, storage, installation and operation. So, fulfillment of all requirements specified in this document is mandatory.

Due to regular improvement of the product its design can be modified without degradation of the product features and quality not covered by this Operation Manual.

Depending on the turnstile purpose and design features, the following pattern of reference designation is accepted:



Example of reference designation of the servo-operated waist-high turnstile of swing gate type made of brushed stainless steel when the turnstile T3.KCC.PD TU U 28.9-32421280-005:2018 is ordered

Model	Coding	General view
XGate-GS AUIA.760-01	T3.KCC.XD	
XGate-TS AUIA.760-02	T3.KCH.XD	
XGate-GS AUIA.760-03	T3.KCC.XD	
XGate-PS AUIA.760-04	T3.KCH.XD	

CUSTOMER WARNINGS ON SAFE OPERATION OF THE TURNSTILE

These warnings are designed to ensure safety during operation of the turnstile to prevent violation of safety features by improper installation or operation. These warnings are aimed at drawing attention of the customer to safety problems.

GENERAL WARNINGS

The Operation Manual is an integral part of the product and it shall be handed over to the customer. The OM shall be kept for later use and consulted for clarifications if required. If the turnstile is resold, handed over to another owner or transported to another place, make sure that the OM is enclosed to the turnstile to be used by new owner and/or maintenance staff during installation and/or operation.

Safety measures and requirements specified in this OM must be observed:

- turnstile must be connected to ground loop prior to operation;
- turnstile should be connected to AC network with parameters specified in paragraph 1.2 "Specifications";
- inspection, adjustment and repair should be performed only after the turnstile is disconnecting the turnstile from the power supply.

After purchasing of the turnstile it should be unpacked and its integrity should be checked. In case of doubt in integrity of the turnstile it should not be used and the customer should refer to the supplier or the manufacturer.

Packing accessories (wooden pallet, nails, clips, polyethylene bags, cardboard etc.) as potential sources of hazard must be removed to unacceptable place prior to proper use of the turnstile.

As electric shock protection device the turnstile is related to 01 protection class according to GOST (State Standard) 12.2.007.0-75 and is not intended for operation in explosive and fire-hazardous areas by the "Rules for design of electrical installations".

Using of the turnstile for unintended purpose, improper installation, nonobservance of conditions of transportation, storage, installation and operation, specified by this OM, may result in damage to people, animals or property for which the manufacturer is not responsible.

1. DESCRIPTION AND OPERATION

1.1 General Information and Purpose

1.1.1 Turnstile purpose:

XGate-GS and XGate-TS are servo-driven turnstile gates with a glass, metal. The modernized case emphasizes its elegant appearance. Along with the standard dimensions, the width of the leaf can be increased according to the requirements of the project for the passage of strollers and other large loads. Due to its unique shape, the turnstile gate is suitable for any interior.

The modernized case emphasizes its elegant appearance.

Ergonomic design of the servo-driven gate Onyx-TS with smooth curves of the case is an excellent solution for installation together with tripod turnstiles of the Onyx series.

Onyx-S turnstiles are equipped with an automatic bidirectional servo-drive mechanism with a robust locking system and are able to operate reliably and efficiently in high traffic flow locations.

The inclined scratch resistant glass top gives this turnstile a futuristic look making it a stylish architectural element to compliment any modern interior.

The turnstile is designed for pedestrian movement control at access points of industrial enterprises, banks, stadiums, administrative facilities etc. due to command signals of access control system (from keypad, proximity card readers) or manually (from manual control panel). The turnstile traffic flow capacity with personal identification is at least 30 persons per minute.

1.1.2 The turnstile dimensions and weight correspond to the values specified in Table 1

Table 1 - The turnstile dimensions and weight

MODEL	XGate-GS	XGate-TS	XGate-GSH	XGate-PS
AUIA	760-01	760-02	760-03	760-04
The width of the passage, W mm	650 / 900			
Dimensions, mm (HxLxB), mm	1006x92x718/968		1500x92x718 / 968	1006x92x718/968
Cabinet size, (LxW), mm	1006x92x118			
Max.weight*, kg	28	20	32	23

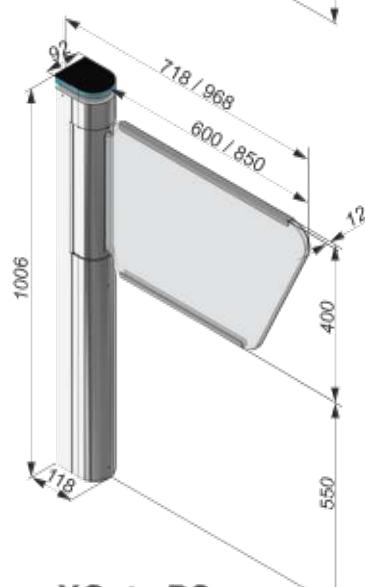
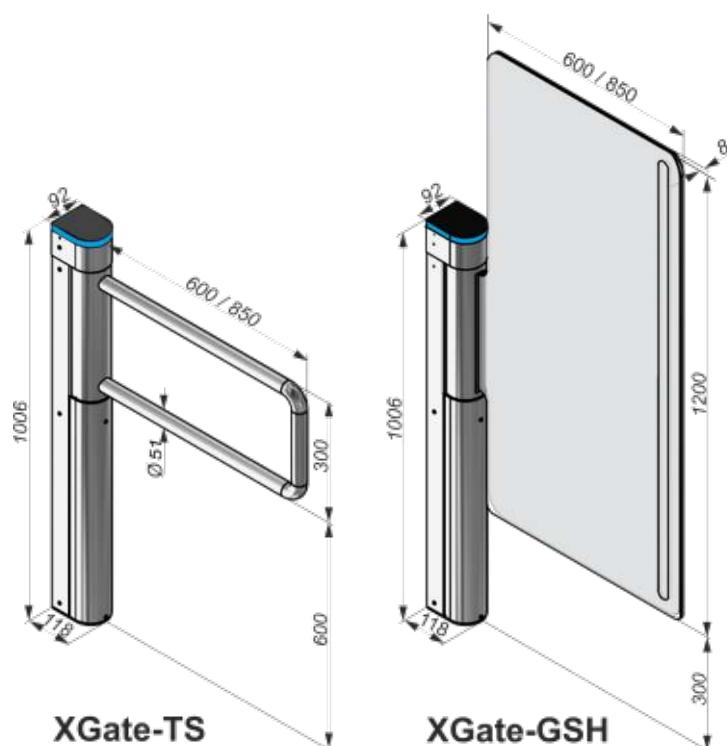
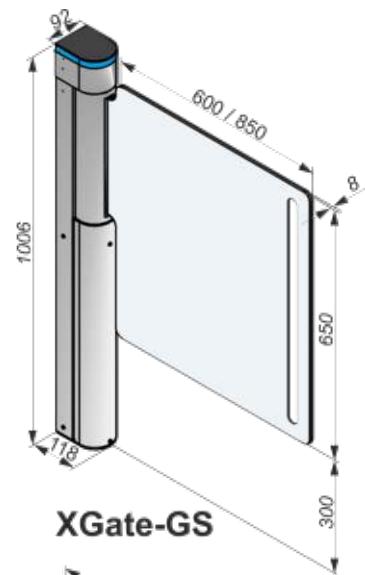


Fig. 1 – Installation dimensions of the Swing XGate type

1.1.3 The parameters defining operation conditions **NF4** (for indoor application) according to GOST 15150-69 are specified in Table 2

Table 2

<i>Operational conditions</i>	<i>The parameters</i>
Ambient temperature	from + 1 to + 40 °C
Relative humidity	80 % if plus 25 °C (non-condensing)
Permissible ambient air pressure	from 84 to 106,7 kPa
Temperature range during transport	From - 50 to + 50 °C
Temperature range during storage	From + 5 to + 40 °C
Mechanical design group	L3
Altitude above sea level	up to 2000 m
Environment	Explosion-proof, does not contain conductive dust, corrosive gases and vapors in concentrations that destroy insulation and metals that disrupt the normal operation of the equipment installed in the turnstile
Place of installation	in closed rooms in the absence of direct impact of atmospheric precipitation and solar radiation
Operational position	vertical, not more than 1 ° of deviation from a vertical position in either direction is allowed

1.2 Specifications

Table 3 – Specifications

<i>Parameter name</i>	<i>Parameter value</i>
Minimum traffic flow capacity in single access mode	30 person/min.
Opening/closing time (access way width 650 / 900 mm)	2,5 sec - 3,5 sec
Maximum access way width	650-900 mm
Power supply voltage: - AC mains (primary) - DC power supply (secondary)	100 ÷ 240 V~ 50/60 Hz 12 V
Maximum power consumption	60 W
Index of protection according to EN 60529	IP41
Mechanism	BMDrive® servo-driven (BLDC)
Locking system	ToothLock®
In case of power failure	fail-safe (gate can be opened manually)
Status displays	RGB LED indication
<i>Reliability performances</i>	
- average recovery time of the operable condition (omitting the spare parts delivery time)	no more than 6 hours
- mean time between failures	at least 10 000 000 passes
- average life of the turnstile till overhaul	not less than 10 years

1.3 Product components and scope of delivery

1.3.1 Turnstile housing designation and modification

Table 4 – Turnstile material and coating

<i>Materials</i>		<i>Coding</i>
Standard housing	Brushed stainless steel AISI 304	T3.KCH.SD / T3.KCC.SD
Available housing	Brushed stainless steel AISI 316	T3.KCH.SD / T3.KCC.SD
	Polished stainless steel AISI 304 / AISI 316	T3.KCH.PD / T3.KCC.PD
	Powder coated RAL	T3.KCH.KD / T3.KCC.KD
<i>Leaf options for gates AUIA.203:</i>		
Standard	stainless steel tubular leaf U-shape form	
	glass leaf	
	plastics leaf	

1.3.2 The half-height turnstile of the "gate" type is represented by the following main devices and elements:

- cabinet;
- leaf (stainless steel or glass);
- gear motor;
- control panel;

The product includes a control panel.

The design, overall and installation dimensions of the product are given in the appendix A.

1.3.3 Turnstile scope of delivery (standard):

- 1) Turnstile "XGate-GS" or "XGate-TS" - 1 pc.;
- 2) Leaf (stainless steel 2a or glass 2b or plastic 2c); - 1 pc.;
- 3) Anchor Redibolt (12×100 M10) - 4 pc.;
- 4) Control panel AUIA.114 - 1 pc.;
- 5) Data sheet;
- 6) Transport container;

For convenience of delivery the turnstile is supplied ready-to-install with dismounted barrier arms (See Fig.2).

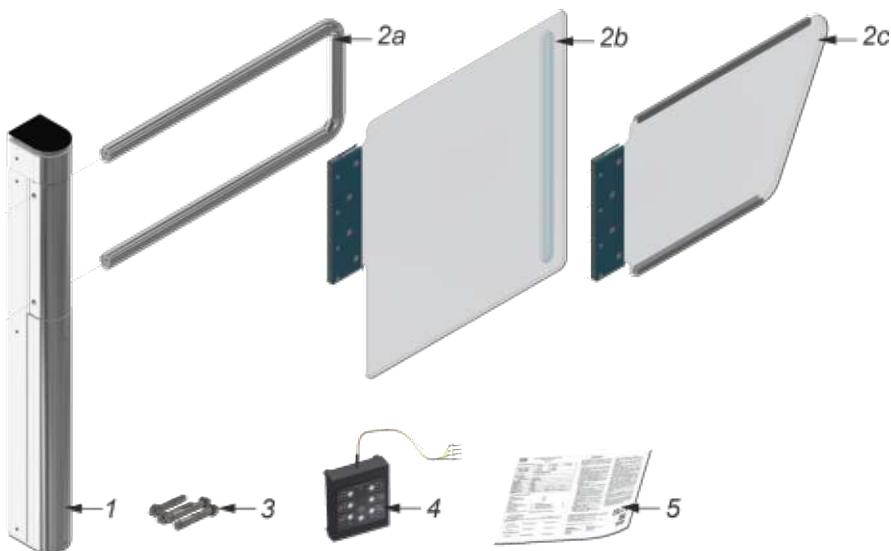


Fig. 2 – Gate turnstile scope of delivery

1.3.4 The servo-operated waist-high turnstile design

The rack 2 of the turnstile is a metal ware, which, with its support (see fig.3 and fig.7), is mounted on the mounting base 1 on a flat surface using Redibolt anchors.

A control panel 8 is mounted in the lower part of the rack. In the main part of the case, the mechanism for turning the leaf is the rotor 3 assembly. Glass or stainless steel leaf 5 U-shape form is installed on the pivoting shaft of the control mechanism. The leaf is located horizontally, blocking the access way through the turnstile. The swing is opened at 90° to either side depending on access direction. Each leaf is actuated by separate gear motor BMDrive®.

The turnstile status is displayed by RGB LED status illumination 6, built in the turnstile body. The turnstile initial state is indicated by constantly lit red LED (See Fig. 7) the turnstile access is locked in both directions.

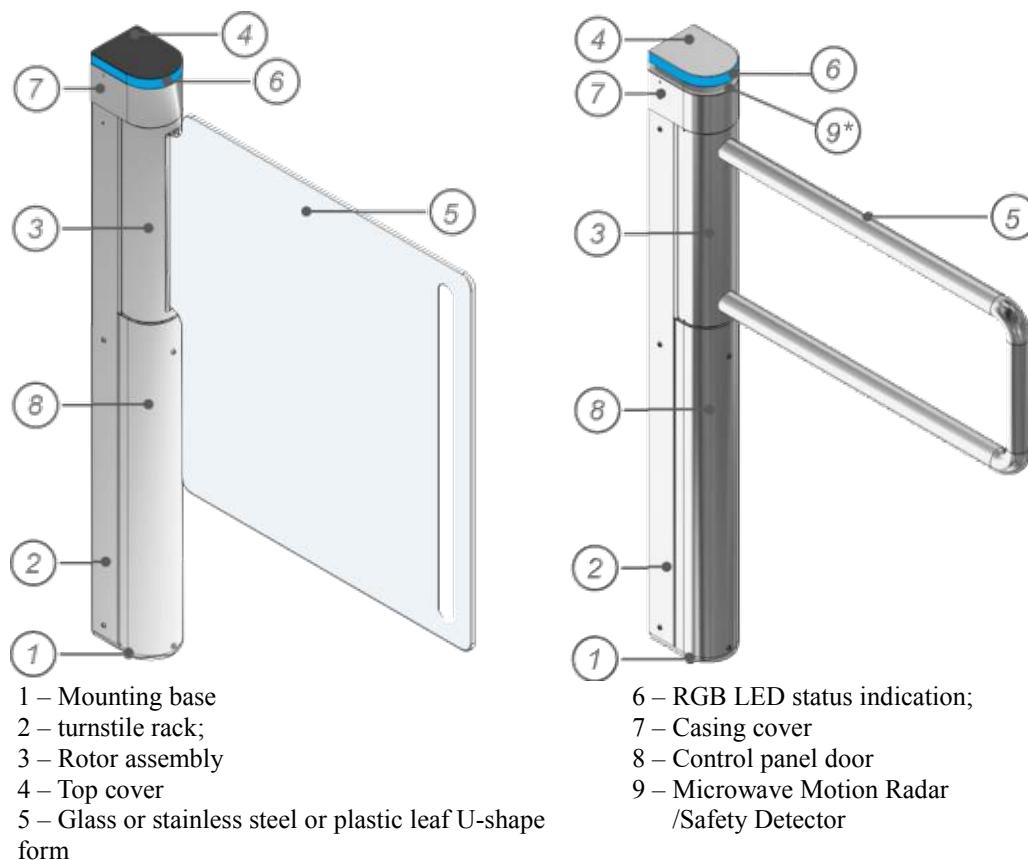


Fig. 3 – Turnstile general appearance XGate

1.3.5 General layout of the turnstile access ways

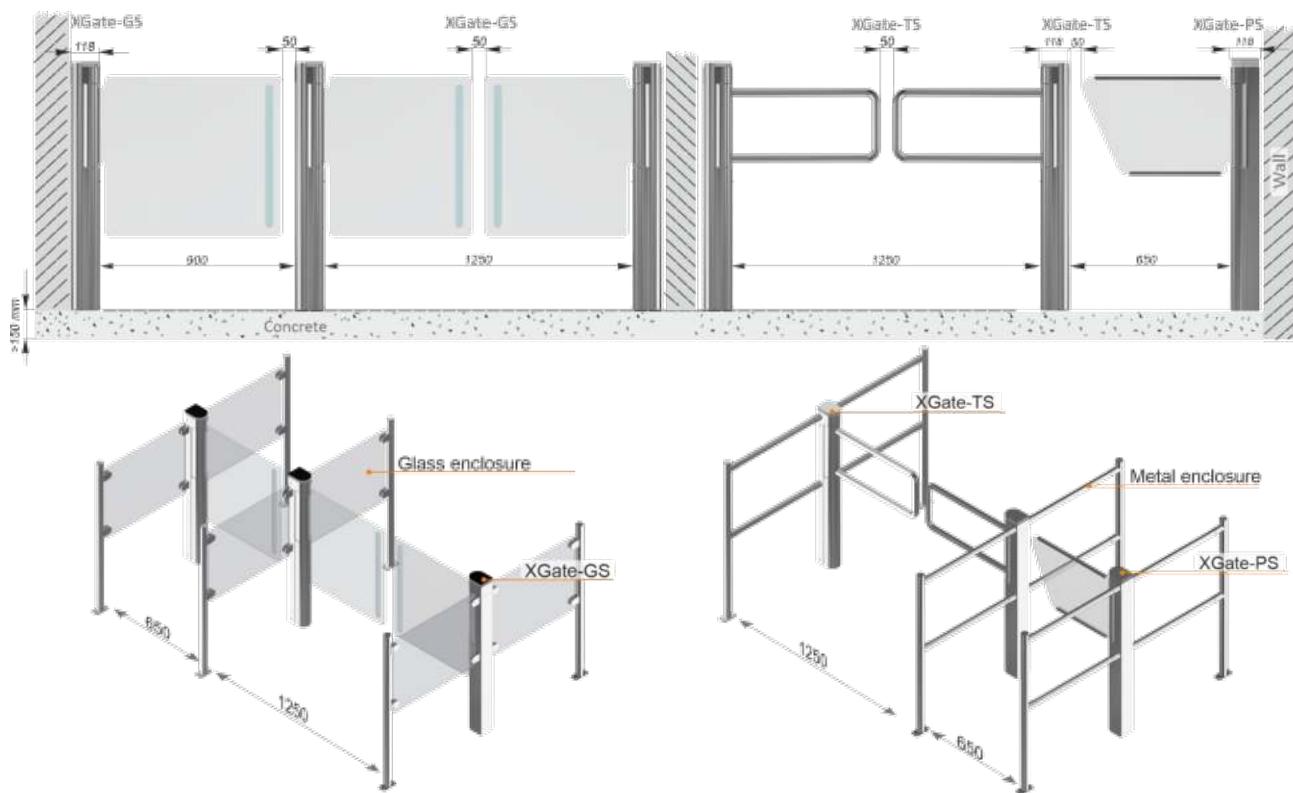


Fig.4 – General layout of the turnstile access ways (conditionally)

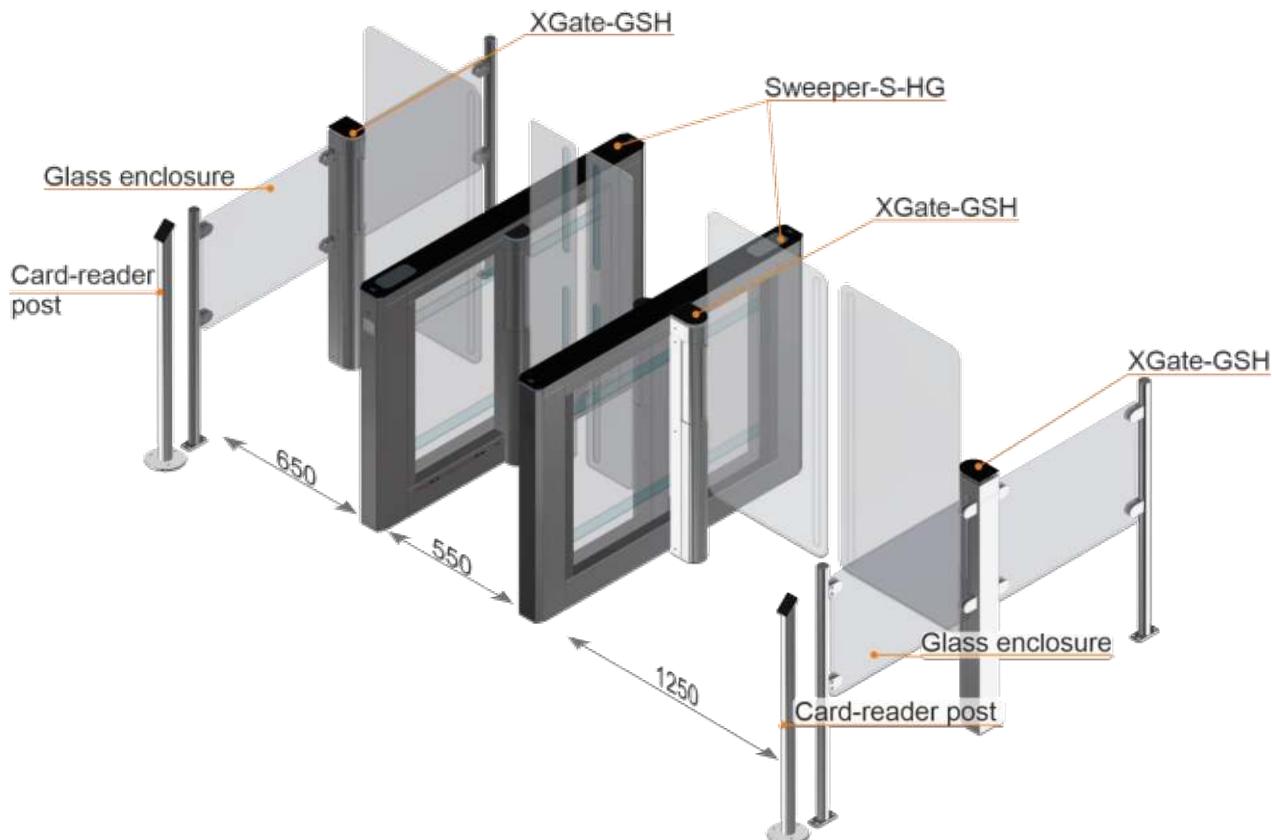


Fig.5 – Configuration of XGate-GSH gate passages in the Sweeper-S-HG

Combinations of turnstiles XGate-TS

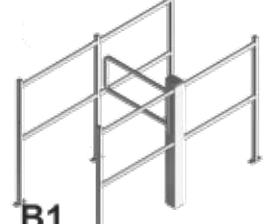
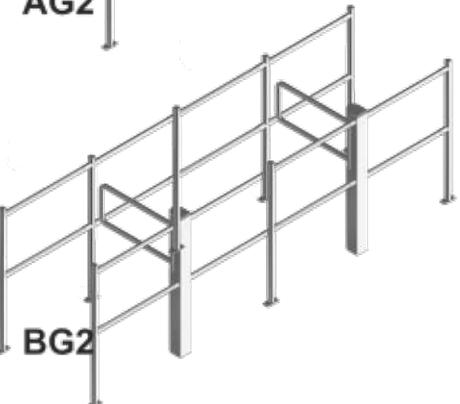
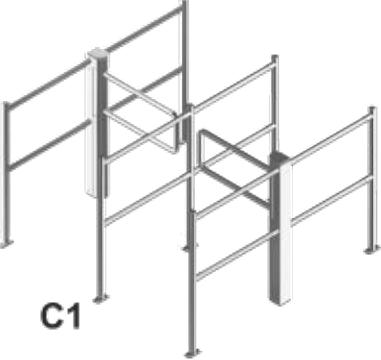
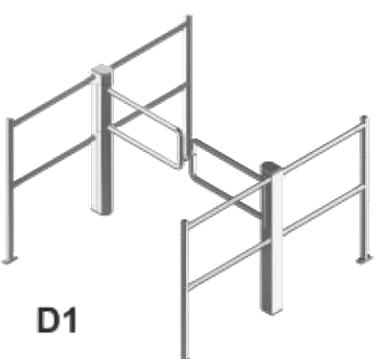
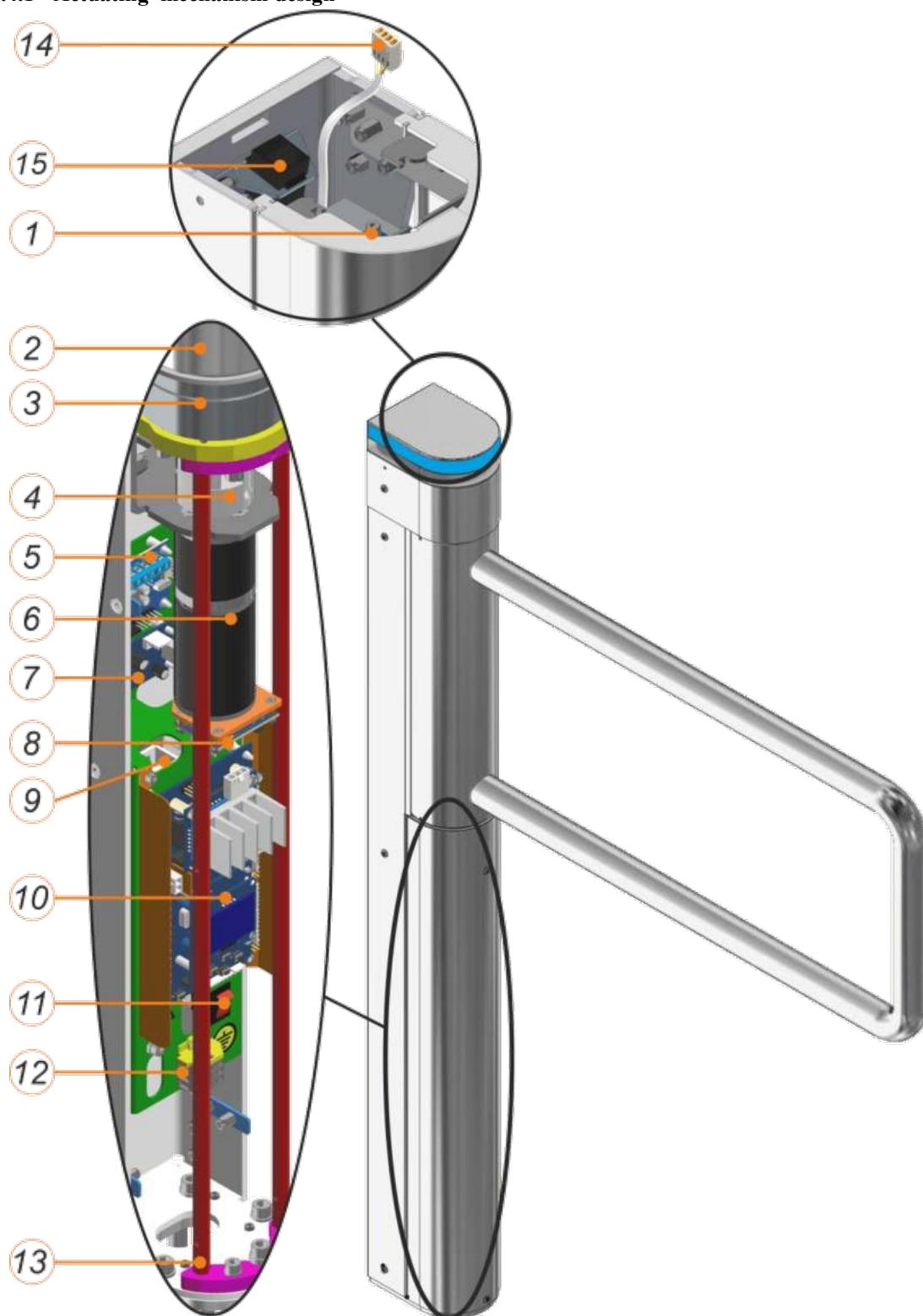
	Simple entry	Entry with a gateway	
Single system XGate-TS with passage enclosure	 A0	 A1	 AG2
Single system XGate-TS with central enclosure	 B0	 B1	 BG2
Double system XGate-TS with side enclosure	 C1	 CG2	
	 D1	 DG2	

Fig. 6 - Combinations of turnstiles XGate-TS

1.4 Design and operation

1.4.1 Actuating mechanism design



1 – leaf's magnetic position sensor PCB.730.004
 2 – Rotor assembly
 3 – Electromagnetic clutches
 4 – Split cam semi-coupling
 5 – Synchronization board PCB.705.002
 6 - BMDrive® gear motor;
 7 – Step Up DC-DC Converter PCB.203.001

8 – Magnetic motor sensor
 9 – Power supply unit;
 10 – Controller AUIA.401.00.00-01
 11 - Circuit breaker
 12 - Power cable terminal block
 13 – Stand
 14 - Connector for service control panel
 15 - Connector for LED indications

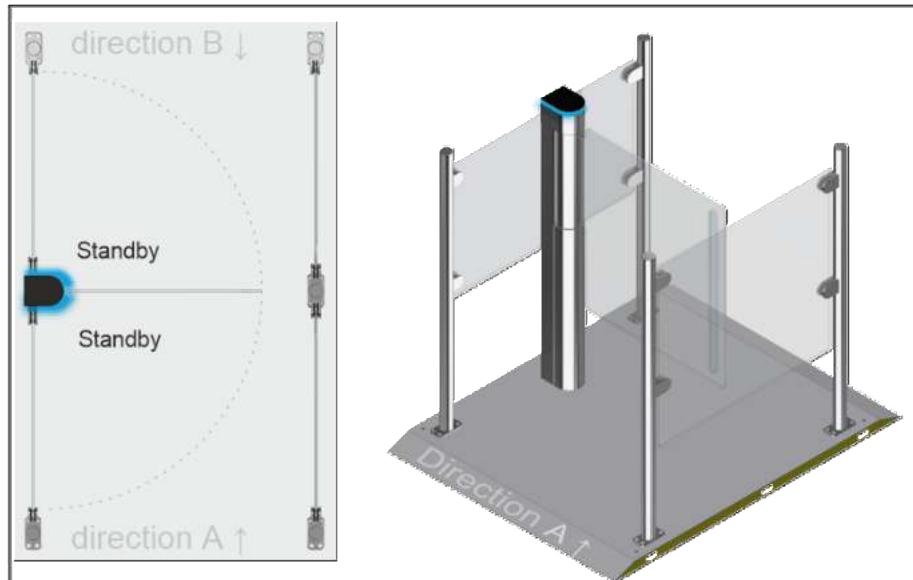
Fig. 7 – Turnstile actuating mechanism

1.4.2 Turnstile principle of operation

1.4.2.1 Turnstile operation modes:

1. STANDBY mode

The turnstile is ready to open the leaf in direction A or B



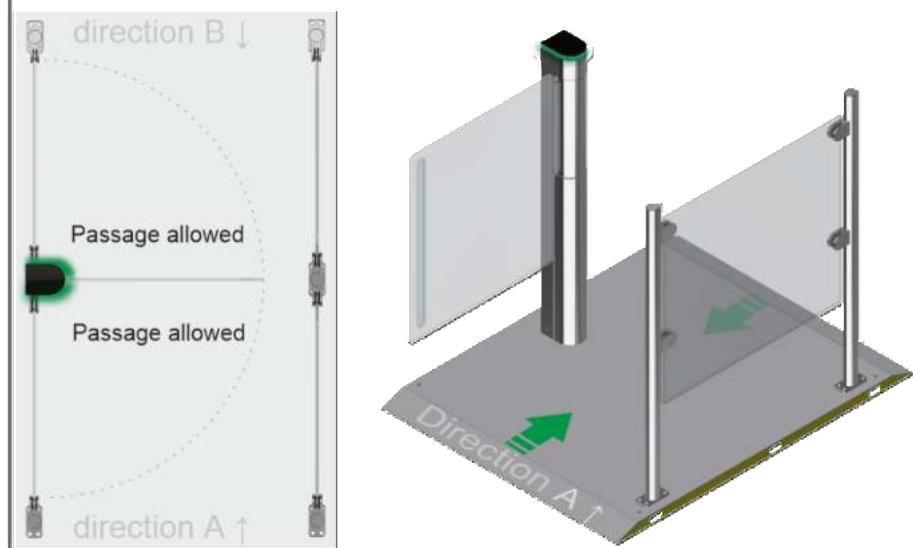
2. «SINGLE ACCESS» mode

mode

- 1) authorized access is allowed in the direction "A"
- 2) authorized access is allowed in the direction "B" or

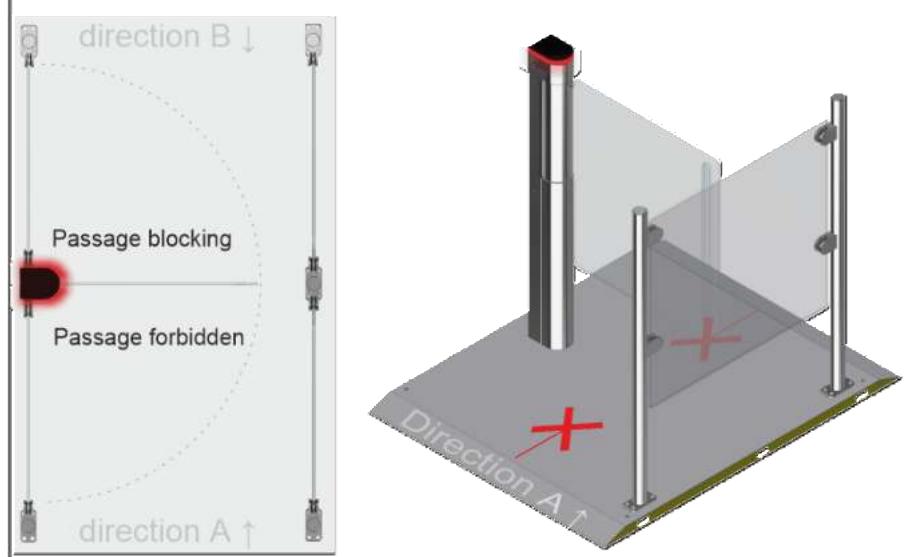
3. «PANIC» mode

- 1) free access in the direction "A"
- 2) free access in the direction "B"



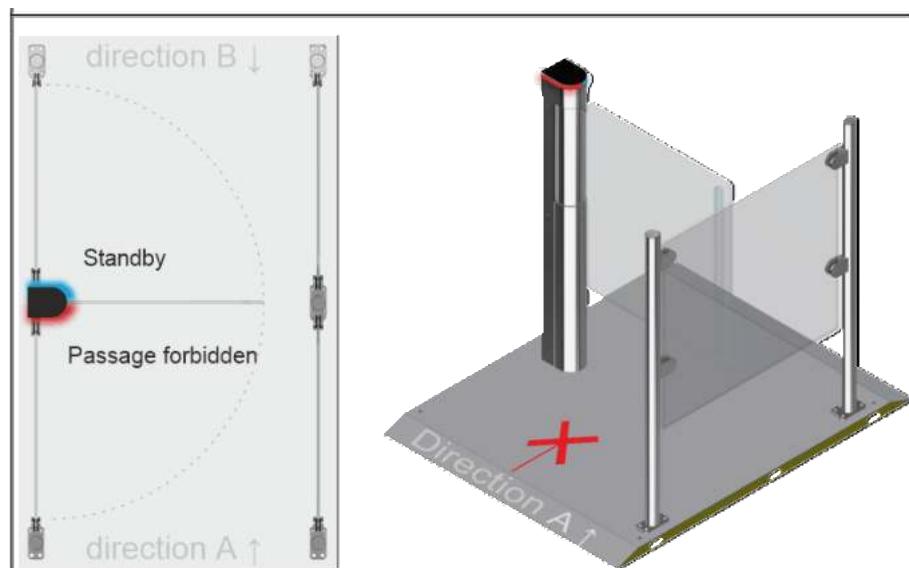
4. «DENIED» mode

- 1) access blocking in both directions A and B



5. «DENIED» mode

- 1) access blocking in *the directions A*
- 2) the turnstile is ready to open the leaf *in the direction B*


6. «SINGLE ACCESS» /
«FREE ACCESS» /
«PANIC» modes

- 1) authorized / free access is allowed *in the direction "A"*
- 2) access blocking in *the directions "A"*

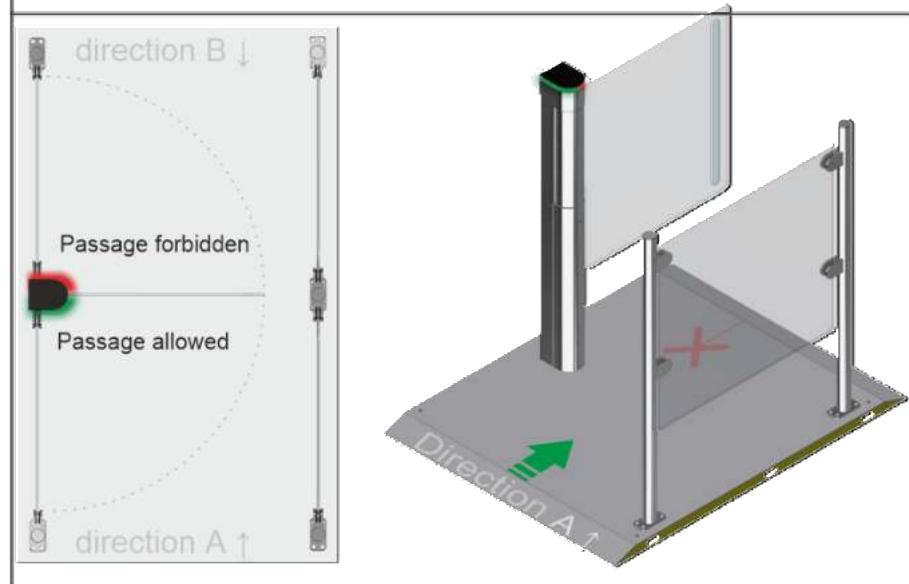


Fig.8 – Turnstile basic statuses LED display

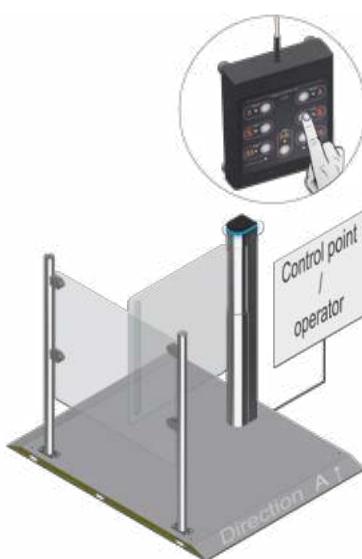
Switching of turnstile operation modes is carried out with the help of a control panel, or as part of the automated control system for access control (using cards, key fobs, etc.).

1. In the initial state the turnstile glass leaves are located perpendicular to the body blocking the access.
2. Green arrow is lit on LED display (Fig.8) and leaves swing to 90 in the relevant direction, i.e. they are opening. Pedestrian is able to access through the turnstile freely.
3. After pedestrian exit from control area, the "Closed" mode is set until next access. Blue LED is lit. Leaves are reliably closed preventing attempts of unauthorized access.
4. In case of need for emergency human evacuation from building rooms, the turnstile goes to "PANIC" mode and provides free access in both directions.

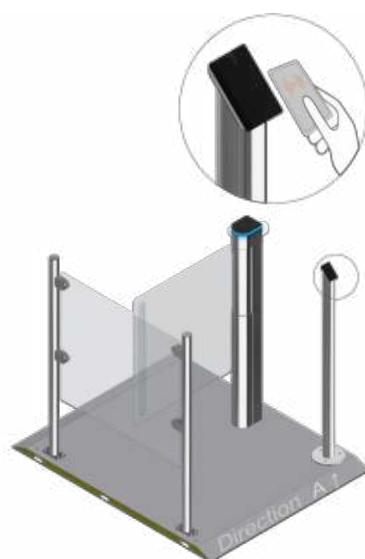
More detailed description of the turnstile operation modes is given in section 1.6 "Description and operation of controller an integral component of the turnstile".

1.4.2.2. The principle of operation when using contactless cards in the presence of an access control system

Control panel



ACS (by cards, keychains)



Bidirection Microwave Motion Radar /Safety Detector

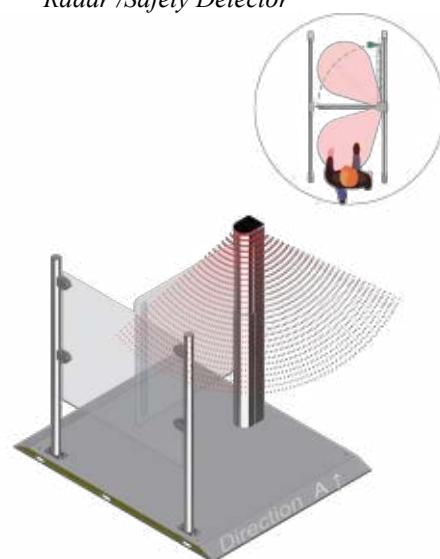


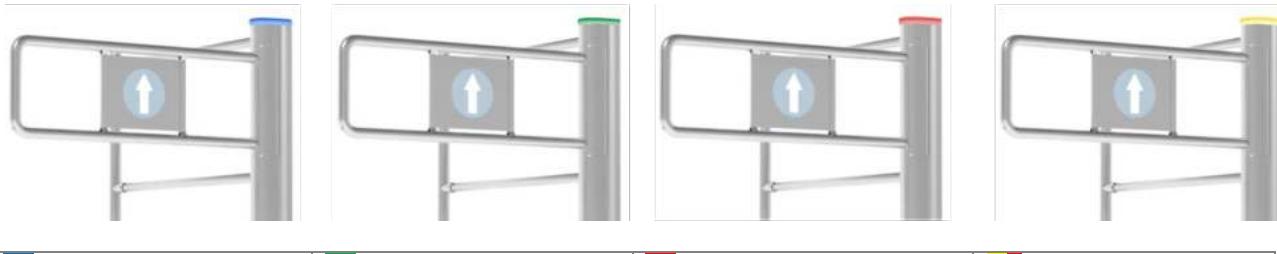
Fig.9 - The principle of operation when using contactless cards in the presence of an access control system

In case of mains power supply failure, the turnstile is automatically switched to power supply from 12V, 4 A·h battery (optional), which ensures the turnstile's operation within 2 hours

The turnstile 12V DC power voltage is provided by power supply unit.

The turnstile wiring diagram is shown in Annex C.

1.4.2.3 LED status indication



 - Blue <ul style="list-style-type: none"> • standby mode 	 - Green <ul style="list-style-type: none"> • Slowly flashing - opening the leaf • Flashing (strobe) - panic mode (emergency exit) 	 - Red <ul style="list-style-type: none"> • Slowly flashing - blocking the leaf • Strobe - alarm 	 - Yellow / Red <ul style="list-style-type: none"> • Flashing - error
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Fig.10 – LED status indication

1.5 Description and operation of controller AUIA.401.00.00-01 as an integral component of the turnstile

1.5.1. Description of motor controller AUIA.401.00.00-01

The controller AUIA.401.00.00-01 is designed to control BMDrive® gear motors, which drives the turnstile leaves in motion. At each passage of turnstile installed pair of controllers AUIA.401.00.00-01: the first controller drive the leaf in the Master cabinet, the second controller drive leaf in the Slave cabinet.

BMDrive® gear motors control are performed based on the signals coming from leaf position sensor «XP6», motor magnet sensor «XP3», hall sensors "XP12" built into the gear motors, as well as from current sensors installed on the controller. Control signals come to inputs INP1- INP5 or control panel AUIA.114.

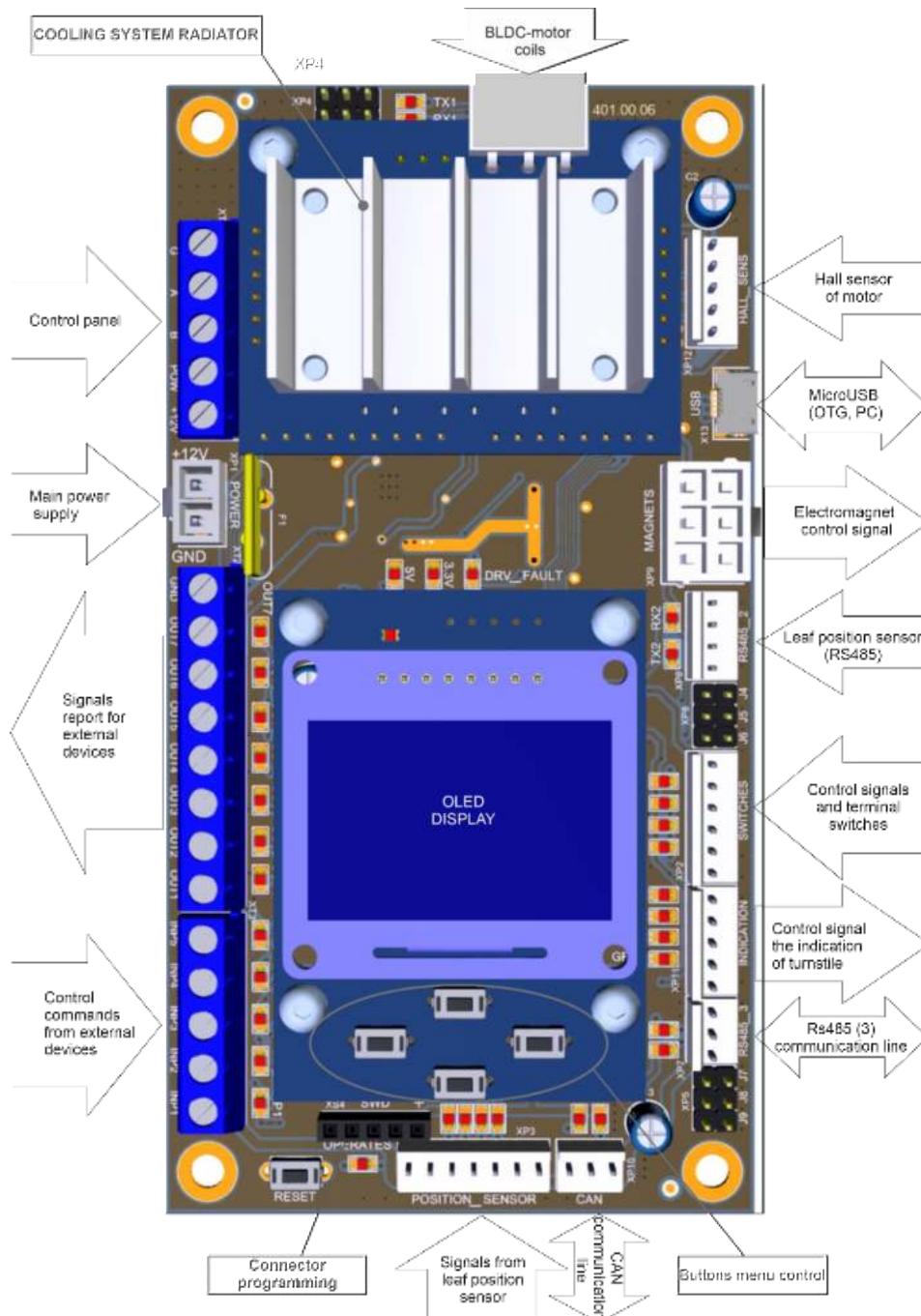
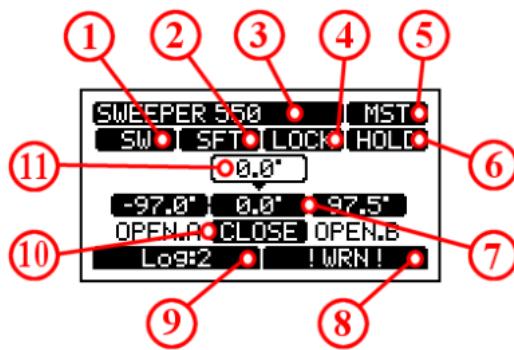


Fig.11 – Appearance of controller AUIA.401.00.00-01

1.5.2. Description of the main page of the controller

An OLED display and 4 control buttons are installed on the front side of the AUIA.401.00.00-01 controller for the displaying the current state of the controller and for configuration settings at menu.

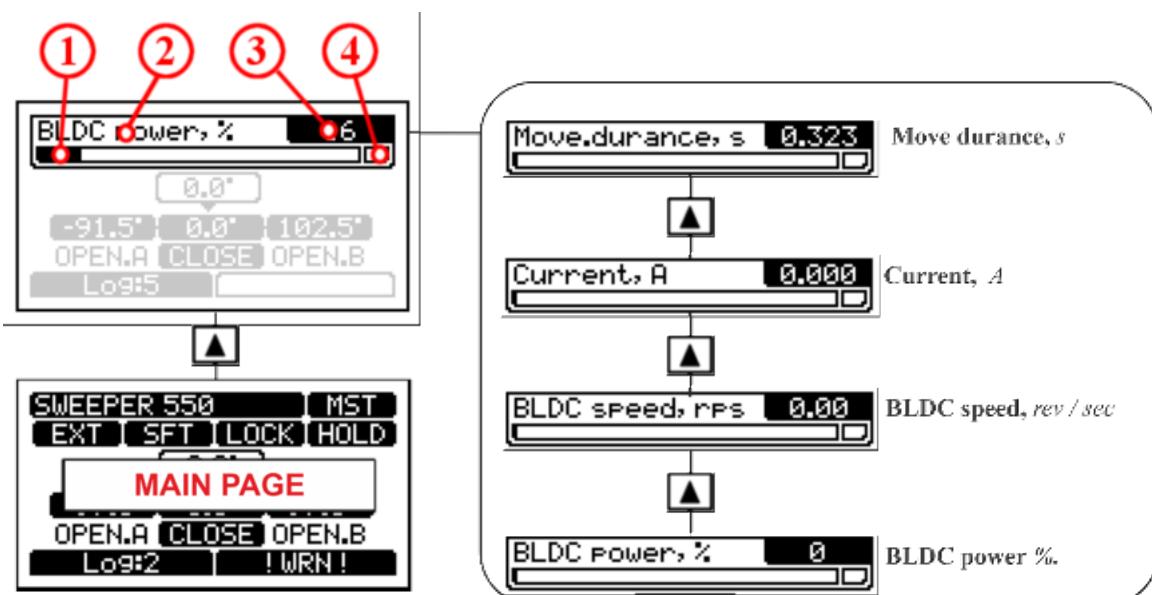
After initialization of the controller the **main page** of the menu is displayed on the screen:



1. Control mode indication
2. PANIC- and SAFETY-mode indication of the turnstile
3. Type and model indication of the turnstile
4. Locking mechanism status indication
5. Solo/Master/Slave modes indication
6. BLDC-drive modes indication
7. Leaf's working range indication
8. Errors and warnings system indication
9. Number of log entries indication
10. Actual control commands indication
11. Actual leaf position indication

Fig.12 – Structure of the main page indications

1.5.3. Additional indication of the main page on the OLED display:



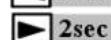
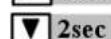
Symbols of additional indication of the main page menu:

- ① - parameter value bar in a Range min - max
- ② - parameter name
- ③ - numeric parameter value
- ④ - indicator of reaching and / or exceeding the parameters of the MAX value

Fig.13 – Structure of the additional indication of the main page menu

1.5.4 Other pages (functions) of OLED display:

You can toggle to other pages (functions) of display by holding pressed the corresponding button more than 2 seconds (Fig.14):

-  2sec - toggle to the system log page
-  2sec - toggle to the current errors page
-  2sec - toggle to the system menu page

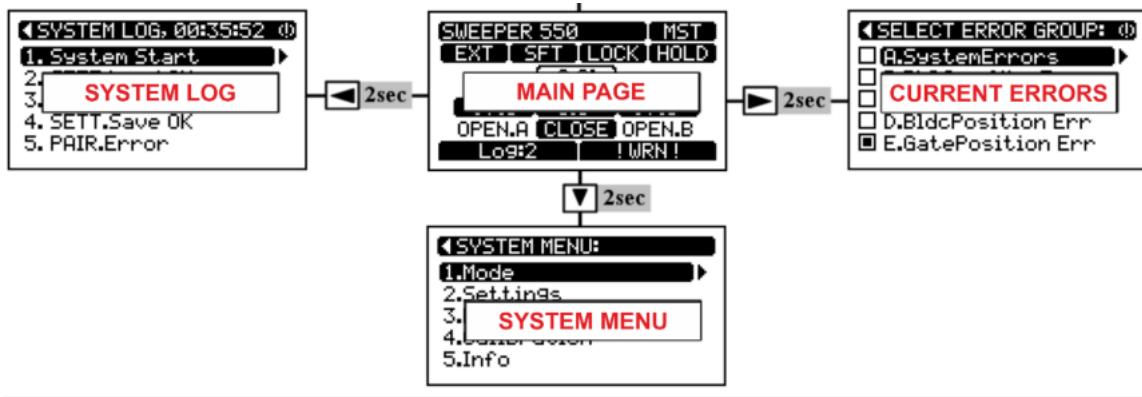


Fig.14 – Switching to other pages (functions) of the menu

1.5.5. The purpose of the controller contacts AUIA.401.00.00-01

Table 5- The purpose of the controller contacts AUIA.401.00.00-01

<i>Nº</i> <i>Connector/contact</i>	<i>Description</i>	<i>Direction</i>	<i>Designation</i>
XT1/1	G	EXIT	Common wire of the control panel GND
XT1/2	A	DATA	RS485 (1) communication line with 7-button TISO control panel
XT1/3	B	DATA	
XT1/4	POW	EXIT	Power output for control panel 12V
XT1/5	+12V	EXIT	Power output for additional devices 12V
XP1/1	+12V	ENTRY	power supply 12V
XP1/2	GND	ENTRY	power supply GND
XT2/1	GND	EXIT	Common for additional devices GND
XT2/2	OUT7	EXIT	Access system signal: passage error
XT2/3	OUT6	EXIT	Access system signal: passageway is closed
XT2/4	OUT5	EXIT	Access system signal: passageway is closed
XT2/5	OUT4	EXIT	Access system signal: middle of the passageway B (triggering angle is adjustable)
XT2/6	OUT3	EXIT	Access system signal: middle of the passageway A (triggering angle is adjustable)
XT2/7	OUT2	EXIT	Access system signal: pass B opening (triggering angle is adjustable)
XT2/8	OUT1	EXIT	Access system signal: pass A opening (triggering angle is adjustable)
XT3/1	INP5	ENTRY	Access system signal: free pass B
XT3/2	INP4	ENTRY	Access system signal: free pass A
XT3/3	INP3	ENTRY	Access system signal: single pass B.
XT3/4	INP2	ENTRY	Access system signal: single pass A.
XT3/5	INP1	ENTRY	Access system signal: "PANIC"
XS1/1	MOT C	EXIT	Connection of BLDC-motor coils
XS1/2	MOT B	EXIT	
XS1/3	MOT A	EXIT	
XP12/1	+5V	EXIT	Power supply for hall sensors of the BLDC-motor
XP12/2	HALL C	ENTRY	Hall sensor signals of BLDC motor
XP12/3	HALL B	ENTRY	Hall sensor signals of BLDC motor
XP12/4	HALL A	ENTRY	Hall sensor signals of BLDC motor
XP12/5	GND	EXIT	GND of hall sensors of BLDC motor
XP9/1	MG1	EXIT	Sound alarm control signal
XP9/2	MG2	EXIT	Not applicable
XP9/3	MG3	EXIT	Gate lock system control signal
XP9/4	+12V	EXIT	Power supply of sound alarm
XP9/5	+12V	EXIT	Power supply of magnet lock system
XP9/6	+12V	EXIT	Not applicable

Continued table 5

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
XP6/1	RS - A	DATA	RS 485 (2) communication line with the leaf position sensor
XP6/2	RS - B	DATA	
XP6/3	GND	EXIT	Common
XP6/4	+12V	EXIT	Power supply of leaf position sensor
XP8/1	J1	ENTRY	Jumper of line RS 485 (2) pull up resistor
XP8/2	J2	ENTRY	Jumper of line RS 485 (2) termination resistor (load)
XP8/3	J3	ENTRY	Jumper of line RS 485 (2) pull up resistor
XP2/1	GND	EXIT	Common
XP2/2	SW1	ENTRY	Not applicable
XP2/3	SW2	ENTRY	Not applicable
XP2/4	SW3	ENTRY	Not applicable
XP2/5	SW4	ENTRY	Gate lock system feedback
XP2/6	GND	EXIT	Common
XP1/1	RED 1	EXIT	output indication for direction A
XP1/2	GRN 1	EXIT	
XP1/3	RED 2	EXIT	output indication for direction B
XP1/4	GRN 2	EXIT	
XP1/5	+12V	EXIT	Power supply of light indication
XP7/1	GND	EXIT	Common
XP7/2	RS - A	DATA	RS 485 (3) internal communication line between controllers
XP7/3	RS - B	DATA	
XP5/1	J1	ENTRY	Jumper of line RS 485 (3) pull up resistor
XP5/2	J2	ENTRY	Jumper of line RS 485 (3) termination resistor (load)
XP5/3	J3	ENTRY	Jumper of line RS 485 (3) pull up resistor
XP10/1	GND	EXIT	General output of the CAN interface
XP10/2	CAN-R	EXIT	CAN-interface line for communication of unpaired gates
XP10/3	CAN-D	EXIT	
XP3/1	+12 V	EXIT	Power supply the BLDC-motor shaft position sensor
XP3/2	SPEED	ENTRY	Signals of BLDC-motor shaft position sensor
XP3/3	ANGLE1	ENTRY	
XP3/4	ANGLE2	ENTRY	
XP3/5	ZERO3	ENTRY	
XP3/6	SET ZERO	EXIT	
XP3/7	GND	EXIT	Common
XP4/1	J1	ENTRY	Jumper of line RS 485 (1) pull up resistor
XP4/2	J2	ENTRY	Jumper of line RS 485 (1) termination resistor (load)
XP4/3	J3	ENTRY	Jumper of line RS 485 (1) pull up resistor
XP13	Micro USB	DATA	Micro-USB Connector for programming and configuration

Refer to the user manual “Controller AUIA.401.00.00-01 of BMDrive motor control” for more information about the operation and setting of the controllers.

2. INTENDED USE

2.1 Operational limitations

2.1.1 The product should be operated under the conditions specified in 1.1.4 of this document, while keeping the specifications given in section 1.2.



FOLLOWING IS PROHIBITED:

- 1) To use the turnstile not for appointment (see section 1 "description and work");
- 2) Operate a turnstile without earthing;
- 3) Use grounding pipes and batteries of heating systems, central water supply pipe;
- 4) Perform adjustment and repair works without disconnection of power supply;
- 5) Move through the turnkey passage zone areas exceeding the pass width;
- 6) Manufacturing impact on preventing gates, light tablet of indication or other parts of the product;
- 7) To apply the effort to the passes when access denied more than 400 N (40 kg)

2.1.2 It is forbidden to use the turnstile:

- the presence of mechanical gritting in the moving parts of the turnstile;
- mechanical damage of the metal structure of the turnstile, its devices and components;
- mechanical damage of electrical cables;

2.1.3 List of special operation conditions

- Mean time of the turnstile access (in single access mode) equals to 1,5 sec.
- The force applied by accessor to barrier rod should not exceed 400H.
- Escape door, portal or cabinet can be installed near the turnstile to increase the turnstile traffic flow capacity in case of emergency

2.2 Layout and installation

The turnstile and other products of the delivery set must be delivered to the installation site in the manufacturer's packaging. Unpack the turnstile only at the installation site.

Preparation of the turnstile for installation (dismounting) and commissioning to be performed according to this OM with mandatory observation of safety measures specified in p. 2.1 and general electrical safety code.



WARNING:

The turnstile damage occurred during transportation is not covered by the manufacturer's warranty obligations.

2.2.1 Instrumentation, tools and accessories

Special-purpose tools are not required for the turnstile installation (multi-purpose measurement instrumentation and installation tools are enough).

(See Figure 15).

- puncher;
- concrete drills (according to diameter of anchors included in the turnstile scope of delivery);
- extension cord;
- kit of end and pin wrenches;
- kit of hexagons;
- kit of screwdrivers;
- hammer;
- multimeter (tester);
- measuring tape;
- marker;
- pliers, side cutters;
- builder's level.



Fig. 15- Tools and accessories for layout and installation

2.2.2 Safety cautions:

- Only persons who have passed the Safety Instruction and who have studied this manual and who have an appropriate group of permits for work with electrical installations with voltages up to 1000 V, familiar with the RE, the structure and the principle of operation of the turnstile, should be allowed to install.
- when installing the turnstile, use only a serviceable tool;

- connect all cables only when the power sources are disconnected from the mains and switched off;
- cabling should be carried out in accordance with the Rules for the operation of electrical installations;
- installation of the turnstile should be carried out by a team of installers, consisting of not less than 2 people.

2.2.3 Installation procedure.

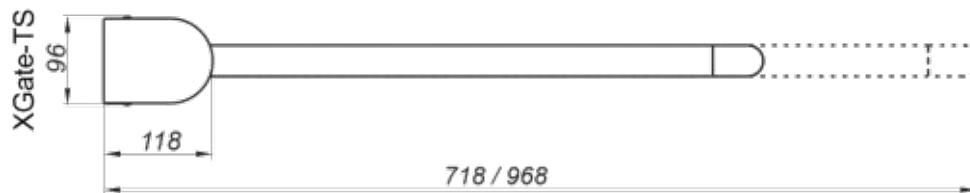
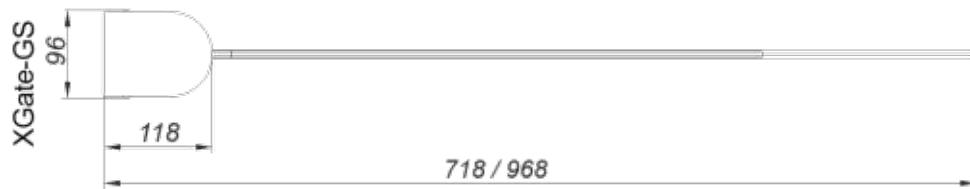
The turnstile installation procedure is as follows:

- 1) The package integrity to be checked prior to unpacking. If package is damaged, then damages to be fixed (picture to be taken, damage report to be made).
- 2) The turnstile to be unpacked and inspected for defects and damages as well as completeness to be checked according to the turnstile data sheet;



WARNING:

When the turnstile damages are detected or in case of shortage of delivery, installation work to be stopped and the turnstile supplier to be referred to.



Installation drawing of the base XGate stand

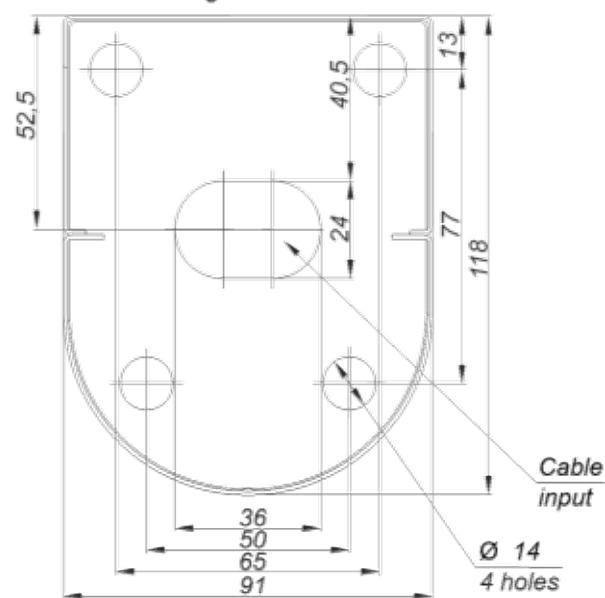


Fig.16 – Gate type turnstile installation marking

3) Make sure that the turnstile installation area is ready as follows:

- The installation site surface to be flat and horizontal;
- Thickness of concrete blinding coat under site to be at least 150 mm;

4) The turnstile fixation holes to be marked on the area surface according to Fig. 16. The turnstile itself can be used as a template, when installed upright on installation site.

5) The relevant holes to be drilled on the surface according to the marking due to diameter of anchors (12×120M10) for the turnstile fixation. Anchor jackets to be inserted into the prepared holes.

6) When cables to be laid under the floor surface, then a cable duct to be prepared in the floor leading to the turnstile rack cable entry area. The cable entry area layout is shown in Fig.16 diagram.

7) The following cables to be pulled to the turnstile installation site:

- Power supply cable 230 V ~;
- Control panel link cable;
- Access control system (ACS), if any, connection cables;

WARNING:

- Cables to be pulled in corrugated or metal pipes;
- The length of cable free ends to be at least 1 m to provide their entry, termination and connection to the relevant terminals in the turnstile rack.
- The cable outlet point to be aligned with the hole on the turnstile mounting
- The turnstile is fixed by means of Redibolt anchors (with jacket and screw) included in the scope of delivery.
- The turnstile installation and fixation to be performed only after all electric cables are pulled.

8) For access to fixing and technological openings of the base and terminal blocks of the XGate- tripod turnstile (Fig. 16) is required:

- 1- Remove the door of the rack by unscrewing **2** screws;
- 2- Remove the protective plate of the control panel by unscrewing **6** screws;
- 3- Pull the required cables;

Place the turnstile in a vertical position on the prepared place: tilting the turnstile back, pull the cables through the available technological hole in the lower end part of the turnstile rack; connect the fastening holes in the lower plate of the turnstile with the prepared holes in the surface.

- 4- Install the mounting plate, securing it with 4 anchors;
- 5- Fasten the turnstile stand to the mounting plate with 2 screws;

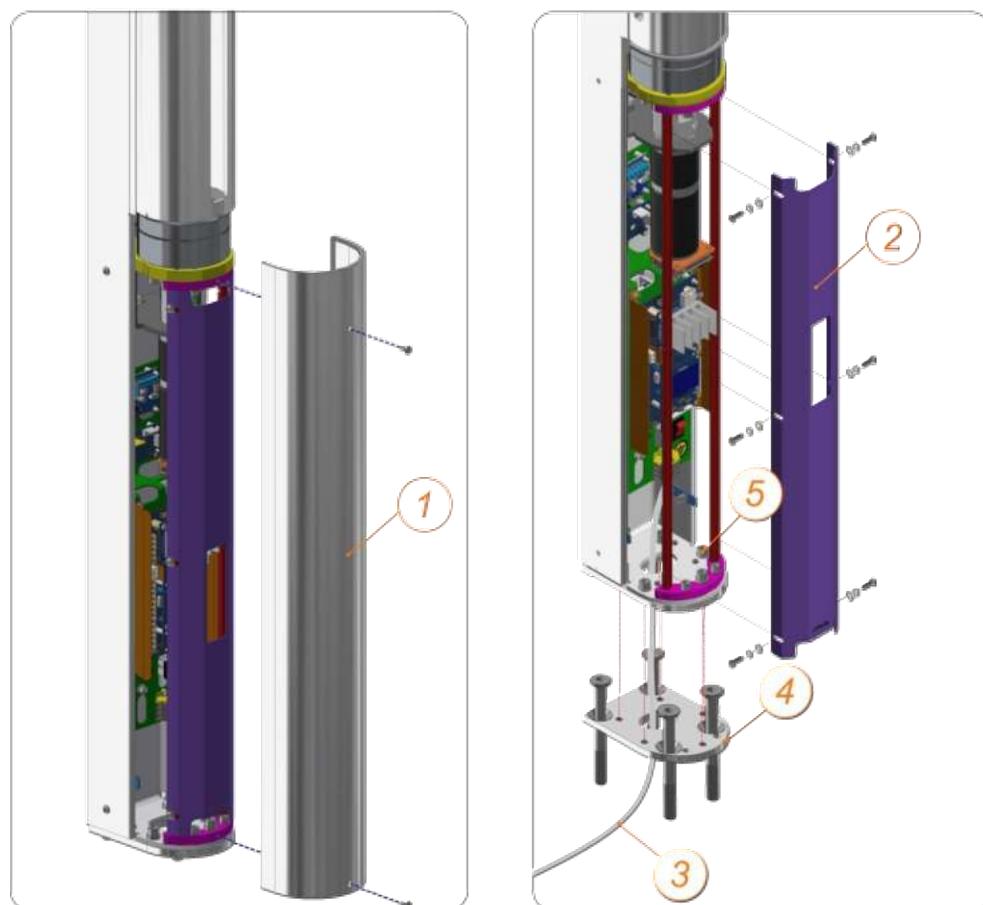


Fig.17 – Installation and fastening of the turnstile rack

- 6- Remove the upper glass cover: it is necessary to loosen the screw at the end of the turnstile body with the help of a hexagon. Then move the glass cover aside by 1.5 cm;
- 7- For the convenience of additional settings and the zero position of the sash, disconnect the electric cable connecting the LED indication;



Fig. 18 – Installation of the top cover on the turnstile rack

- 8- Install the leaf on the shaft, if necessary, adjust the zero position of the leaf (see the chapter on adjusting the leaf position); The glass leaf of the XGate-GS, XGate-GSH turnstiles and the plastic leaf of the XGate-PS turnstile are connected similarly.
- 10- Install the turnstile glass cover of the rack in the order of removal
- 11- The turnstile door to be installed in the removal reverse sequence.

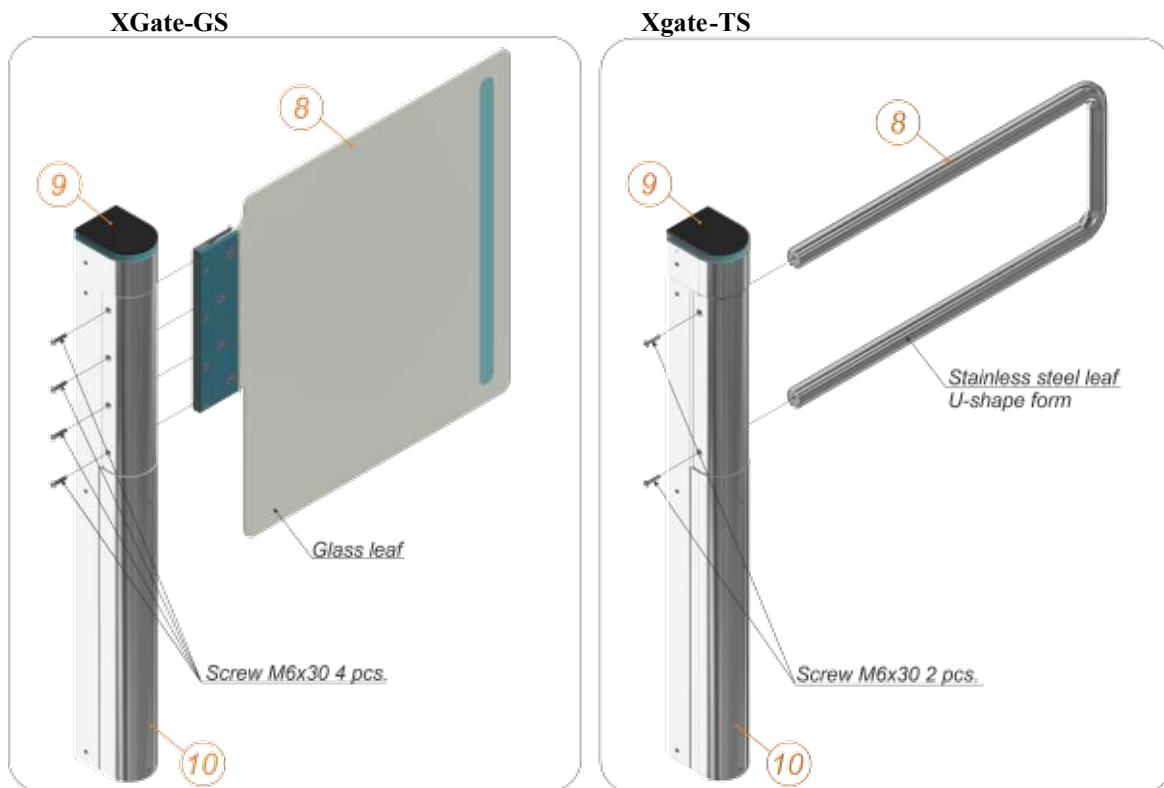


Fig. 19 – The general view of the assembly of the leaf on the turnstile gate


WARNING:

During the turnstile installation it should be taken into account that horizontally positioned barrier arm must be at a distance not more than (50 ÷ 100) mm from access way creator (any surface perpendicular to horizontally positioned barrier rod: enclosure module, wall, etc.).

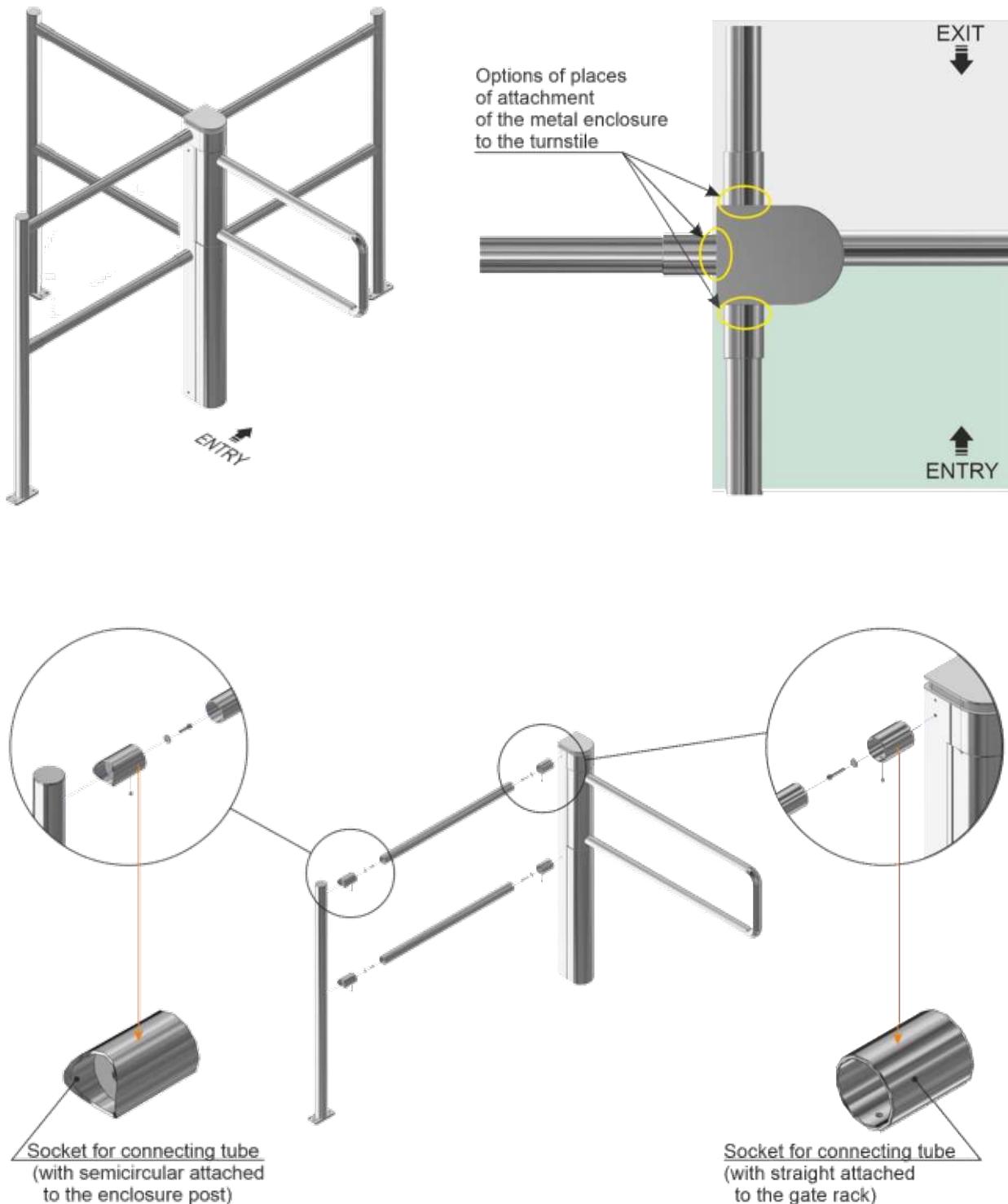
2.2.4. Installation of enclosure


Fig.20 - Installation of enclosure for the turnstile XGate-TS

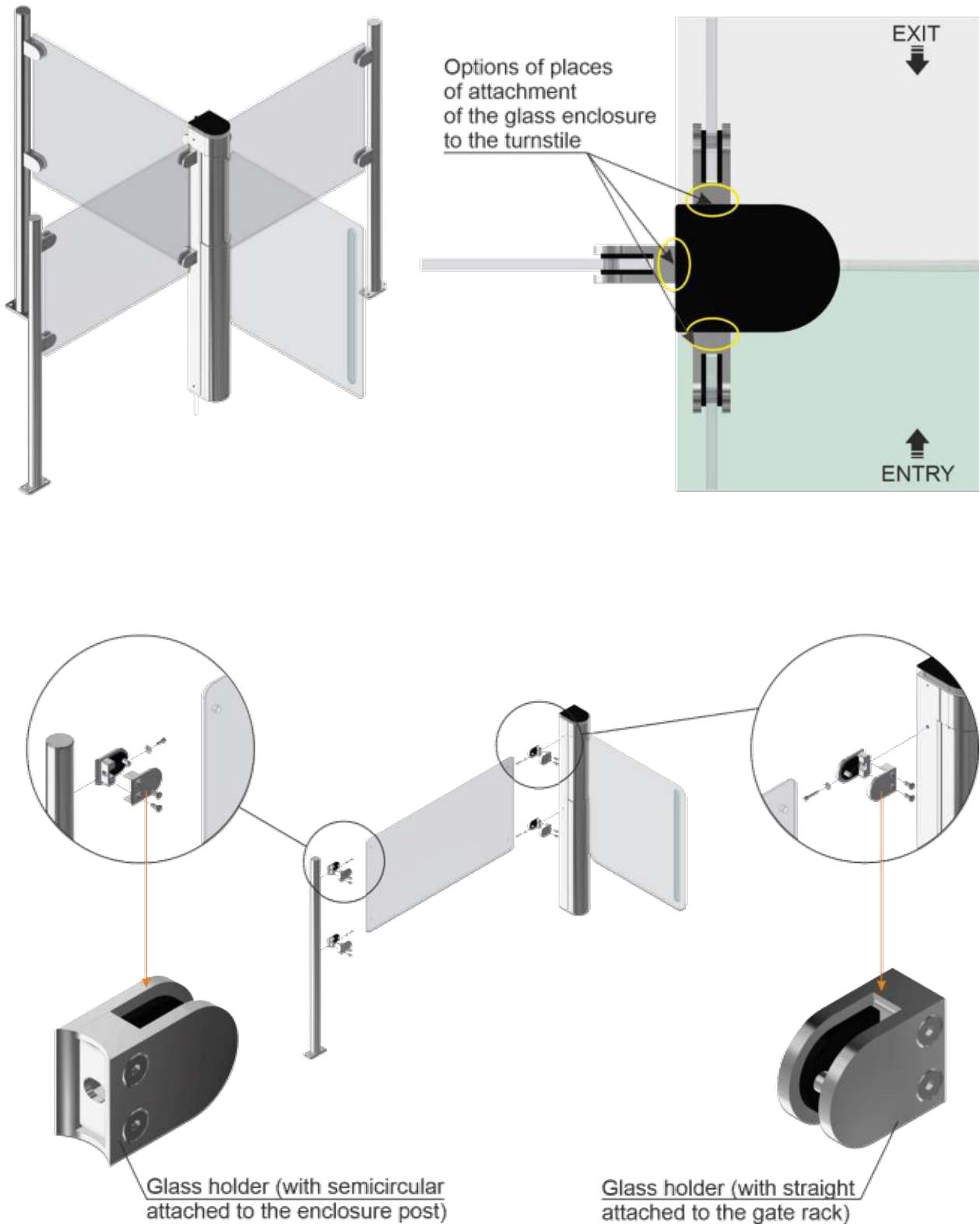


Fig. 21 - Installation of enclosure for the turnstile XGate-GS

2.2.5. Turnstile connection:

- a) ~230 V power supply cable to be connected (Fig.20):
 - Phase L to be connected to the circuit breaker ;
 - Neutral (N) to be connected to terminal ~230V;
 - Earth (PE) to be connected to earthing terminal (PE);
- b) Control panel cable to be connected to terminals:
 - **P** (Power) - control panel power supply +12V;
 - **G** (GND) - common wire of control panel;
 - **A** (RSA) – wire of the communication line (RS 485) of control panel;
 - **B** (RSB) - wire of the communication line (RS 485) of control panel;
- c) Proximity card readers to be installed if access control system (ACS) is available on special reader racks – option.

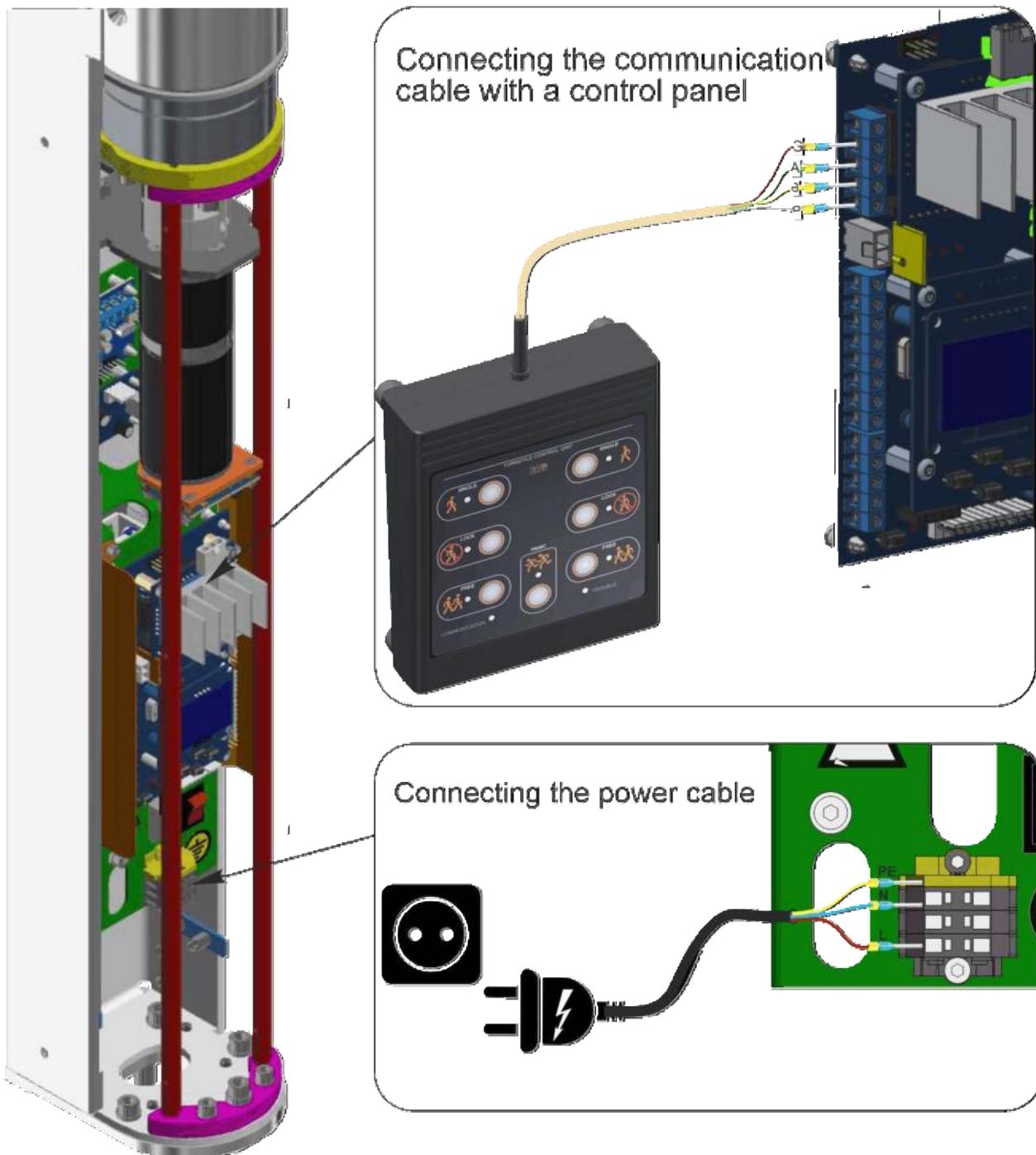


Fig.22 – Connection of power supply and control panel link cable

2.2.6. Adjustment of the zero position of leaf for XGate



- For XGate series turnstiles, the zero position can be at point **CLOSE (0°)** For turnstiles of this type, the zero position is set manually by the user during working area searching.
- The working area search procedure can be launched: from the controller and from any turnstile mode, at any menu page;
- For a more detailed description of the turnstile operation settings, please refer to the manual "AUIA.401.00.00-01 . QuickStart"

The turnstile leaf initialization procedure can be started in two ways:

Option I (with PCB 730.004.01-fig.23)

- Carefully remove the cover with the gate post indicator, then disconnect the connectors for ease of operation;
- Press and hold the **ZERO (1)** button on the PCB.730.002.01 controller of the leaf magnetic sensor. The turnstile will go into «**OFF**» mode and a message (2) «*gate sensor zero-button is pressed*» will appear on the display of the AUIA.401.00.00-01 controller;
- While holding the **ZERO (1)** button manually set the zero point of the leaf turnstile (**CLOSE** position (2))
- After releasing the **ZERO (1)** button the turnstile will save the user-set point as zero (**CLOSE** position (2)).
- The controller will start the working area search procedure and automatically determine the minimum and maximum of working area;

It is important not to obstruct the movement of the sash in the working area!

- Turnstile is ready for work following a successful working area search procedure and finishing 3 full cycles work of leaf.

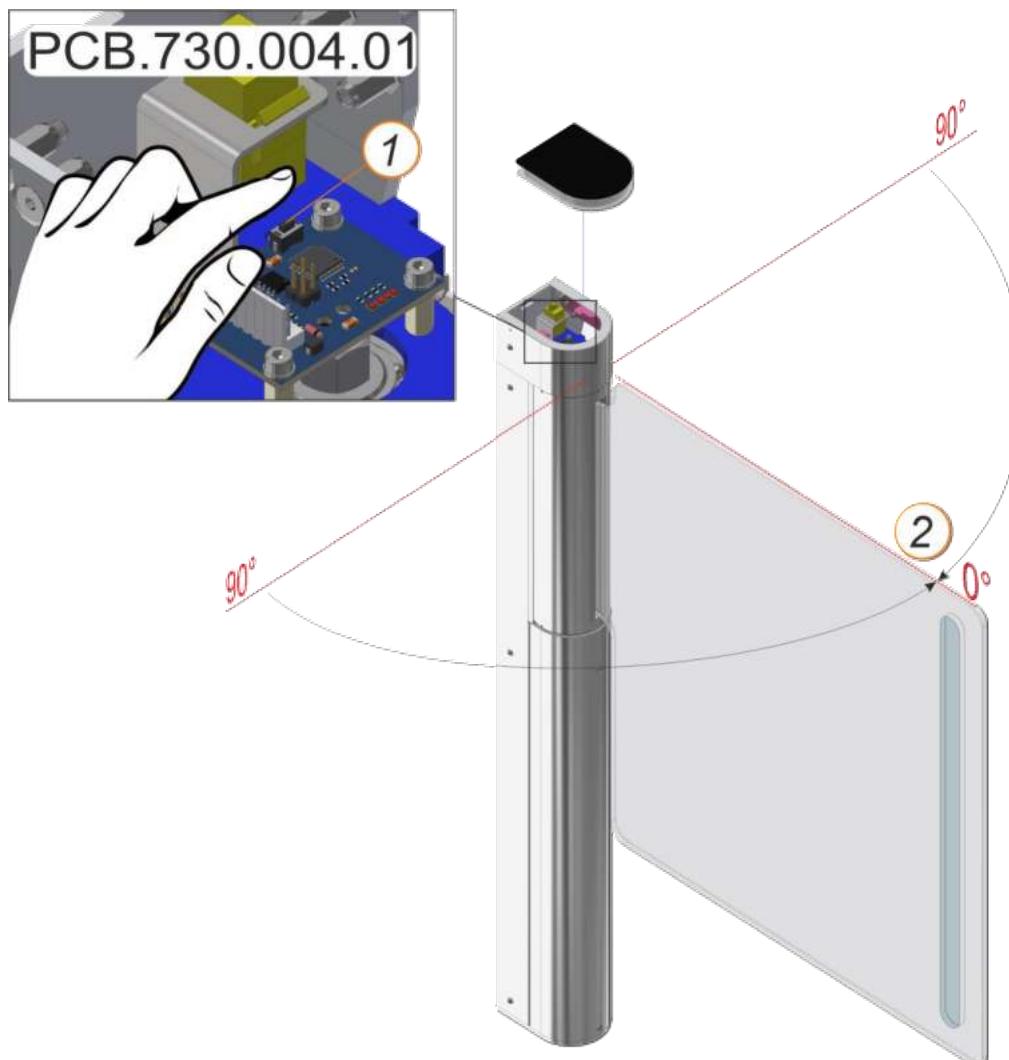


Fig.23 – Setting the zero position of the leaf using the "zero" button

Option II (with service remote panel AUIA.118 – see Fig.24)

- To control the controller, it is necessary to connect the service control panel (1) AUIA.118
- Run the menu holding for 2 seconds the lower button (2) on the **service remote panel AUIA.118** and choose “Calibration”->“GateZeroSet” controller. If you request a calibration procedure, the turnstile will go to “OFF” mode
- Set the zero point of the leaf of turnstile manually (CLOSE(4) position)
- Confirm the start of working area search procedure by pressing “YES” (3) on the **AUIA.118 remote panel** display.
- The controller will save the user-set point as zero (CLOSE position (4) and automatically determine the minimum and maximum of working area.
- Following a successful procedure, The remote panel will display a message (3) for a few seconds «The workspace search was successful» and then switch to the home page:
- Turnstile is ready for work.

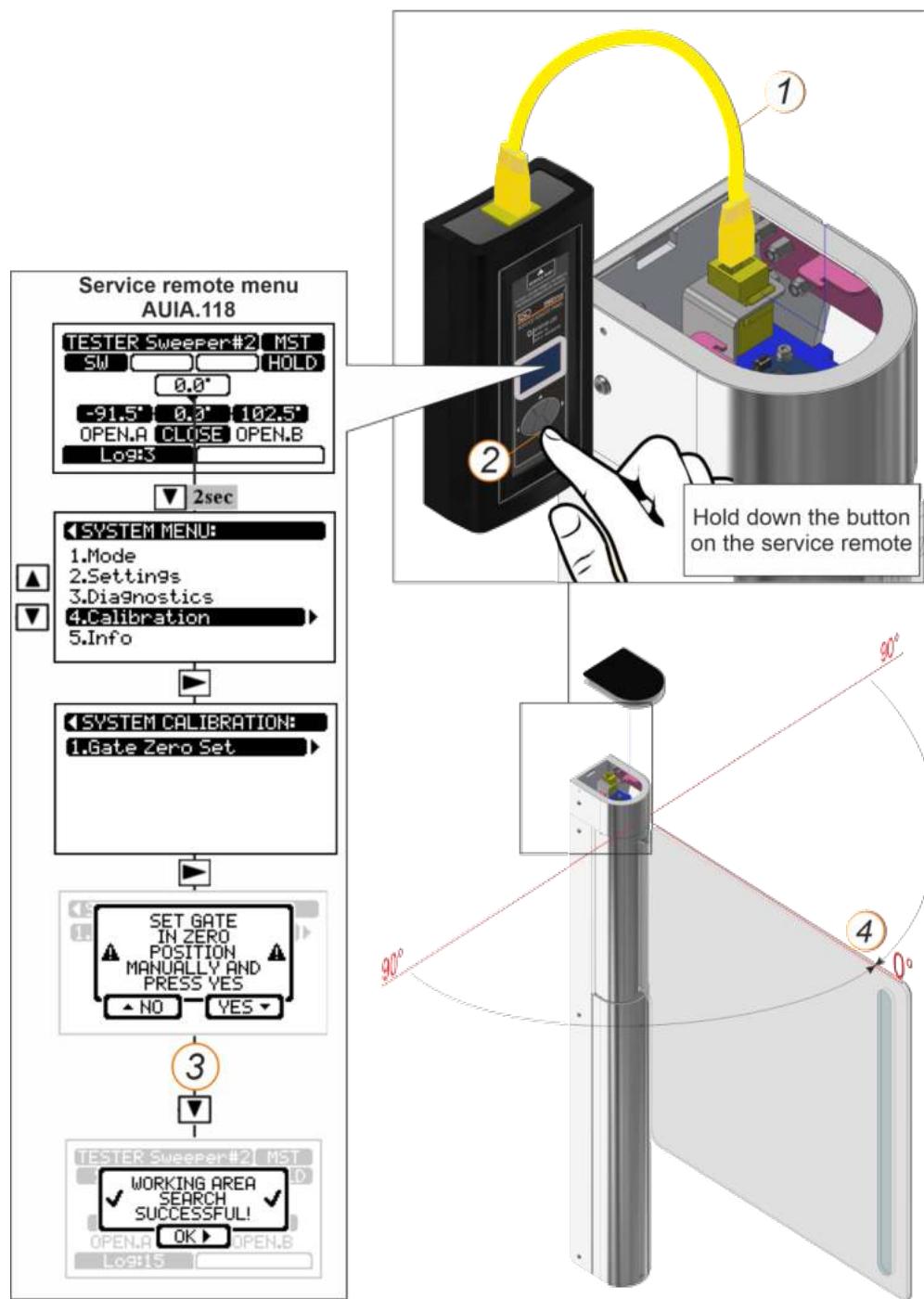


Fig.24 – Adjustment of the leaf zero position using the menu of controller AUIA.401.00.00-01

2.3 Turnstile preparation for use

2.3.1 Commissioning guidelines

Prior to the turnstile energization:

- 1) make sure of proper connection and good condition of all connecting cables;
- 2) the turnstile barrier arm turning area to be cleaned from foreign particles.

When mains cable of power supply unit is connected to network the turnstile control mechanism are energized: barrier arms are locked from rotation in both directions barring access.

The turnstile is set in the initial state: red indicator is displayed for entry and exit.

2.3.2 Required inspections

2.3.2.1 When the turnstile is commissioned it is necessary to perform the inspections specified in Table 6. The wiring diagram according to Annex C and the control panel according to Annex B.

Table 6

Operation Mode	Mode Setting	LED display	Functional check
1	2	3	
1. Turnstile is closed in both directions (initial state)	—	Blue indicator lights up	Make sure that swing leaf can't be rotated in either direction
2. Single access in one direction	"SINGLE" button to be pushed for access in chosen direction («A» or «B»)	Green indicator of authorized single access in chosen direction is lit and blue LED brightness is changed in opposite direction.	Swing leaf is rotated at 90° in the intended direction
3. Single access in both directions	Both "SINGLE" buttons to be pushed for access in both directions («A» and «B»)	Green indicators of authorized single access in both directions are lit.	Swing leaf is rotated at 90°
4. Free access in one direction	"FREE" button to be pushed for access in chosen direction («A» or «B»)	Green indicator of authorized free access in chosen direction is lit and blue LED display is lit in opposite direction	Swing leaf is rotated at 90° in the intended direction
5. Free access in both directions	Both "FREE" buttons to be pushed for access in both directions («A» and «B»)	Green indicators of authorized free access in both directions are lit	Swing leaf is rotated at 90°
6. Single access in one direction and free access in opposite direction	"SINGLE" button to be pushed for access in chosen direction («A» or «B») and "FREE" button to be pushed for access in opposite direction	Green indicator of authorized single access in chosen direction is lit and green indicators of authorized free access in opposite direction is lit	Swing leaf is rotated at 90°
7 Single access in one direction and locked access in opposite direction	"SINGLE" button to be pushed for access in chosen direction («A» or «B») and "LOCK" button to be pushed to lock access in opposite direction	Green indicator of authorized single access in chosen direction is lit and red LED display of locked access direction is lit	Swing leaf is rotated at 90° in the intended direction
8. Free access in one direction and locked access in opposite direction	"FREE" button to be pushed for access in chosen direction («A» or «B») and "LOCK" button to be pushed to lock access in opposite direction	Green indicator of authorized free access in chosen direction is lit and red LED display of locked access direction is lit	Make sure that swing leaf is rotated at 90° in the intended direction.
9. Locked access in one direction	"LOCK" button to be pushed to lock access in chosen direction ("A" or "B")*	Red LED of locked access in one chosen direction is blinking	Make sure that swing leaf is locked
10. Locked access in both directions	Both "LOCK" buttons to be pushed to lock access in both directions ("A" and "B")**	Red LED of locked access in both directions is blinking	Make sure that swing leaf can't be rotated in either direction
11 Activation of "panic" mode	"PANIC" button to be pushed and hold within at least 7 sec.**	Green indicators of authorized free access in both directions are blinking	Swing leaf is opened
12 Deactivation of "panic" mode	"PANIC" button to be pushed	Blue LED brightness is changed	Make sure that swing leaves can't be rotated in either direction

* In this case other control panel buttons of single and free access are locked in chosen direction.

** In this case all control panel buttons of single and free access are locked in both directions.

Upon completion of the turnstile satisfactory inspection it is ready for long-term operation

2.4 Contingency actions

- **Control panel** - For emergency evacuation of people (in case of fire, natural disasters, etc.) and to ensure free access, the turnstile to be released by sending the relevant command from control panel. For full opening of access way to be used "PANIC" button on control desk to be pushed and held for more than 7 seconds or a signal is sent to the relevant input (in3) of the turnstile controller.
- **Backup battery 12 V 1.2 Ah (optional)** - in case of mains power failure the turnstile automatically switches to power supply from backup battery (with overall size max 55 x 43 x 97 mm).
- **Fail-safe** - If the mains power is not recovered and battery is discharged or missing, the leaf is unlocked (fail-safe) and rotate manually to create free access way.

3. MAINTENANCE

3.1 General guidelines

The turnstile commissioning and subsequent maintenance to be performed only by the staff to be in charge of the turnstile.

The turnstile to be serviced only by the staff having the relevant electrical safety qualification level according to the national requirements.

The turnstile to be installed and operated only by the qualified and instructed in safety staff having the relevant class of permit to work with electrical facilities with voltage up to 1000V, being aware of this OM, the turnstile design and principle of operation.

3.2 Safety Measures

3.2.1 During maintenance of the turnstile the relevant safety measures according to p. 2.1 to be observed.

3.2.2 When instrumentations are prepared for operation it is necessary to strictly comply with the safety requirements specified in instrumentation instruction manuals.

3.3 Maintenance procedure

3.3.1 The turnstile maintenance includes preventive measures which are taken according to the established frequency to maintain the turnstile in operational condition, decreasing of component wearing and prevention of faults and malfunctions.

3.3.2 Daily and periodic maintenance of the turnstile are recommended.

Normally the daily maintenance is carried out before the beginning of operation or during operational timeout and includes visual inspection of the turnstile's housing and, if required, troubleshooting of mechanical damages, surface corrosion and contamination.

IT IS FORBIDDEN:



- To use defective appliances, tools, fuses, instrumentation the service life of which expired
- To use abrasive and chemically active substances during cleaning of contaminated external surfaces of the turnstile.

Table 7

Name of means	Manufacturer Company	Manufacturer country
Spray for cleaning stainless steel products Stainless steel cleaner Polich	3M	Group of European companies
Cleaning fluid WellDone	Well Done	Hungary
Emulsion SANO MULTI METAL	SANO	China
Foam Dr.BECKMANN	Dr.Beckmann	Germany
Emulsion Reinex Edelstahlreiniger	Reinex	Germany
Spray for cleaning Stainless steel cleaner	Onish	United Kingdom

3.3.3 Periodic maintenance to be performed at least twice year and includes as follows:

- visual inspection of the turnstile's housing, control mechanism and other components for absence of external damages (corrosion, warps and other mechanical defects and pollutions);
- visual inspection of connecting, network and earthing cable condition;
- verification of the turnstile performance;
- during manual control in the modes specified in Table 6 or when identification cards are used;
- verification of reliability of the turnstile screw joints and earthing connections.

Table 8 - Periodic maintenance by technical staff

Component	Period	Action
Fixation screws	6 months	Checking/Tightening
Mechanical screws	6 months	Checking/Tightening
Actuator	12 months	Control
Controller	12 months	Checking + Cleaning
Sensors (position / speed / IR)	6 months	Checking + Cleaning
Cable joints and sockets	12 months	Control
Locking device	6 months	Checking + Cleaning


WARNING:

The turnstile not to be washed with water under pressure.

There are no user-serviceable parts inside the turnstile. Do not attempt to perform repair such as lubrication, component replacement and adjustment inside the device. All such work to be performed only by qualified technical personnel!

4. CURRENT REPAIR

4.1 General instructions

Minor malfunctions of the turnstile listed in *Table 13* are remedied by the customer. More complicated malfunctions are remedied by the manufacturer's representative.



INSPECTION, CLEANING, REPAIR ELEMENTS OF THE TOURNACE TO BE CARRIED OUT ONLY AFTER DISCONNECTING THE EQUIPMENT FROM ELECTRICAL NETWORK!

4.2 Possible malfunctions

Table 9 - Possible malfunctions

<i>Malfunction</i>	<i>Possible cause</i>	<i>Solution</i>
<i>1</i>	<i>2</i>	<i>3</i>
The turnstile does not work after power ON	<ul style="list-style-type: none"> • Lack of AC power. • The power cable is not connected. • Power supply unit is out of order. • Circuit breaker switched off inside the turnstile 	<ul style="list-style-type: none"> ✓ AC power to be recovered. ✓ Power supply cable to be connected. ✓ Power supply unit to be replaced. ✓ Switch on the power supply circuit breaker
Leaves do not open after giving a command from the ACS or a command from a wired 7-button control panel	<ul style="list-style-type: none"> • Turnstile does not obtain permission signal from ACS • No communication with the control panel • There are critical errors on the motor controller that have been identified by the self-diagnosis system. 	<ul style="list-style-type: none"> ✓ Check the presence of a trigger signal from the ACS ✓ Check the correct connection of the wired 7-button control panel ✓ Check and eliminate the causes of occurrence critical errors, that have been identified by the self-diagnosis system of the motor controller
Leaf knocks at the end of movement, when opening or closing.	<ul style="list-style-type: none"> • Leaf isn't calibrated correctly, zero point isn't adjusted. • There are critical errors on the motor controller that have been identified by the self-diagnosis system. • The mechanical stoppers of the mechanism are not adjusted 	<ul style="list-style-type: none"> ✓ Follow set zero leaf position setting procedure (see point 4.3) ✓ Check and eliminate the causes of occurrence critical errors, that have been identified by the self-diagnosis system of the motor controller ✓ Adjust the mechanical stoppers, after that follow set zero leaf position setting procedure (see point 4.3)
Control panel sound alarm and blinking with red indicator of bad "communication" signal	<ul style="list-style-type: none"> • Control panel don't have communication with main controller 	<ul style="list-style-type: none"> ✓ Check wires for damages and check wire connection of the control panel to the main controller (AUIA.401) ✓ Check the control panel for functionality
LED indication is out of order	<ul style="list-style-type: none"> • No contact with controller • Wires are damaged • LED indicator is out of order 	<ul style="list-style-type: none"> ✓ Check wires for damages and check inter-cabinet connection wires to PCB.705.002. ✓ Check the indications wires for damages ✓ Check the LED indications boards ✓ LED indication board to be replaced.
Leaf stays in semi-open position	<ul style="list-style-type: none"> • Mechanism jamming • There are critical errors on motor controllers that have been identified by the self-diagnosis system. 	<ul style="list-style-type: none"> ✓ Leaf opening manually to be checked with turned off power supply. ✓ Check the mechanism for jamming and backlash ✓ Check the zero position setting ✓ Check and eliminate the causes of occurrence critical errors, that have been identified by the self-diagnosis system of the motor controller

Table 9

<i>I</i>	<i>2</i>	<i>3</i>
Leaf remains open	<ul style="list-style-type: none"> • Mechanism jamming • "FREE ACCESS" mode is set. • There are critical errors on the motor controller that have been identified by the self-diagnosis system. 	<ul style="list-style-type: none"> ✓ Leaf opening manually to be checked with turned off power supply. ✓ Mechanism components to be checked ✓ "Free access" mode to be turned off ✓ Sensor adjustment to be checked. ✓ Check and eliminate the causes of occurrence critical errors, that have been identified by the self-diagnosis system of the motor controller
Leaf slow opening	<ul style="list-style-type: none"> • Mechanism jamming. • There are critical errors or was defined obstacles on motor controllers that have been identified by the self-diagnosis system. • Turnstile type or leaves size selected incorrectly on motor controller 	<ul style="list-style-type: none"> ✓ Leaf opening manually to be checked with turned off power supply. ✓ Check the mechanism for jamming and backlash ✓ Check and eliminate the causes of occurrence critical errors, that have been identified by the self-diagnosis system of the motor controller ✓ Obstacle detection sensitivity settings to be checked ✓ Check the correspondence of the type of the turnstile and the leaves size parameters at the motor controller settings.

4.3 Checking the product after repair

The turnstile is checked for operability with the help of the remote control after the repair according to *Table 6*.

5. STORAGE AND TRANSPORTATION

5.1 Do not subject the product to sudden shocks or impacts during storage. You need to use transport trolleys to lift or move the product. There should be no corrosive gases and vapors that cause corrosion of the metal in storage rooms,

The temperature of the air during storage should not exceed the limits below plus 5 and above plus 40 °C and relative air humidity not more than 80% at a temperature of 20 °C.

5.2 Transportation of the turnstile in assembled form in accordance with the rules of transportation operating on each mode of transport is carried out:

- in railway or special containers;
- in covered cars;
- by water transport (in ship holds).

It is allowed to transport on open platforms. In this case, the container with the product must be covered with tarpaulin.

The ambient temperature during transportation should not exceed the limits below - 40 C and above + 50 °C.

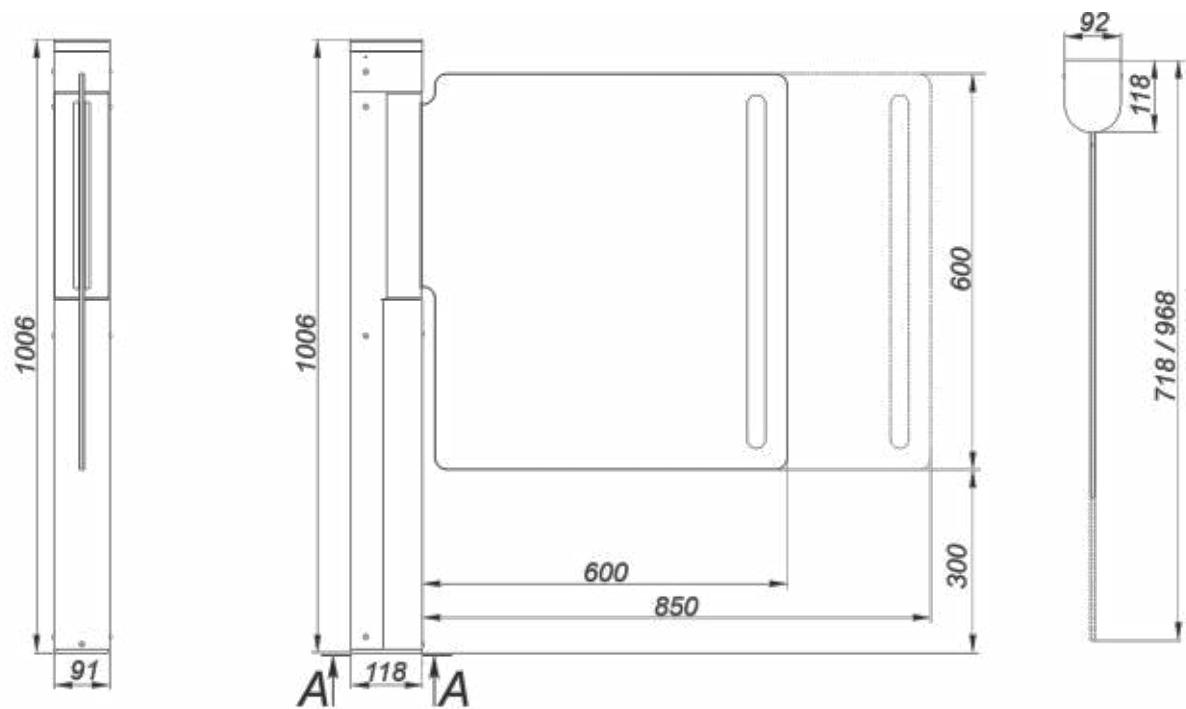
After transportation or storage of the turnstile at negative temperatures or high humidity of the air, the turnstile should be kept before startup without the original packaging for 12 hours in an enclosed space with normal climatic conditions:

- 1) ambient temperature - from plus 15 to plus 35° C;
- 2) relative humidity - from 45 to 80%;
- 3) atmospheric pressure - from 84.0 to 106.7 kPa (630-800 mm Hg).

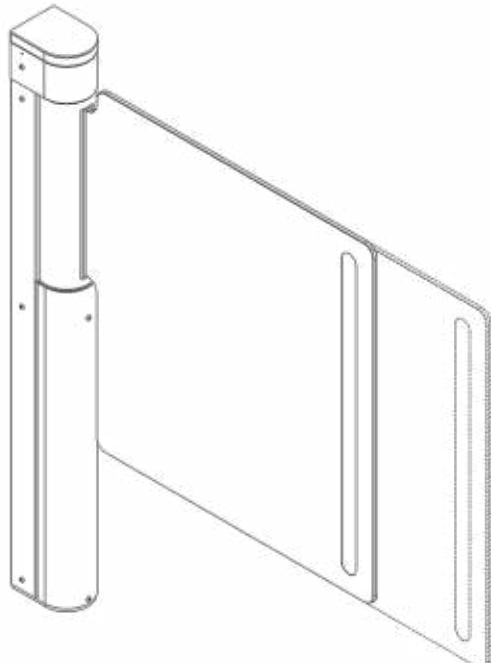
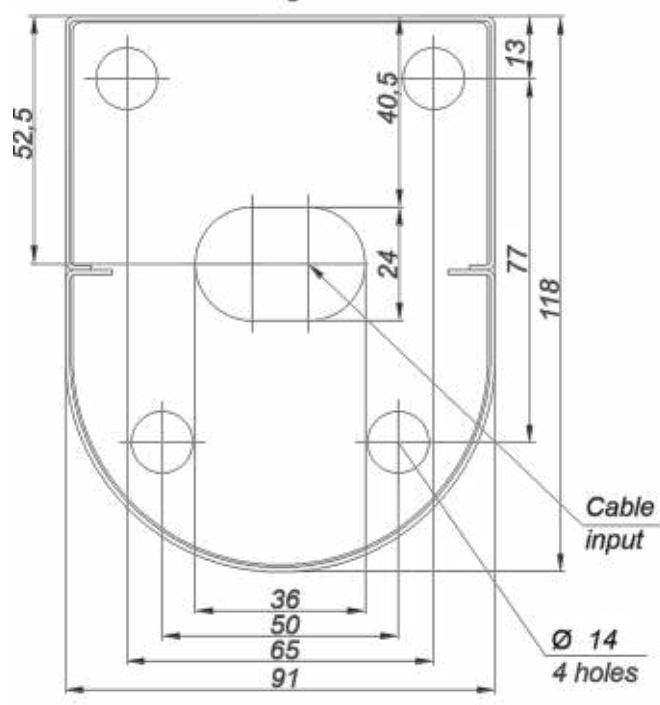
6. DISPOSAL CONSIDERATIONS

The turnstile does not contain in its structure materials that are hazardous to the environment and human health, and does not require special measures for its disposal.

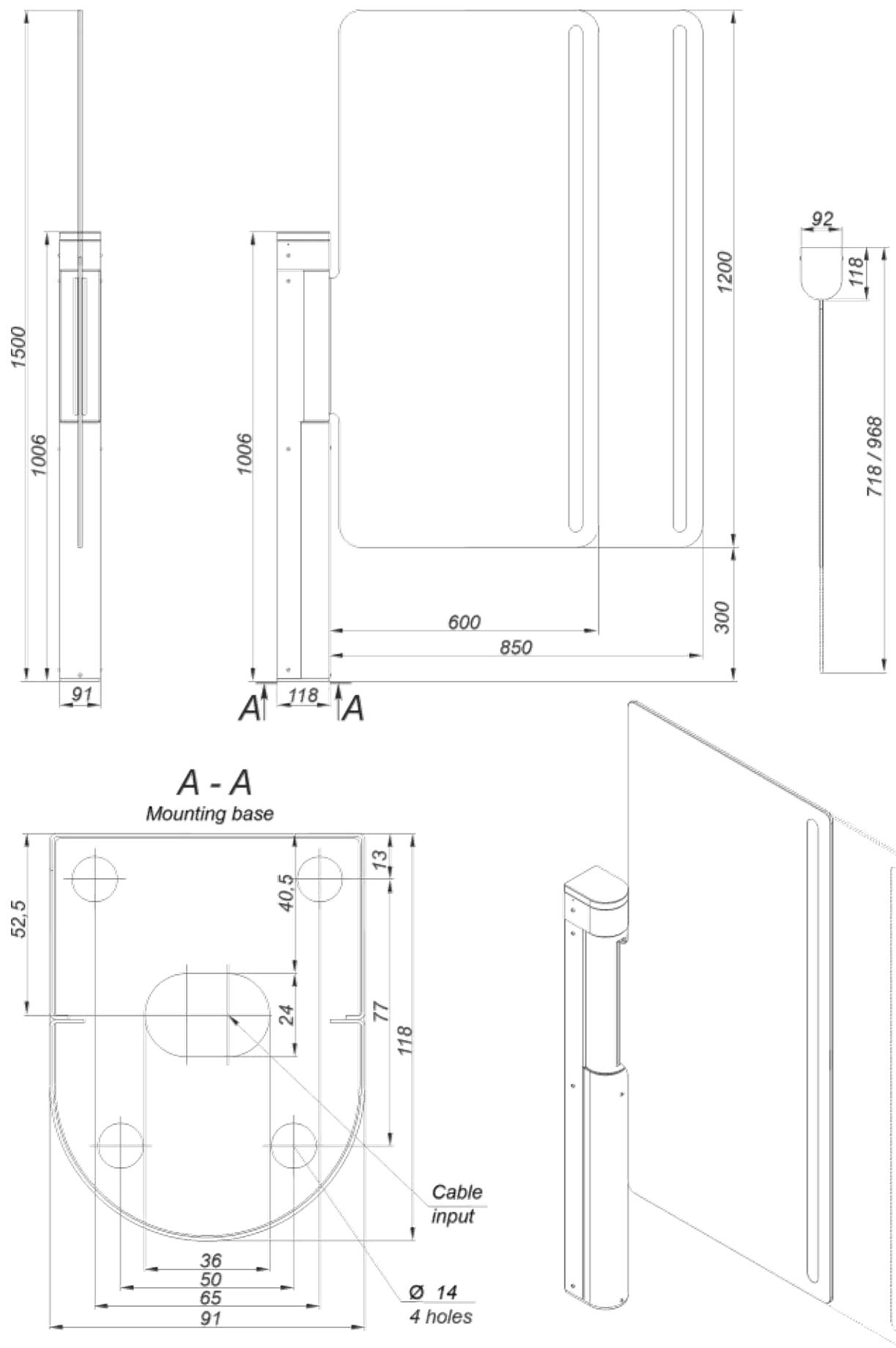
Annex A.1. Overall and installation dimensions of the turnstile «XGate-GS»



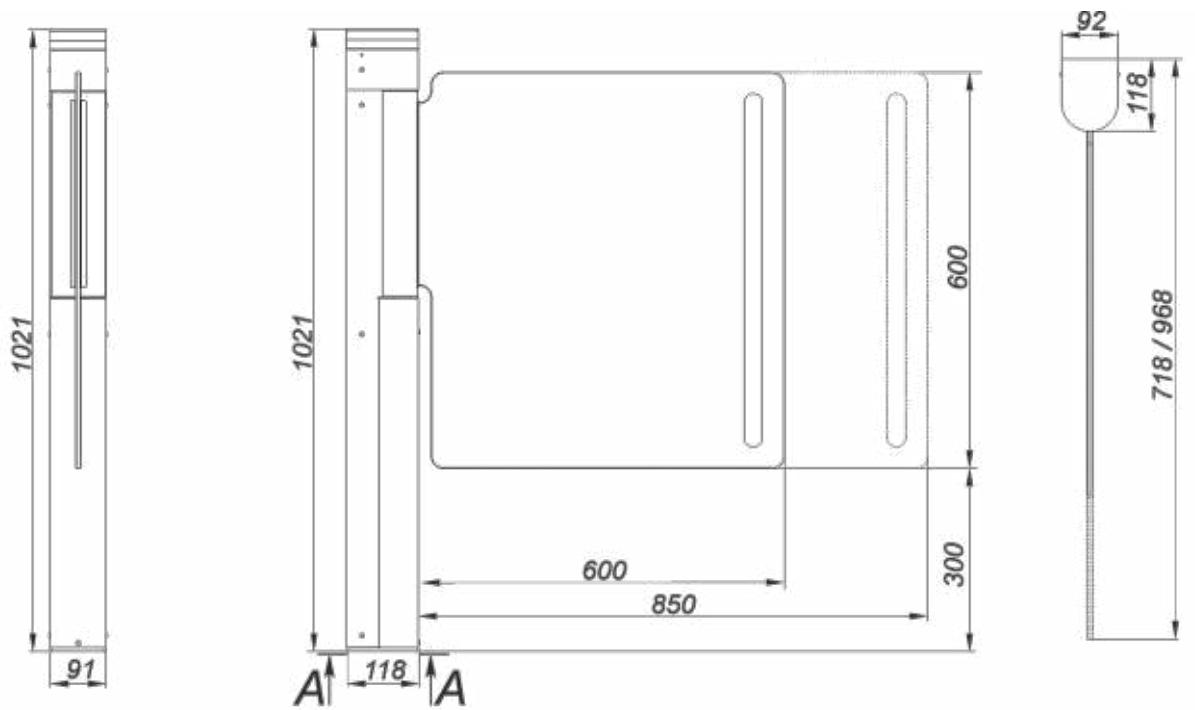
A - A
Mounting base



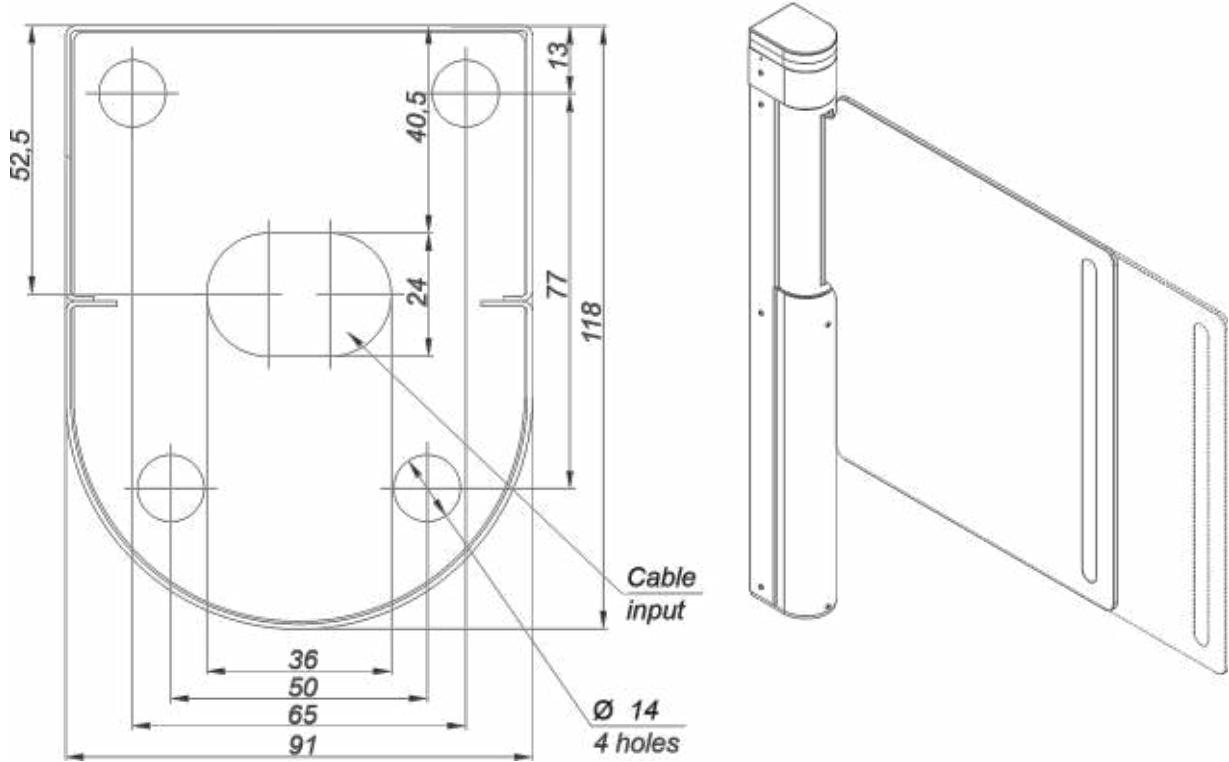
Annex A.2. Overall and installation dimensions of the turnstile «XGate-GSH»



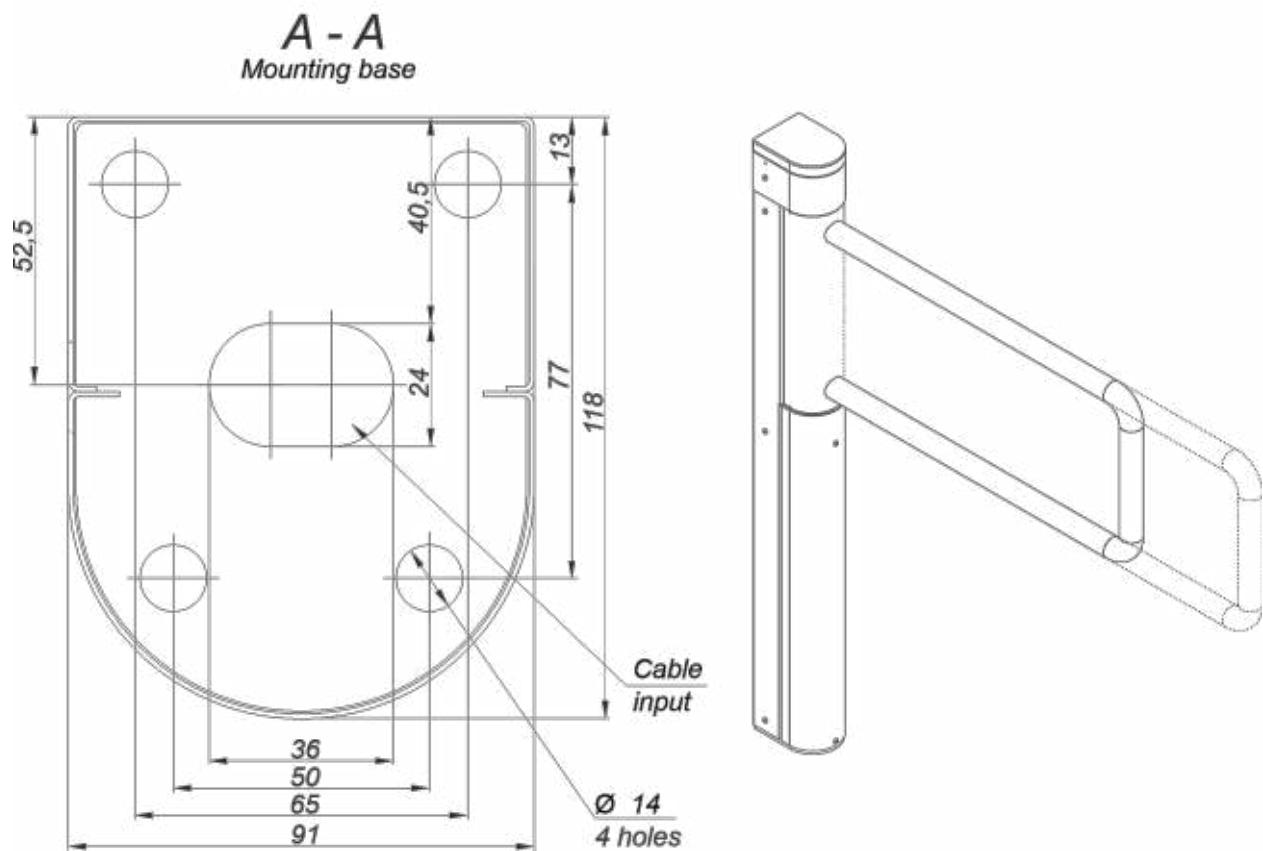
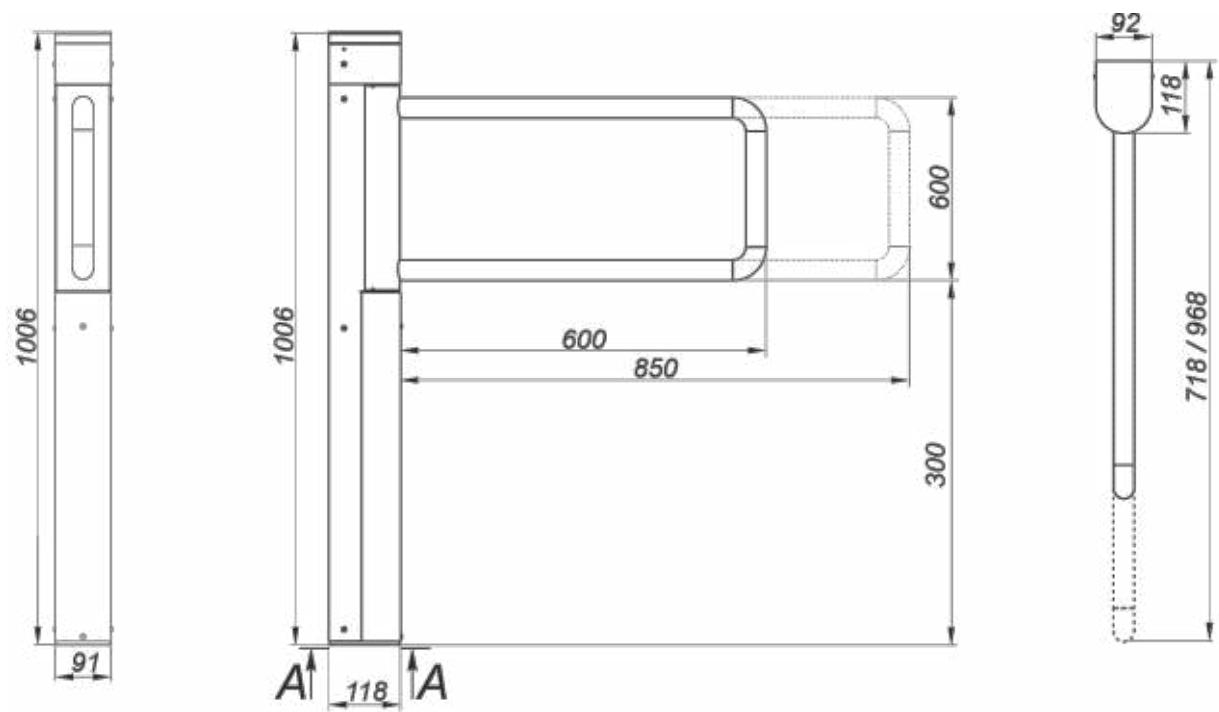
Annex A.3. Overall and installation dimensions of the turnstile «XGate-GS+sensor»



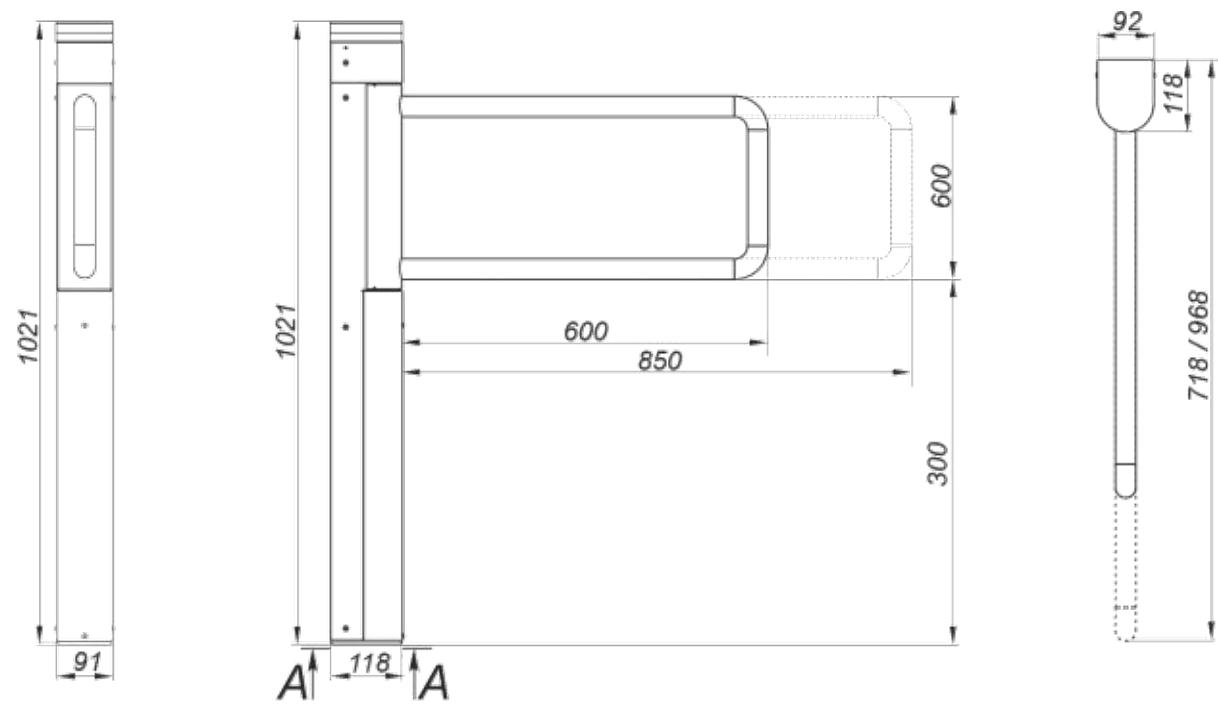
A - A
Mounting base



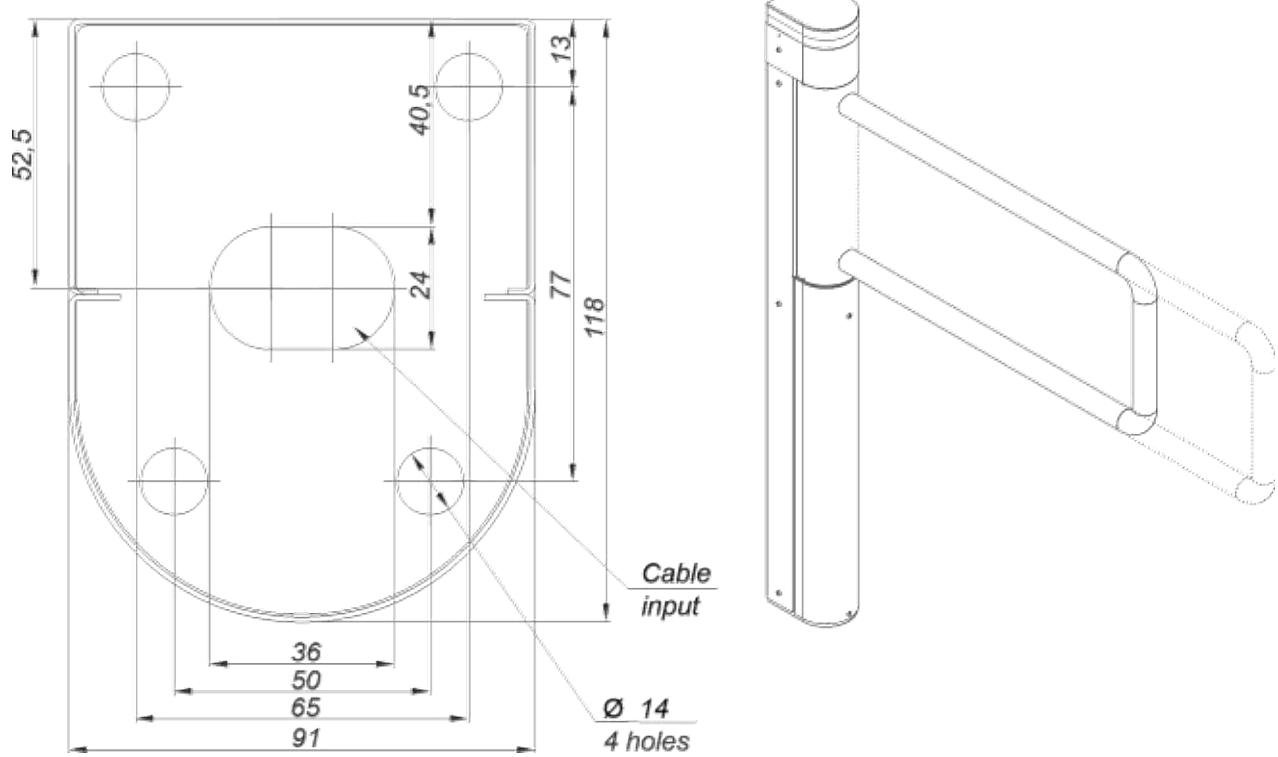
Annex A.4. Overall and installation dimensions of the turnstile «XGate-TS»



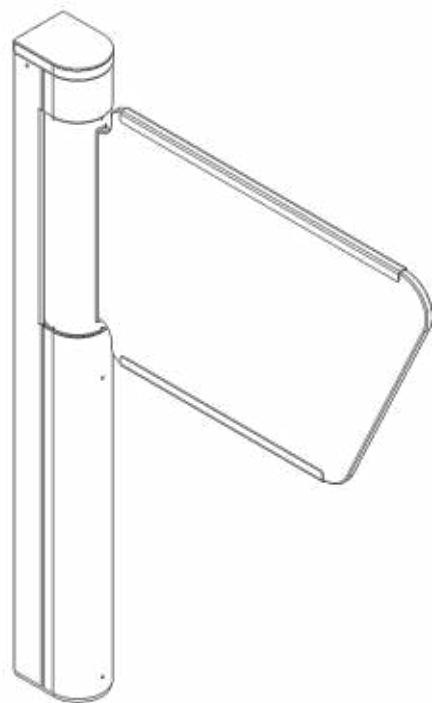
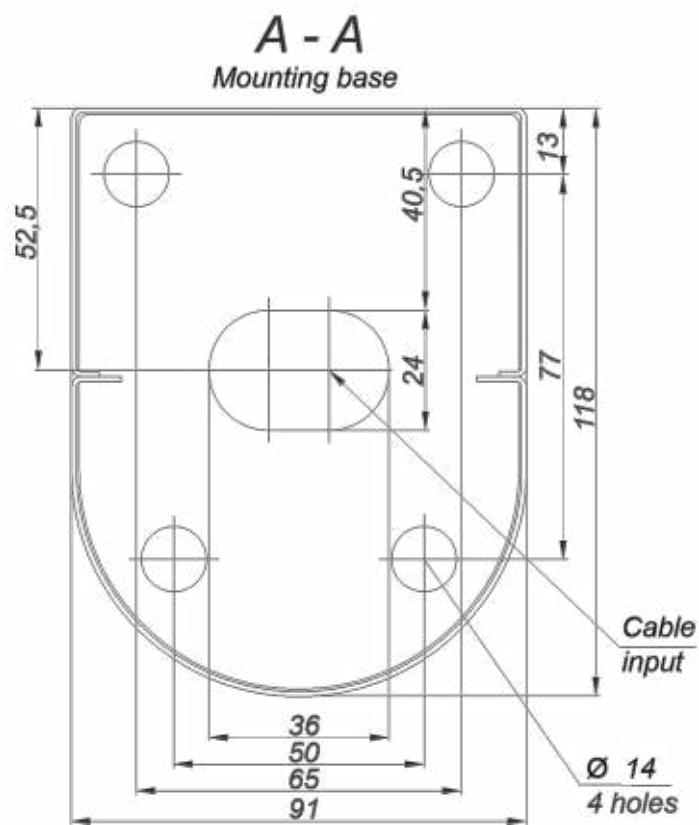
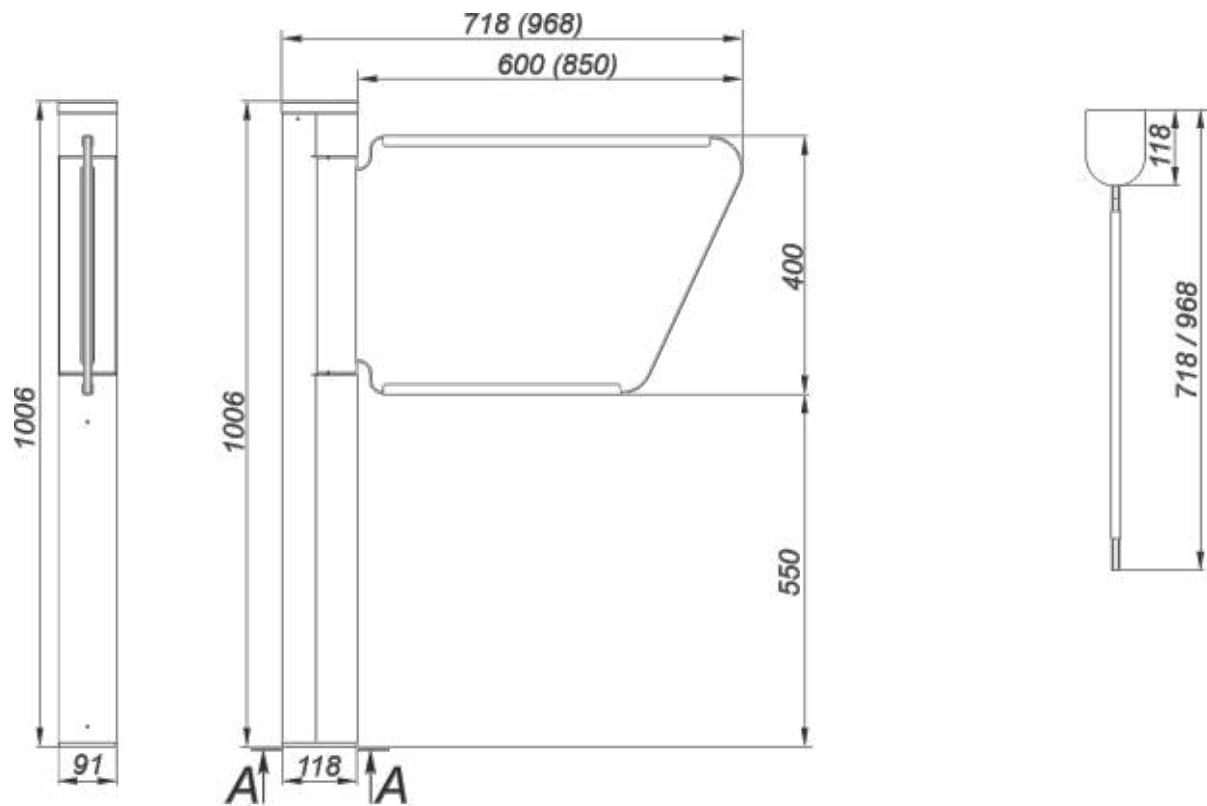
Annex A.5. Overall and installation dimensions of the turnstile «XGate-TS+sensor»



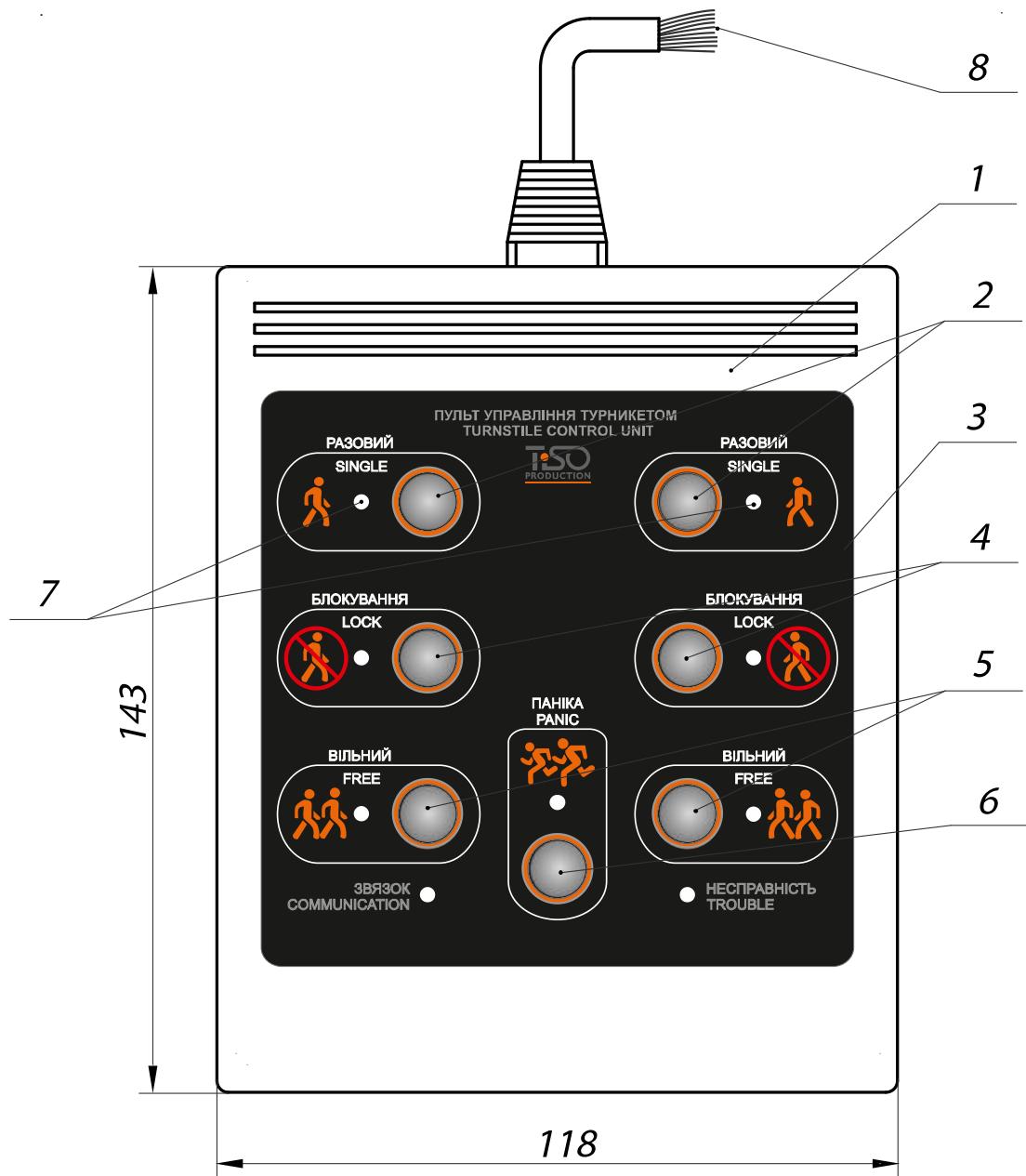
A - A
Mounting base



Annex A.6. Overall and installation dimensions of the turnstile «XGate-PS»



Annex B. Control panel and connection diagram



1 – control panel body;
2 – "SINGLE ACCESS"

mode control button

3 – front plate;

4 – "LOCK" mode control button;

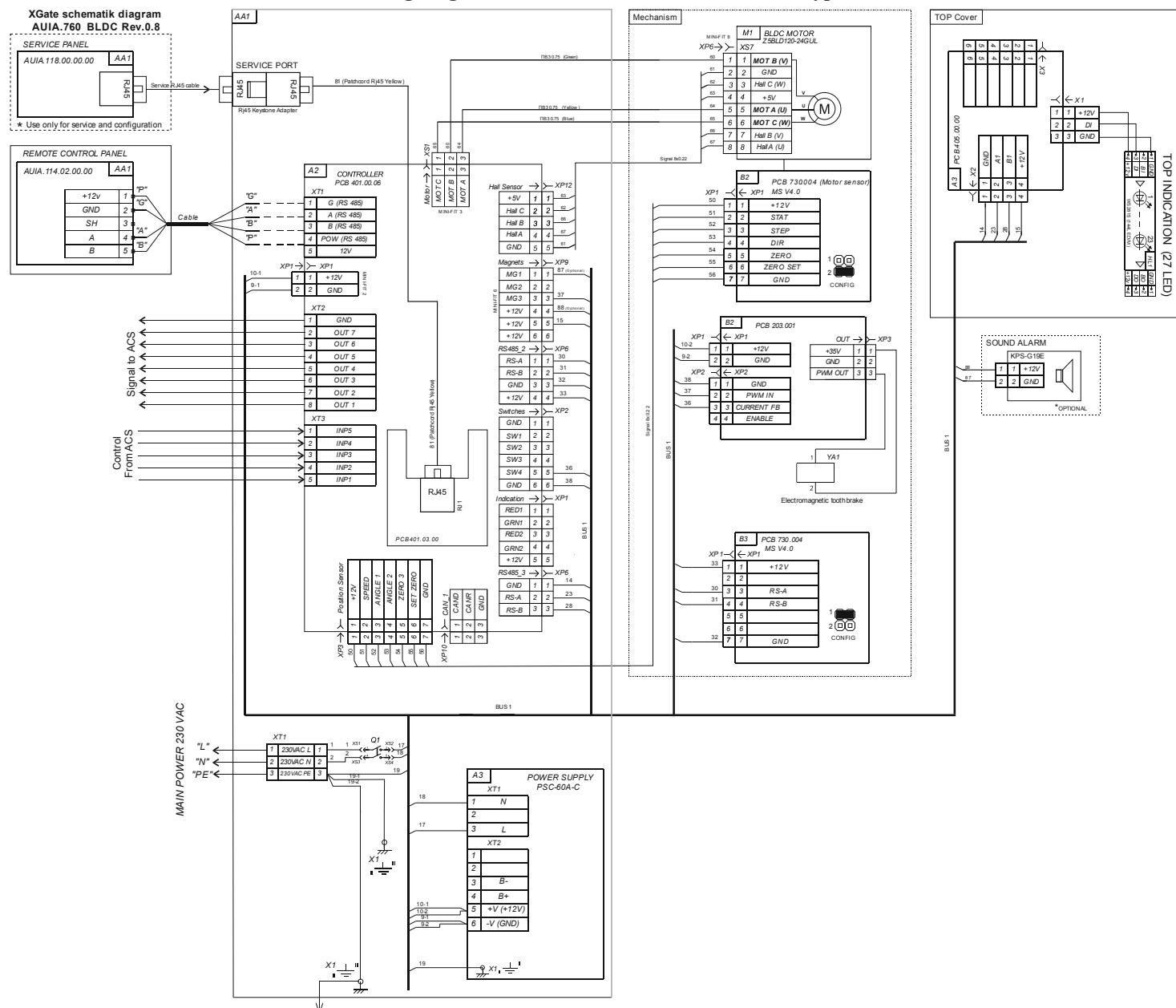
5 – "FREE ACCESS" mode control button
control button

6 – "PANIC" mode control button

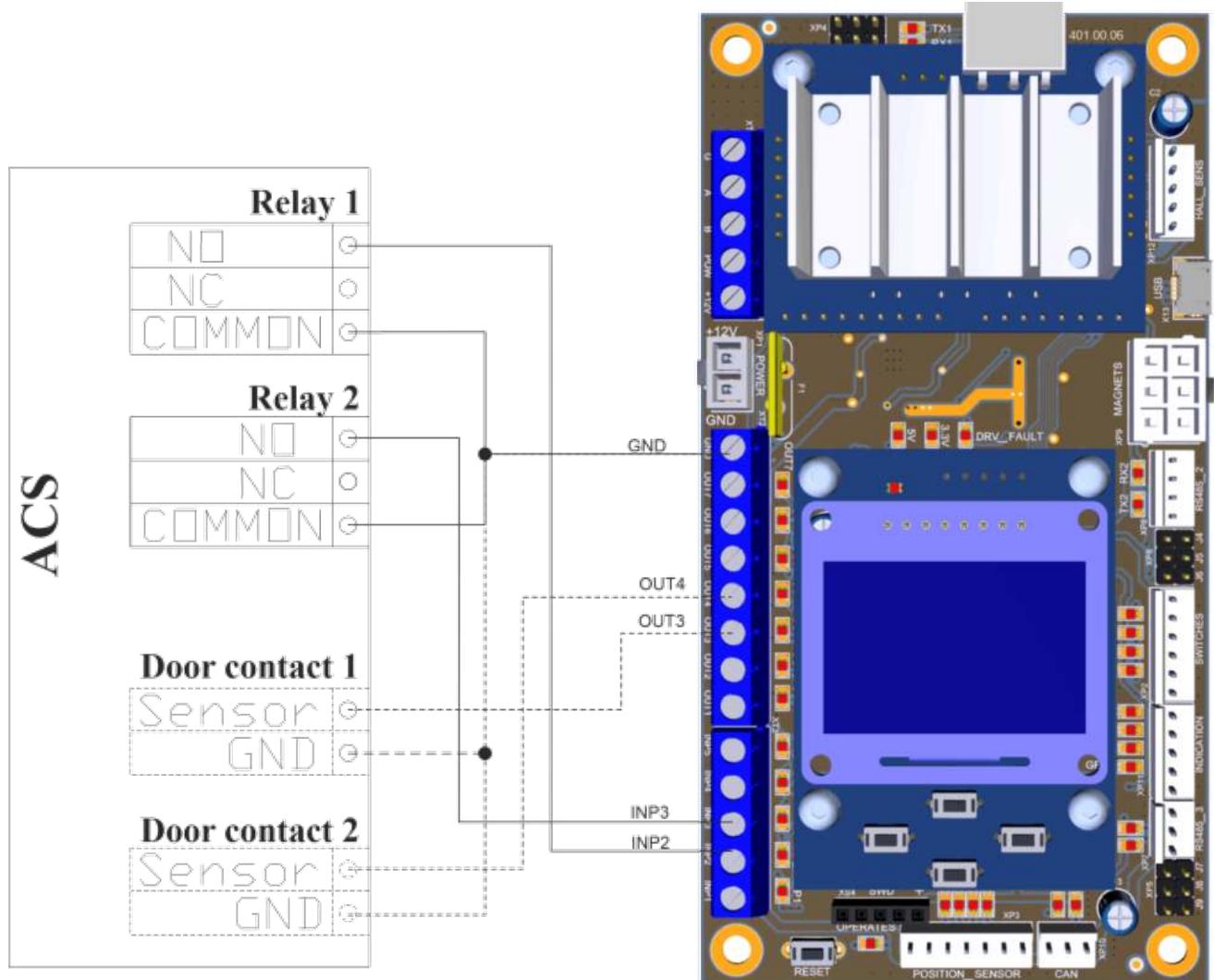
7 – access direction LED display;

8 – controller connection terminals

Annex C. Wiring diagram of the XGate-GS / TS / GSH / PS type turnstile



Annex D.1. Wiring diagram of the turnstile connection to access control system (ACS) in pulse mode

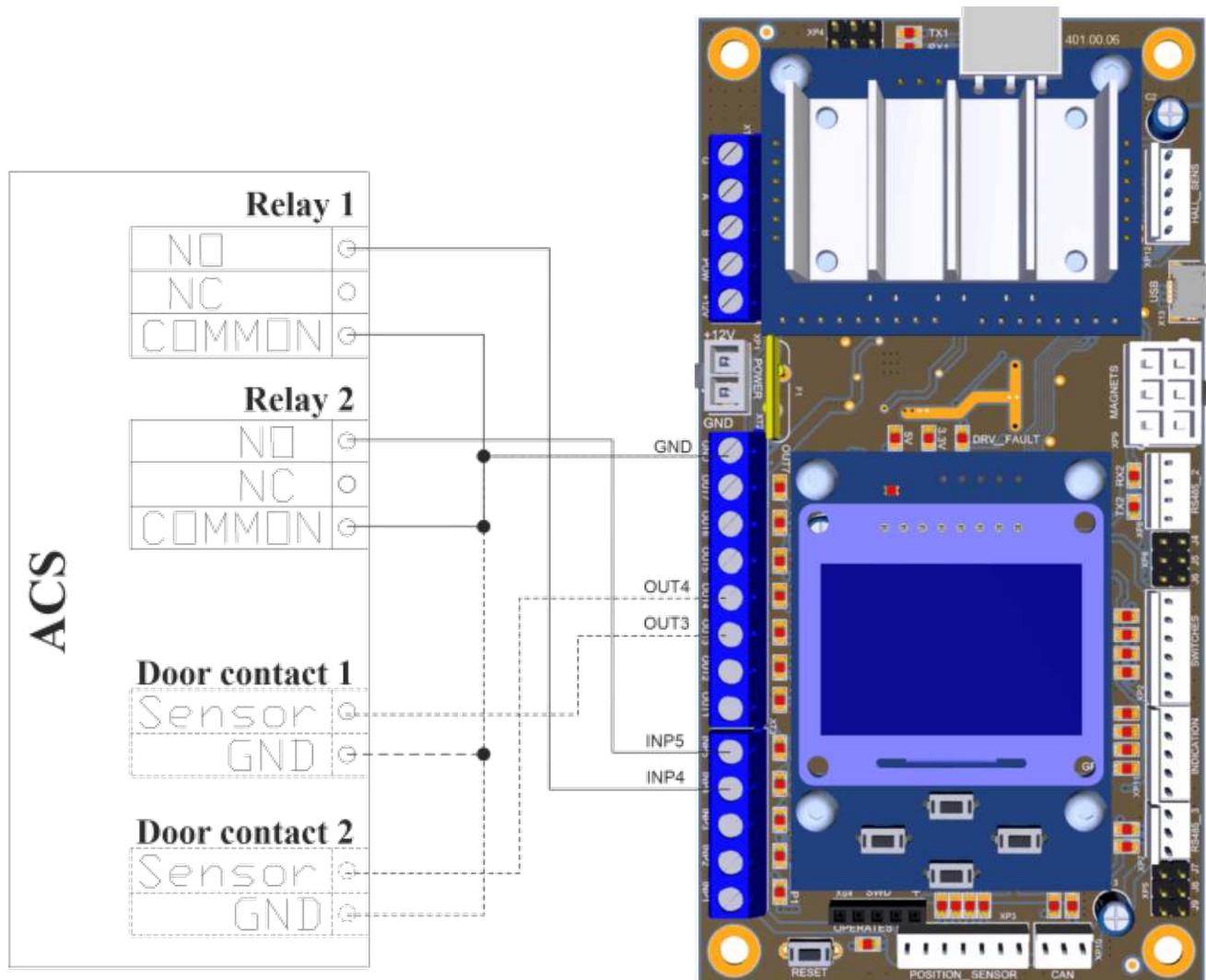


INP2 - "SINGLE PASS A" } When a pulse is applied to the INP2/INP3 input, the gate leaf opens
INP3 - "SINGLE PASS B" } in the A/B direction (for 5 seconds), and the leaf automatically
 closes after the timeout is over

GND - "-" of power supply (common wire)

OUT3 - "MIDDLE OF OPENING THE PASSAGEWAY A" } Signal is generated by controller when leaf is opening
OUT4 - "MIDDLE OF OPENING THE PASSAGEWAY B" } from 70° to 100° in the relevant direction

Annex D.2. Wiring diagram of the turnstile connection to access control system (ACS) in hold mode



INP4 - "FREE PASS A" } When applying a signal to the INP4/INP5, the gate leaf opens
 INP5 - "FREE PASS B" } in the A/B direction and will remain open until the signal is removed
 after removing the signal, it closes automatically.

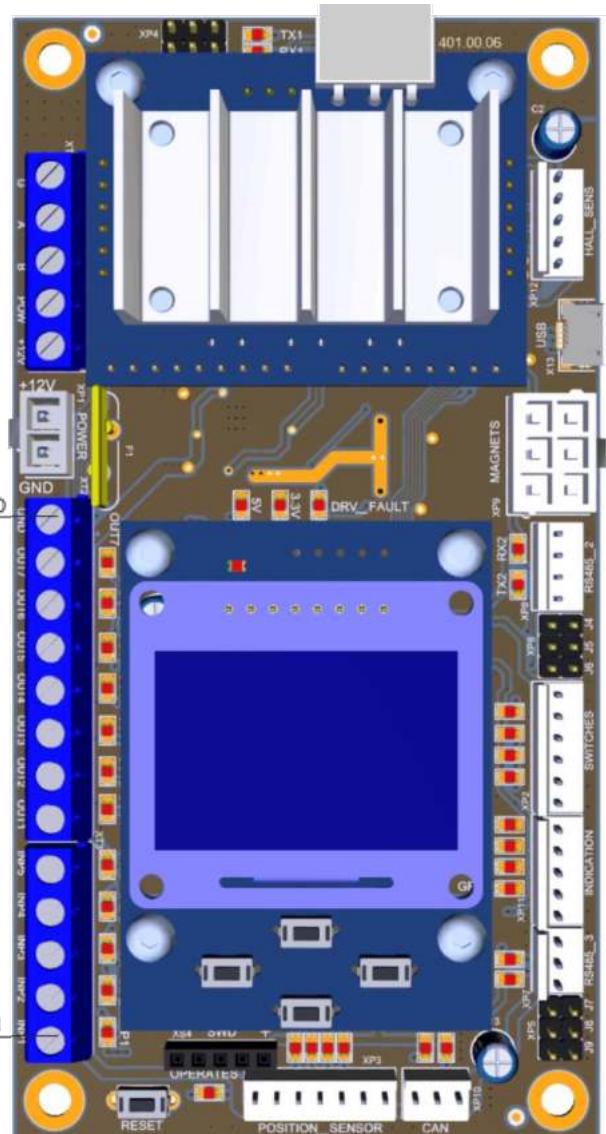
GND - "-" of power supply (common wire)

OUT3 - "MIDDLE OF OPENING THE PASSAGEWAY A" } Signal is generated by controller when leaf is opening
 OUT4 - "MIDDLE OF OPENING THE PASSAGEWAY B" } from 70° to 100° in the relevant direction

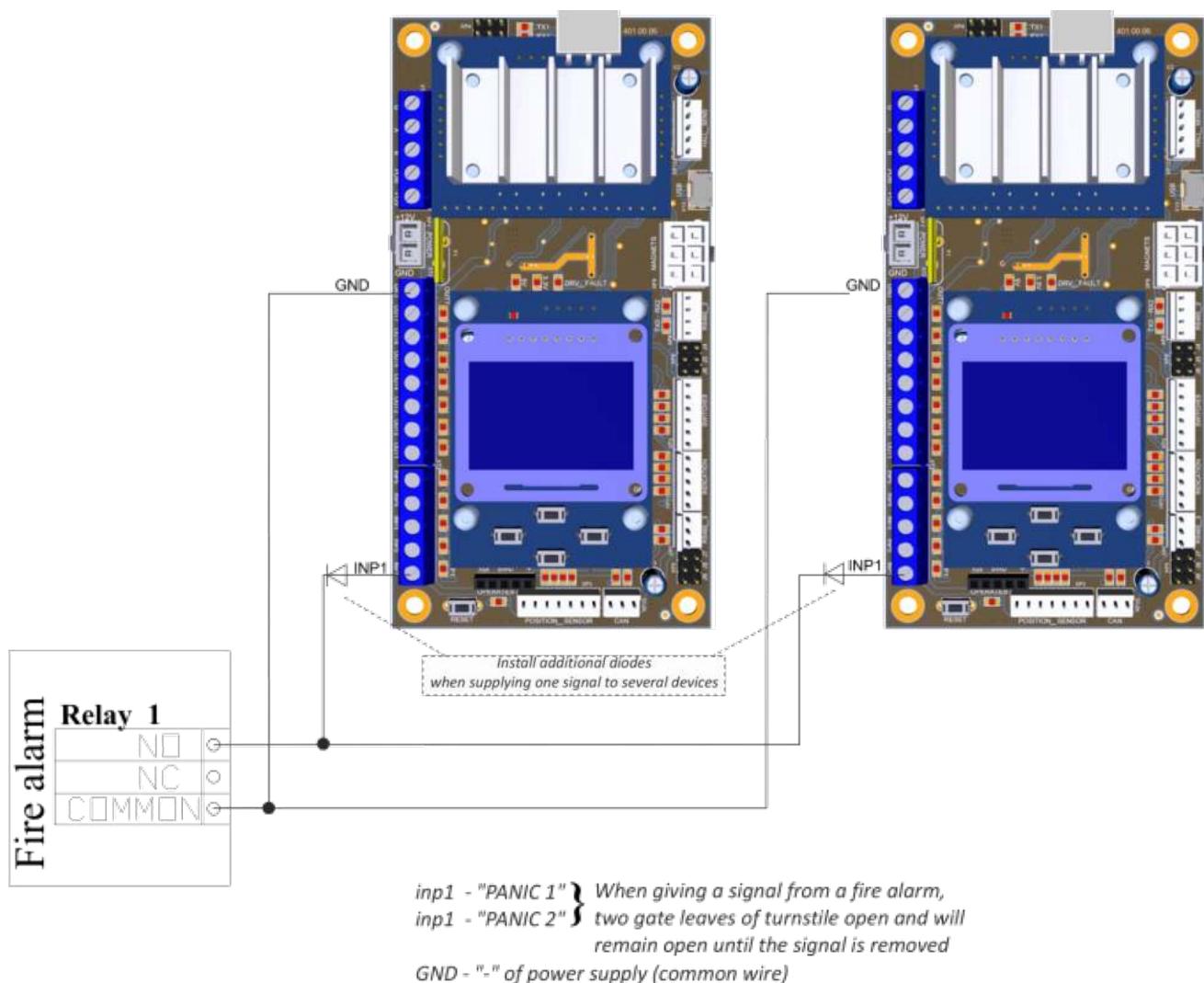
Annex D.3. Wiring diagram of the turnstile connection to fire alarm (FA)

INP1 - "PANIC" - When giving a signal from a fire alarm, the gate leaf opens and will remain open until the signal is removed

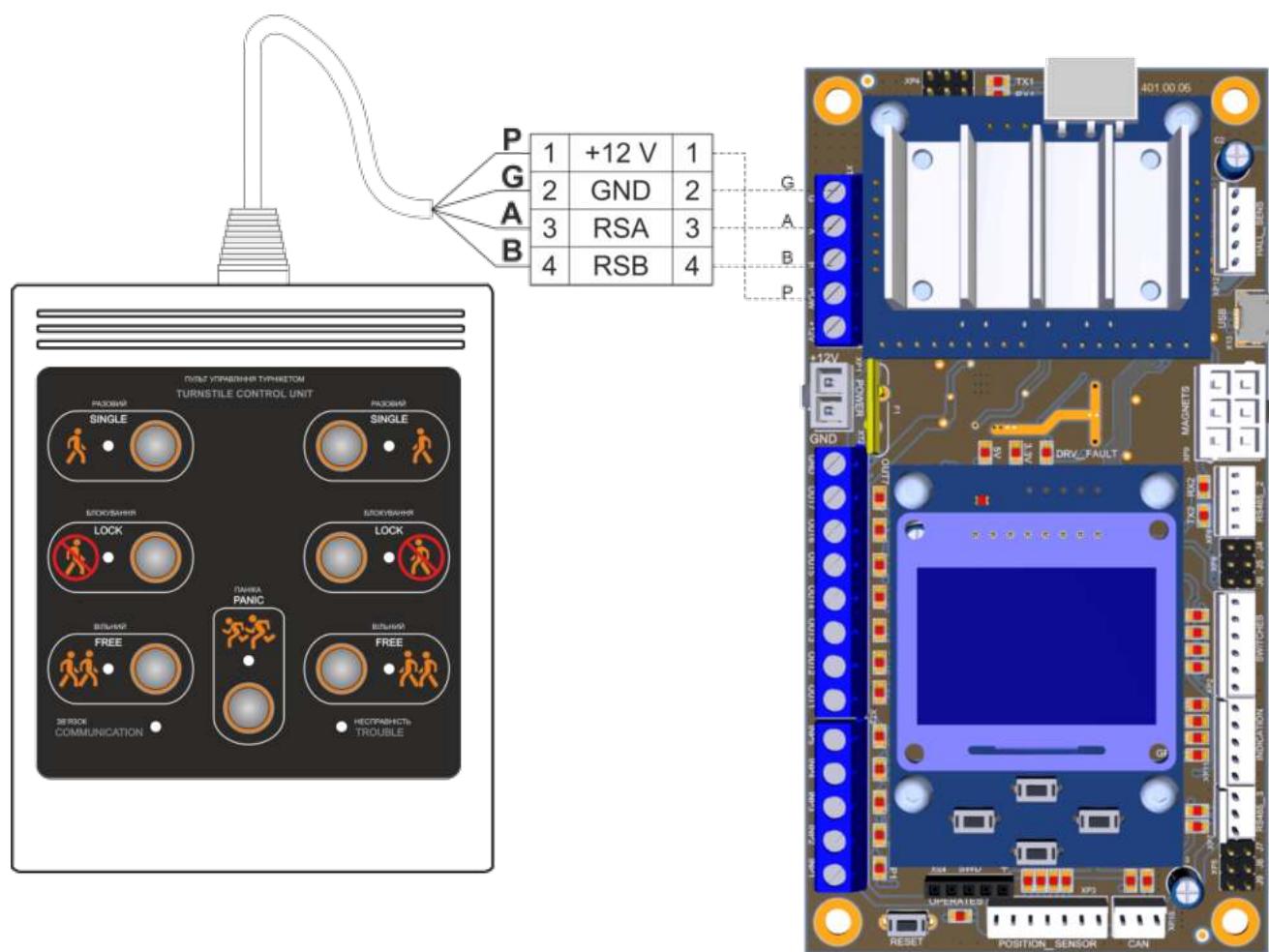
GND - "-" of power supply (common wire)



Annex D.4. Wiring diagram of two turnstile connection to fire alarm system (FAS)



Annex Γ.5. Wiring diagram of the turnstile connection to control panel



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Our equipment meets the requirements of European standards:

EN ISO 12100:2010, EN ISO 14118:2018, EN 60204-1:2018,

EN ISO 13857:2019, EN 61000-6-1:2007,

EN 61000-6-3:2007/A1:2011/AC:2012

and meets the requirements of the following EU Directives: 2014/30/EU;
2014/35/EU, 2006/42/ EC

The manufacturer's quality management system is certified according to the international standard ISO 9001:2015 - Certificate № UA 18 / 819942484.

QR-code to be used to download the Operation Manual via Internet

