



"TiSO-PRODUCTION" LTD

SERVO-DRIVEN TRIPOD TURNSTILES

series of **CENTURION-M** AUIA.097-10, **BASTION-M** AUIA.095-10,
SKULL-M AUIA.096-10, **TWIX-M** AUIA.137-10

CENTURION-M



BASTION-M



SKULL-M



TWIX-M



OPERATION AND INSTALLATION MANUAL

Combined, rev.1.3.3

2025
UKRAINE

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INTRODUCTION

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

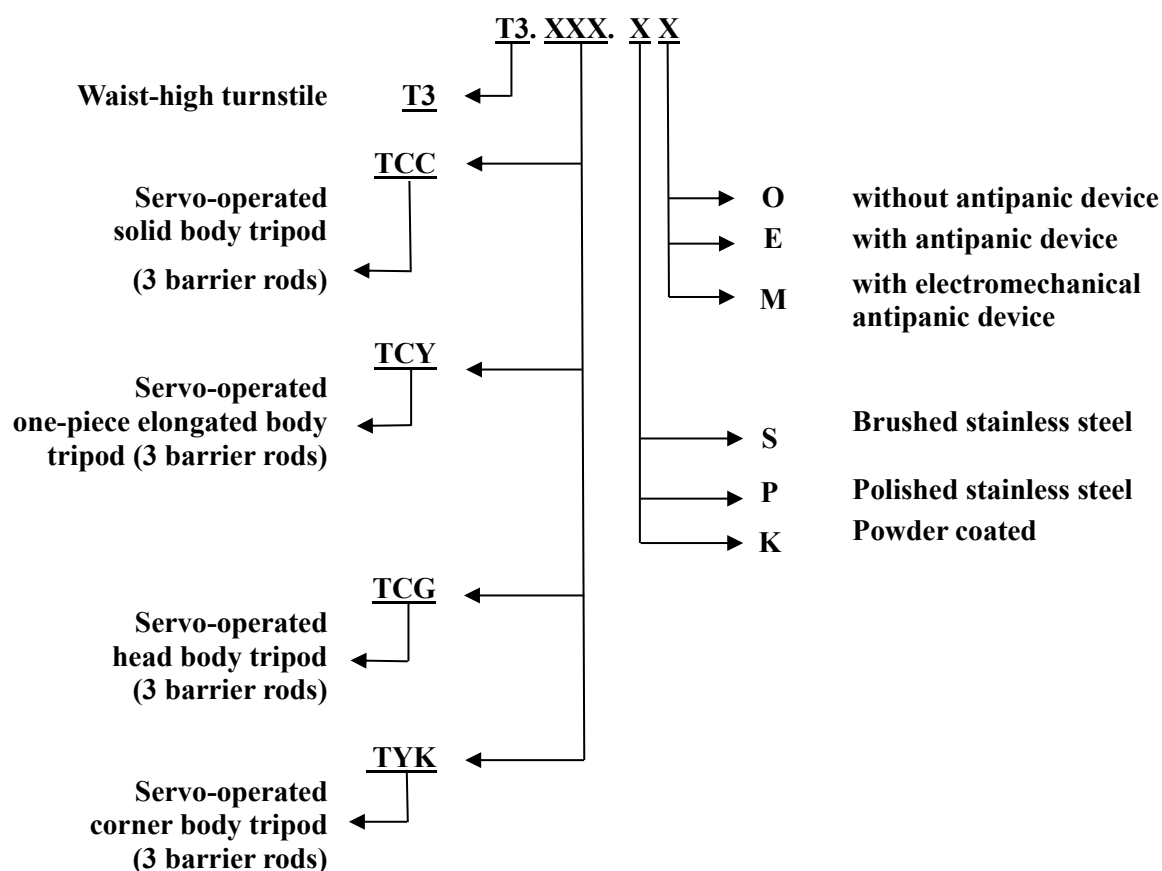
This Operation Manual is prepared in compliance with the specification requirements TU U 28.9-32421280-005:2018.

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 turnstile with solid body of brushed stainless steel should be T3.TCC.SE, according to TU U 28.9-32421280-005:2018.

Description	Coding	Designation
CENTURION-M	T3.TCC.XE	AUIA.095-10
BASTION-M	T3.TCY.XE	AUIA.097-10
SKULL-M	T3.TCG.XE	AUIA.096-10
TWIX-M	T3.TYK.XE	AUIA.137-10

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.

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

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:

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 without personal identification is at least 25 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	Designation of modification		Dimensions, mm			Cabinet size, (LxW), mm	Max. weight*, kg
			H	L	B		
CENTURION-M	AUIA.095-10	T3.TCC.XE	1000	793	847	324x332	45*
BASTION-M	AUIA.097-10	T3.TCY.XE	1000	793	815	524x300	41*
SKULL-M	AUIA.096-10	T3.TCG.XE	616	793	833	524x300	26*
TWIX-M	AUIA.137-10	T3.TYK.XE	1000	1000	785	1004x270	84*

*weight will depend on construction modification and material of manufacture

1.1.3 The parameters defining operation conditions according to GOST 15150-69 are specified in Table 2.

Table 2 - The parameters defining operation conditions

Operational conditions	The parameters for climate version	
	NF4 (for indoor application)	N1(for outdoor application)
1	2	3
Ambient temperature	from + 1 to + 40 °C	from - 40 to + 45 °C
Relative humidity	80 % if plus 25 °C (non-condensing)	80 % if plus 25 °C (non-condensing)
Permissible ambient air pressure	from 84 to 106,7 kPa	from 84 to 106,7 kPa
Temperature range during transport	From - 50 to + 50 °C	from - 50 to + 50 °C
Temperature range during storage	From + 5 to + 40 °C	from + 5 to + 40 °C
Mechanical design group	L3	L3
Altitude above sea level	up to 2000 m	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	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	Outdoors and non-heated rooms
Operational position	vertical, not more than 1 ° of deviation from a vertical position in either direction is allowed	vertical, not more than 1 ° of deviation from a vertical position in either direction is allowed

1.1.4 Reliability performances:

Table 3 - Reliability performances

Reliability performances	Parameter value
- mean time to restoration (MTTR)	no more than 25 min.
- mean time between failures (MCBF)	at least 5 000 000 passes
- average life of the turnstile till overhaul –	not less than 10 years.

1.2 Specifications

Table 4 - Specifications

Parameter name	Parameter value
Minimum traffic flow capacity in single access mode	25 person/min.
Maximum access way width	600 mm
Power supply voltage: - AC mains (primary) - DC power supply (secondary)	100 ÷ 240 V~ 50/60 Hz 12 V
Consumed power, no more than	55 W
Degree of protection according to EN 60529	IP41
Emergency mode in case of power failure	fail-safe (NO)

1.3 Product components and scope of delivery

1.3.1 The servo-operated waist-high turnstile design consists of the following major devices and components (See Figure 1): Design, overall and installation dimensions of the turnstile are shown in Annex A.

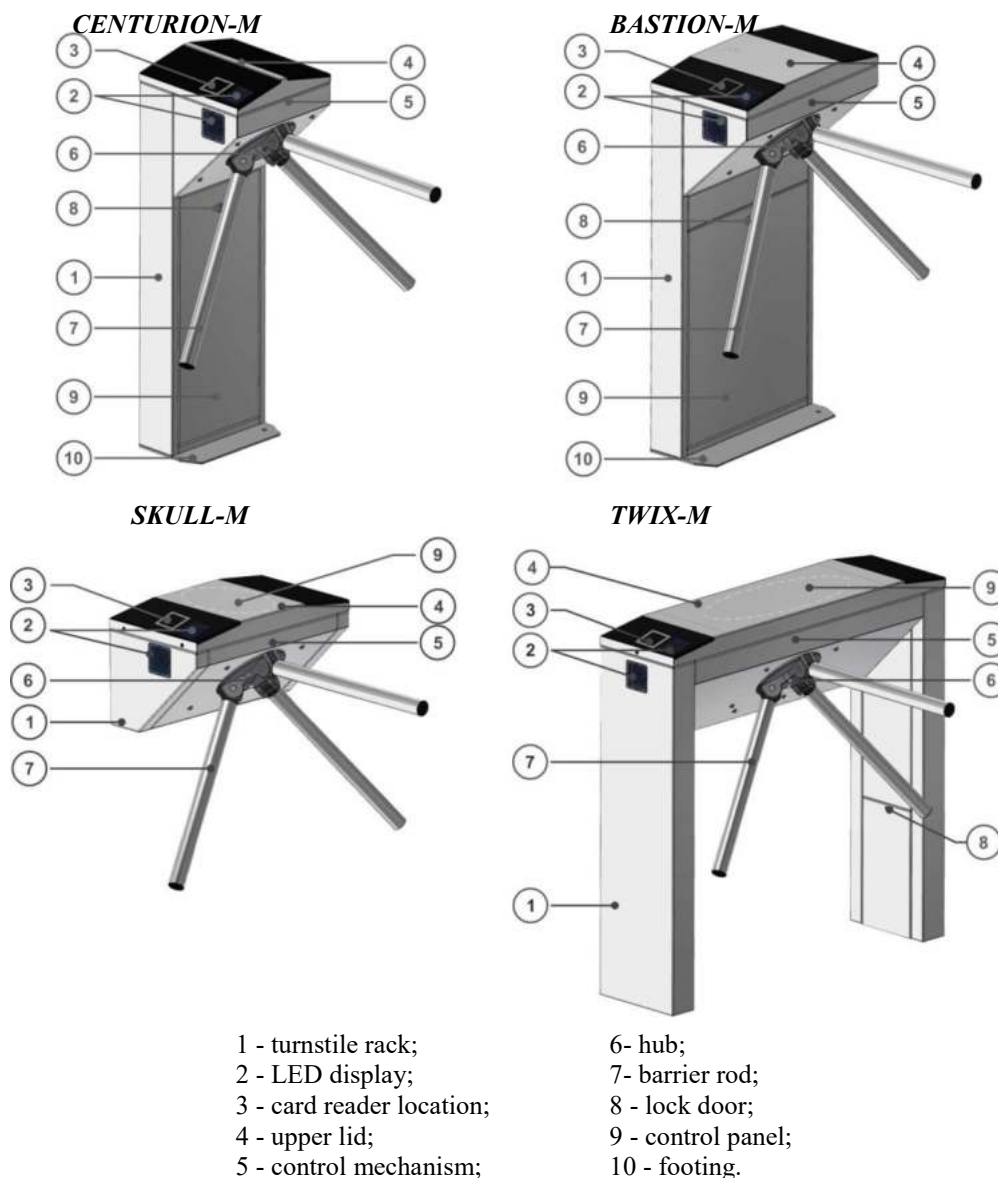


Fig. 1 – Turnstile general appearance

1.3.2 Turnstile scope of delivery (standard):

- Tripod turnstile;
- Hub with barrier rods;
- Control panel;
- Anchors (4 pcs.);
- Data sheet;

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

1.3.3 The turnstile design, overall and installation dimensions (see Fig.3)

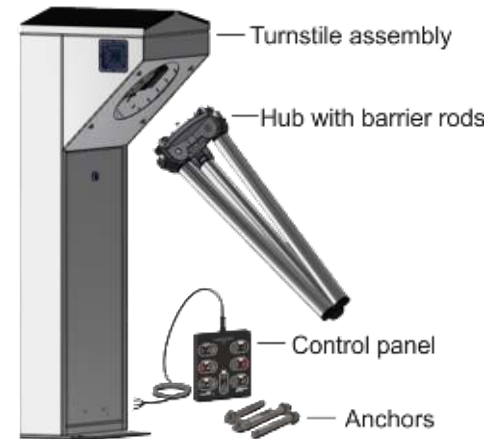
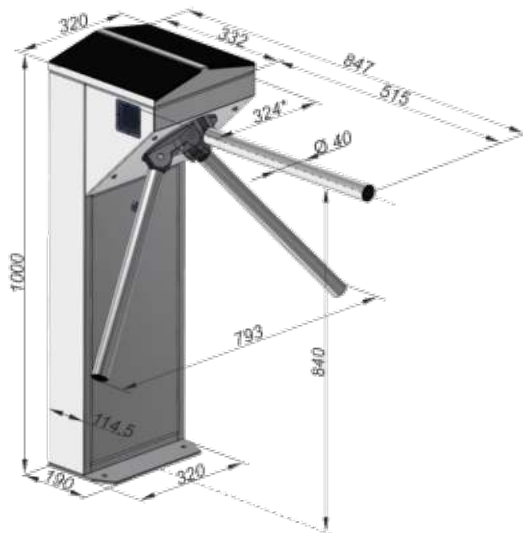
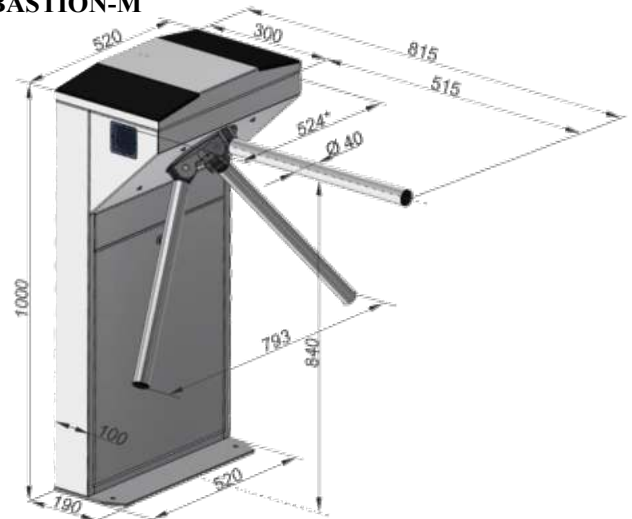


Fig.2. – Tripod turnstile scope of delivery

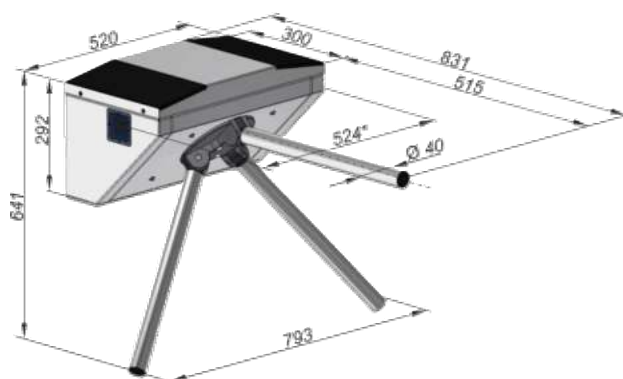
CENTURION-M



BASTION-M



SKULL-M



* Carrier sleeve size

TWIX-M

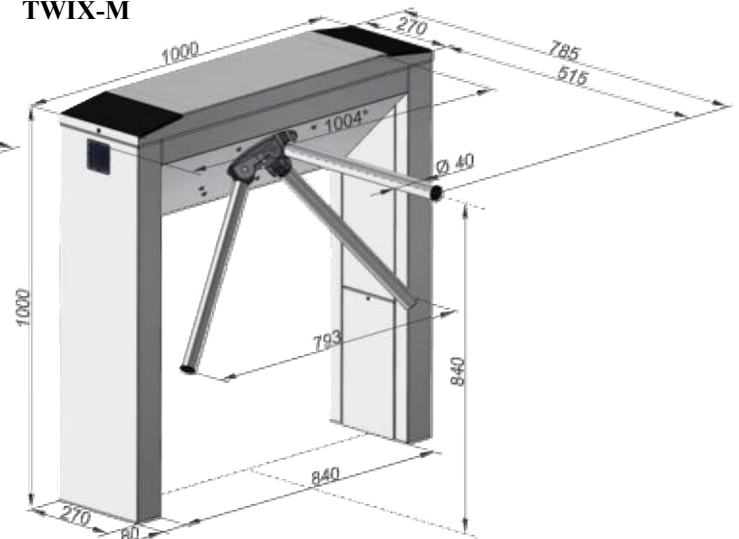


Fig. 3 - Tripod turnstile dimensions

1.4 Design and operation

1.4.1 Turnstile design

1.4.1.1 The turnstile body is a metalware, which footing **10** (See Fig.1) is installed on an even surface by means of Redibolt anchors. The turnstile status is displayed by LED display boards **2**, built in the turnstile body. The turnstile initial state is indicated by constantly lit red LED (See Fig.4): the turnstile access is locked in both directions.

1.4.1.2 The control mechanism **5** (See Fig.1) is installed at the top of the body. The hub **6** with barrier rods **7**, securely fixed to its levers by crimping method, is installed on the control mechanism shaft. One of three barrier rods is positioned horizontally barring the turnstile access.

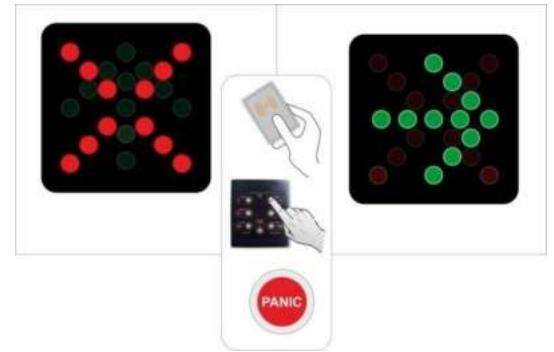


Fig. 4 - Turnstile status LED display

1.4.1.3 The plates, on which power supply unit, controllers, terminal blocks for connection to 220 V network and control panel are mounted, are fixed inside the turnstile post **1** (See Fig.1) under the removable door **8** (for the turnstiles CENTURION-M and BASTION-M) or removable lid **4** (for the turnstiles TWIX and SKULL). Controller controls the turnstile motor analyzing signals from speed and position sensors as well as provides the motor protection against overloads. Receiving control commands from peripherals (control panel, ACS etc.) the controller controls LED displays and generates feedback signals for ACS (Access Control System).

1.4.1.4 The external control panel (See Annex B) has the following functions: single entry access, single exit access; entry locking; exit locking; free entry access, free exit access, panic.

1.4.1.3 The tripod turnstile control mechanism design is shown in Figure 5.

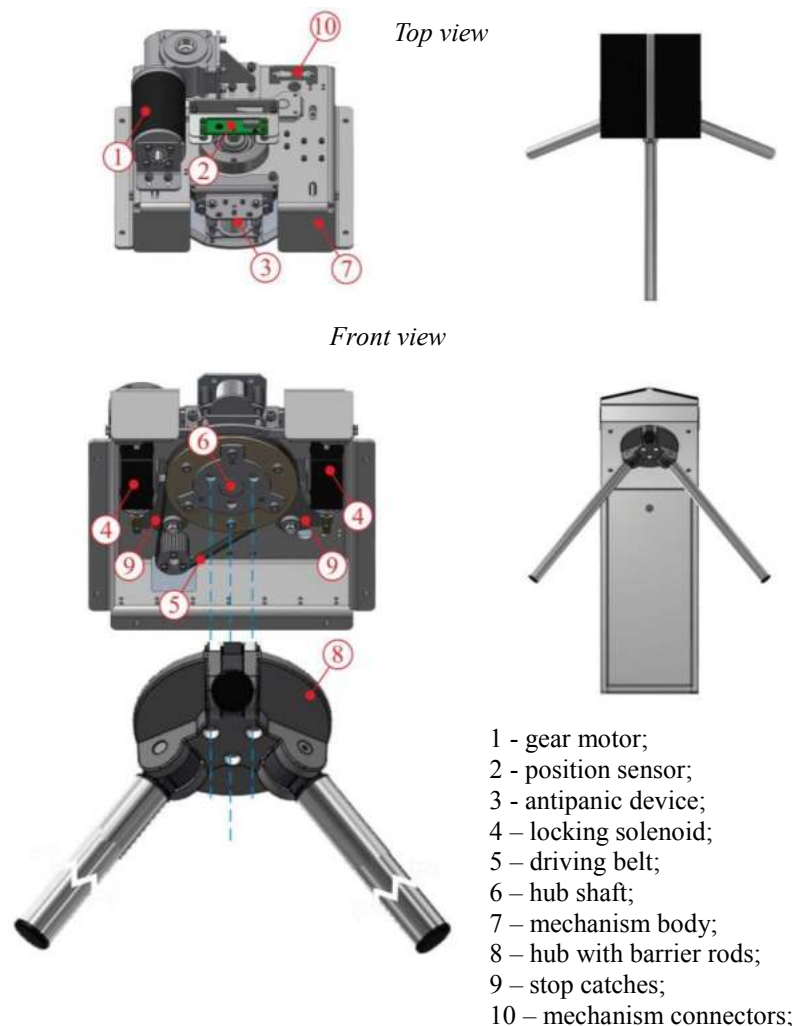


Fig. 5 – Turnstile actuating mechanism

1.4.3 Turnstile principle of operation

1.4.3.1 Turnstile operation modes:

- 1) single access in the direction "A" or "B";
- 2) locking;
- 3) free access in the direction "A" or "B".
- 4) "PANIC" mode

1.4.3.2 In the initial state, when the turnstile is deenergized, barrier rods are locked from rotation and access is barred.

1.4.3.3 Green arrow in the intended direction is lit on LED display and barrier rods are unlocked when access permission command in the direction "A" or "B" comes to controller. Servomotor is actuated and turns barrier rods in the appropriate direction when a barrier rod is manually gently pushed in the intended direction. After the turnstile pedestrian access barrier rods continue to smoothly turn forward (turn additionally) gradually slowing down and when the relevant angle is reached they are locked by means of two stop catches of the actuating mechanism.

The mechanism powerful controllable ratchet system does not allow to return a barrier rod in the opposite direction (against the movement in which the access was started) after rotation to 30 °, 60 °, 90 °, 120°.

In case of need for emergency human evacuation from building rooms, the turnstile goes to "PANIC" mode and provides free access in both directions by means of antipanic device.

The antipanic mechanism (See Fig. 7) is automatically activated when the turnstile is deenergized (Failsafe), and in this case a barrier rod can't be returned to its initial position during the active panic mode.

Barrier rod is dropped and access way is cleared when the "PANIC" button is pushed on control panel and hold for more than 7 seconds or when signal is sent to the relevant input (in1) of the turnstile controller.

After the signal is deactivated from the input (in1) or deactivation of the panic mode from control panel, a barrier rod is automatically reset to its initial position.

Before turning on the power and turning off the panic, you need to manually check the verticality of the barrier rod (if necessary, lower the leash manually to the stop). After full recovery -check the blocking of all three barrier rods.

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

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

The turnstile wiring diagram is shown in Annex C.

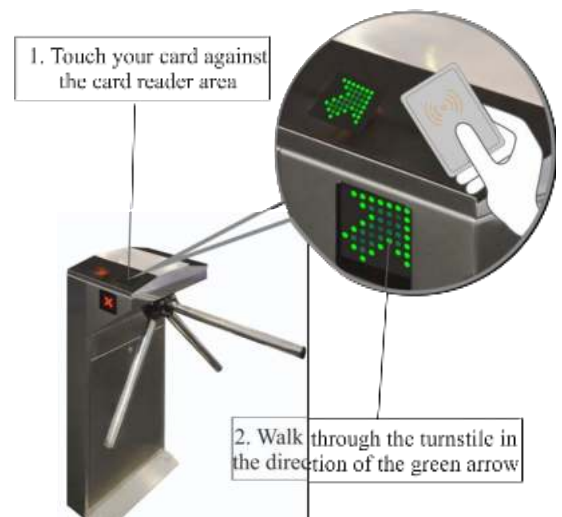
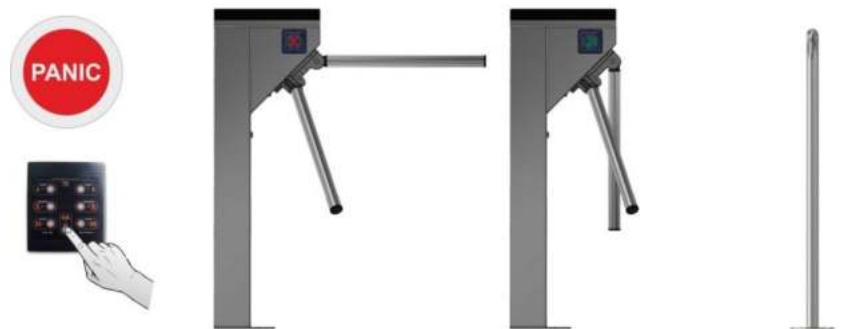


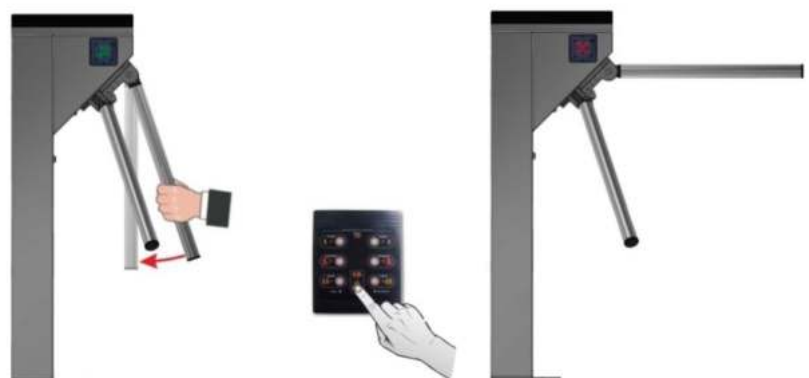
Fig.6 - The principle of operation when using contactless cards in the presence of an access control system



A) "Standby" mode

B) "Panic" mode

Fig.7 – Turnstile operation in "PANIC" mode



a) The positions of the rod in the "PANIC" mode before restoring

b) The positions of the restored rod in the "Standby" mode

Fig.8 - Deactivation of the "PANIC" mode and restoration of the leash to the starting position

1.5 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 9).

- 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. 9 - Tools and accessories for layout and installation

1.6 Description and operation of controller as an integral component of the turnstile

1.6.1 Turnstile rotor mechanism controller PCB.201.01.00.00

Purpose of the turnstile rotor mechanism controller PCB.201.01.00.00

The controller is designed for acquisition of commands from the turnstile controller PCB.112.21.20.01 and generation of the motorized mechanism motor control signals.

1.6.1.1 The Controller is assembled on the (85x70)mm card, on which electronic components and connectors for external connections are installed.

On controller card 13 LEDs are installed. Their purpose is as follows:

- 8 LEDs indicate condition of inputs «IN1» ÷ «IN8»;
- «POWER» LED indicates availability of supply voltage 5V;
- 4 LEDs indicate condition of outputs for connection of motor.

24 terminals are installed on the card: 2 of them are designed for external connections, the rest are designed for connection to turnstile units or are standby.

1.6.1.2 Technical features of the turnstile rotor mechanism controller PCB.201.01.00.00

Table 5

Parameter description	Parameter description
Number of inputs	2
Number of outputs	4
Type of inputs	logical
Type of outputs «GRN1», «RED1», «GRN2», «RED2»	open collector
Logical «1» voltage	(3,7 ÷ 5) V
Logical «0» voltage	(0 ÷ 1,7) V
Peak voltage, applied to inputs «INP1» ÷ «INP5»	15 V
Peak voltage switched by outputs «GRN1», «RED1», «GRN2», «RED2»	30 V
Peak current switched by outputs «GRN1», «RED1», «GRN2», «RED2»	2 A
Peak voltage switched by outputs «-MG1», «-MG2»	50 V
Peak current switched by outputs «-MG1», «-MG2»	5 A
Peak voltage switched by outputs «MOT1», «MOT2»	27 V
Peak current switched by outputs «MOT1», «MOT2»	≤ 4 A
Controller supply voltage	(10 ÷ 27) V
Consumption current when outputs «MOT1» and «MOT2» are OFF	≤ 0,15 A
Climatic modification and category of location according to GOST15150-69	NF4

1.6.1.3 Description of rotor motorized mechanism controller PCB.201.01.00.00

The controller operates according to the program entered into memory of microprocessor. The turnstile mechanism and LED display are controlled depending on commands coming from the controller PCB.112.21.20.01 rotor of position, rotation speed and based on the logic entered into program. Control commands are generated to controller via serial interface.

Waiting for a permission command, the controller holds the rotor in its original position. After permission command is sent, controller via electromagnet "-MG1" and "-MG2" unlocks the rotor in one direction and with a light push of the rotor with your hand in the direction of passage through the outputs "MOT1" and "MOT2" (X2 / 9 and X2 / 10) supplies current to the motor winding and rotates the rotor in a given direction.

Speed and position of rotor is controlled during rotation. After pedestrian turnstile access rotor continues to turn smoothly forward (turn additionally), gradually slowing down, and when the angle 120° is reached rotor is held in this position by means of servo drive.

The purpose of controller PCB.201.01.00.00 (for motorized mechanism) contacts designed for connection of peripherals is shown in Table 6.

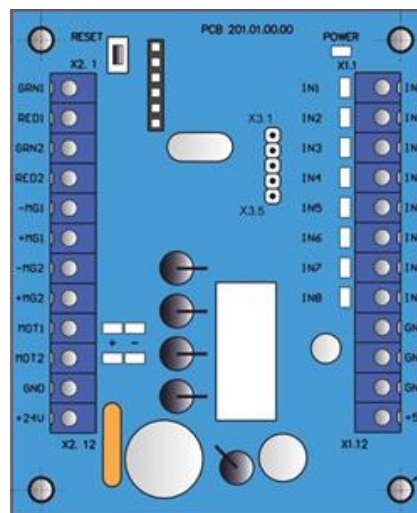


Fig. 10 – Appearance of the controller PCB.201.01.00.00 for motorized mechanism

Table 6

Connector/ contact No	Designation	Direction	Purpose	Signal parameters and description
1	2	3	4	5
XT1/1	INP1	ENTRY	Not applicable	1) logical «0» (0 ÷ 1,7) B; 2) logical «1» (3,7 ÷ 5) B; 3) active level of signal - logical «0»; 4) voltage on open input ≤ 5 V
XT1/2	INP2	ENTRY	Not applicable	
XT1/3	INP3	ENTRY	Selecting the turnstile type	
XT1/4	INP4	ENTRY	Not applicable	
XT1/5	INP5	ENTRY	To be connected to the rotor position sensor and motor speed sensor	
XT1/6	INP6	ENTRY		
XT1/7	INP7	ENTRY		
XT1/8	INP8	ENTRY		
XT1/9	GND		«-» power supply (common wire)	
XT1/10	GND			
XT1/11	GND			
XT1/12	+5V	EXIT	Not applicable	
XT2/1	GRN1	EXIT		
XT2/2	RED1	EXIT		
XT2/3	GRN2	EXIT		
XT2/4	RED2	EXIT		
XT2/5	-MG1	EXIT	Connection of locking solenoid winding	1) Type of output - open collector; 2) Peak voltage on privacy key 50 V; 3) Peak current of public key – 5A
XT2/6	+MG1	EXIT	Connection of locking solenoid winding (cathode of protective diode)	
XT2/7	-MG2	EXIT	Connection of locking solenoid winding	
XT2/8	+MG2	EXIT	Connection of locking solenoid winding (cathode of protective diode)	
XT2/9	MOT1	EXIT	Motor connection	1) voltage (10 ÷ 27) V; 2) current ≤ 4 A
XT2/10	MOT2	EXIT		
XT2/11	GND		«-» power supply (common wire)	
X2/12	+24 B	ENTRY	«+» power supply (controller energization)	1) voltage (10 ÷ 14) V; 2) current ≤ 4 A
X3	X3	ENTRY / EXIT	PCB.112.21.20.01 link communication port	1) logical «0» (0 ÷1) V; 2) logical «1» (3,5 ÷ 5)V

1.6.2 Turnstile controller PCB.112.21.20.01

1.6.2.1. Purpose of controller PCB.112.21.20.01

The controller is designed for acquisition of control commands from peripherals (control panel, access control system etc.), generation of feedback signals, the turnstile LED display control and the motorized mechanism controller control.

The controller is assembled on board (104x68) and designed for installation inside the turnstile body or power supply box. The controller appearance is shown in Figure 11.

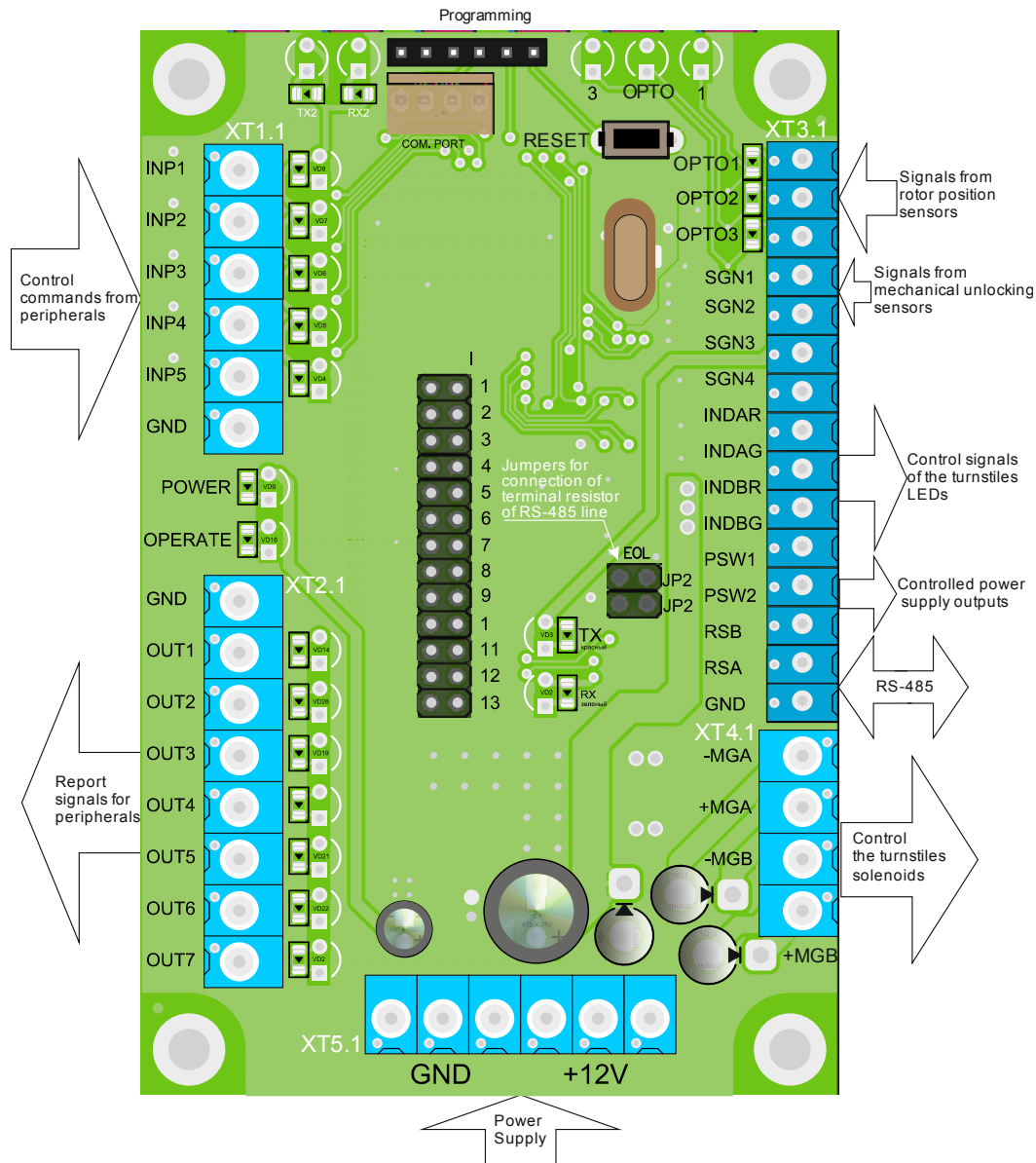


Fig.11 - Appearance of controller PCB.112.21.20.01

19 light emitting diodes are installed on the controller board. Their purpose is as follows:

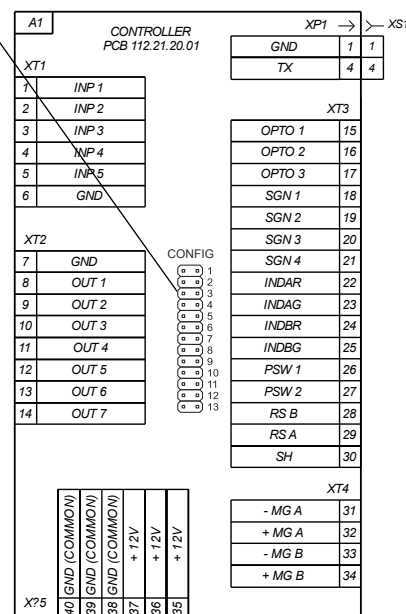
- 5 light emitting diodes display state of the external connection inputs “INP1” ÷ “INP5”;
- The light emitting diode “POWER” displays existence of 5V power supply voltage;
- The light emitting diode “OPERATE” displays operating capacity of microprocessor;
- 7 light emitting diodes display state of the external connection outputs “OUT1” ÷ “OUT7”;
- 3 light emitting diodes “SENSOR” display the state of rotor position sensor;
- The light emitting diodes “RX” and “TX” display transceiving on serial port.

On the board there are 13 jumpers, 40 terminal clamps for connection of wires, 14 of them for external connections, the rest - for connection to turnstile units or can be standby.

Application of jumpers on the controller board PCB.112.21.20.01:

Table 7 - Application of jumpers

№	Description	State	State value
1	Turnstile type		Tripod
2	Mechanism type		195 / 196
3	Lock mode in A direction		Normally Closed (NC)
4	Lock mode in B direction		Normally Closed (NC)
5	Change of direction Entrance/Exit (A/B)		Standard
			Mirrored
6	Active state of output signals OUT 1-7		Normally Open (NO)
			Normally Closed (NC)
7	Active state of output signals Panic (INP 1)		Normally Open (NO)
			Normally Closed (NC)
8	Reserved		
9	Reserved		
10	Reserved		
11	Reserved		
12	Reserved		
13	Reserved		



 - jumper is installed;

 - jumper is removed;

NO - (normally open)- normally open position of contacts;

NC - (normally closed)- normally closed position of contacts;

 - must be installed for this type of turnstile

 - selected by installer (customer) depending on ACS requirements or installation conditions

1.6.2.2 The controller PCB.112.21.20.01 technical features are given in the table 8.

Table 8

Parameter description	Parameter value
Number of inputs for reception of control commands	5
Number of signal outputs	7
Input type	logical
Output type	open collector
Logical «1» voltage	(3 ÷ 5) V
Logical «0» voltage	(0 ÷ 2,2) V
Peak voltage, applied to inputs «INP1» ÷ « INP5»	15 V
Peak voltage switched by signal output transistors	50 V
Peak current switched through signal outputs	0,1 A
Power supply voltage of controller	(9 ÷ 15) V
Peak consumption current	0,15 A
Number of signal transceiving serial ports (RS-485)	1
Climatic modification and category of location according to GOST 15150-69	NF4

1.6.2.3. Description of operation

The controller operates according to the program entered into microprocessor memory. The turnstile mechanism and LED displays are controlled according to control commands and status of rotor position sensors based on the logic downloaded into program. Control commands can be transmitted via RS485 (from control panel) or logical inputs (by closing and opening of inputs "INP1" ÷ "INP5" on "GND").

The controller (along with the turnstile) can be in the INITIAL STATE (closed for access) or in the following access modes:

- SINGLE ACCESS IN ONE DIRECTION;
- FREE ACCESS IN ONE DIRECTION;
- LOCKING OF ACCESS.

Other operating modes are combinations of various or similar modes in different directions:

- Single access in one direction and any mode in opposite direction.
- Free access in one direction and any mode in opposite direction.
- Locking of access in one direction and any mode in opposite direction.
- "PANIC" function.

INITIAL STATE

The controller is in this mode when there are no commands "TO BE OPENED A/B" and the turnstile rotor is set to the point 0°, 120° or 240°.

In this mode solenoids lock rotor: Denied red LED is lit in both directions.

SINGLE ACCESS IN ONE DIRECTION»

In this mode the controller sends control command to the motorized mechanism controller that results in rotor unlocking in one direction with the possibility of its revolving to 120°. It provides access of one pedestrian through the turnstile.

The controller is switched to "SINGLE ACCESS IN ONE DIRECTION", if in the INITIAL STATE it receives "TO BE OPENED A/B" command (i.e. active level of signal is sent to input "INP4" or "INP5"). In this case the turnstile is open within action period of signal. The command can also be sent delay of WAITING FOR START OF ACCESS.

Sequence of the controller operations after reception of "TO BE OPENED A/B" command is as follows:

- Delay of WAITING FOR START OF ACCESS is initiated (factory setting 5 sec.).
- Controller deenergizes solenoid and rotor is unlocked in the relevant direction.
- LEDs are switched from red to green according to the authorized access.

Then two alternatives of events are possible.

1) First alternative: If within active status of "TO BE OPENED /B" ("INP4"/"INP5") or during delay of WAITING FOR START OF ACCESS rotation of rotor is not started, then controller is reset to "INITIAL STATE";

2) Second alternative: If in the above mentioned cases rotation of rotor is started, then further behavior of controller depends on angle of rotor rotation.

- When rotor is rotated to 6°, LEDs are switched from green to red, indicating that access is occupied. Output signal START OF ACCESS "A/B" ("OUT1" or "OUT2") becomes active.

- When rotor is rotated to 54° the output signal "START OF ACCESS "A/B" ("OUT1" or "OUT2") is removed.

Delay of WAITING FOR START OF ACCESS is reset;

- When rotor is rotated to 64°, ACCESS DETECTION (OUT3 or OUT4) signal is generated.
- When rotor is rotated to 120°, OCCUPIED ACCESS A/B and ACCESS DETECTION (OUT3 or OUT4) signals are reset and then availability of "TO BE OPENED A/B" (INP4 or INP5) command, conforming to the current, is checked. If by this moment the command remains active, the controller switches to FREE ACCESS mode and if not, then it is reset.

FREE ACCESS IN ONE DIRECTION

In this mode rotor can easily rotate in free access direction. In the FREE ACCESS mode green LED of the relevant direction is blinking.

The controller is switched to this mode in two cases:

- First: when "TO BE OPENED A/B" (input INP4 or INP5) command is maintained in active status at the moment of rotor crossing the point 120° upon termination of SINGLE ACCESS.

- Second: after reception of FREE ACCESS command in the relevant direction via RS 485.

After the controller is switched to FREE ACCESS mode, output signals of "OCCUPIED ACCESS", "ACCESS DETECTION" of the relevant direction are generated as described in Table 8.

Exit from this mode into INITIAL STATE is taken place after cancellation of "TO BE OPENED A/B" command or reception of FREE ACCESS CANCELLATION command via RS485. But it will happen not instantly and only when rotor reaches one of the starting points 0°, 120° or 240°, i.e. if free access is canceled during started access it will be completed as free.

AUTHORIZATION OF SINGLE ACCESS IN TWO DIRECTIONS

Since the turnstile having one rotor can't rotate in two directions simultaneously, the controller can only unlock rotor in two directions and after access in one of directions is started, the reverse direction will be closed.

The controller is switched to this mode if in the INITIAL STATUS it simultaneously acquires "TO BE OPENED A" and "TO BE OPENED B" commands. The second signal also can come during the time when the first signal is already active, but rotation of rotor did not start yet. In this case:

- 1) The controller unlocks rotor in two directions via electromagnets.
 - 2) Switches LEDs from red to green in both directions.
 - 3) Initiates two delays of "WAITING FOR START OF ACCESS A and B" (if commands have come via RS-485) for each access individually, which are counted from the moment of acquisition of commands.
 - 4) The controller is waiting for start of access.
 - 5) After rotor is revolved to 6° in any side, opposite direction will be locked LED is switched to red.
- Then the controller is operating as described in section "SINGLE ACCESS IN ONE DIRECTION".

If during active status of the "TO BE OPENED A" and "TO BE OPENED B" signals or during WAITING FOR START OF ACCESS rotor has not been revolved in any side to the angle more than 6°, the controller is switched to the INITIAL STATE.

PANIC FUNCTION

The turnstile is switched to "PANIC" state:

- After the active state is held on input ("INP5" "PANIC") for more than 1 sec;
- After "PANIC" command is sent by control panel (the command is sent after "PANIC" button is held for more than 7 sec.).

After activation of "PANIC" function the barrier rod, which is in horizontal position, will be dropped, the output ("OUT7" "PANIC") will be switched to active state during the function action.

The "PANIC" function is canceled:

- After active state is released on input ("INP5" "PANIC");
- After command "CANCELLATION of PANIC" is sent from control panel (repeated pushing of "PANIC" button);

In each case the appropriate command will be issued to the motorized mechanism controller resulting in rotor rotation and the dropped barrier rod will come to its operating position and will be fixed (barrier rod locking to be checked manually).

LOCKING OF ACCESS

The locking function can be activated by means of control panel only.

After activation of "LOCKING OF ACCESS A or B" the turnstile rotor is locked in the relevant direction and access authorization commands will be ignored in the locked direction; The locked direction is indicated by blinking red color.

The purpose of controller contacts, designed for connection to peripherals, is specified in Table 9.

Table 9

Connector/ contact No	Designation	Direction	Purpose	Signal parameters and description
1	2	3	4	5
XT1/1	INP1 («PANIC»)	ENTRY	"SWITCHING TO PANIC STATE" command	1) logic «0» (0 ÷ 2,2)V 2) Logic «1» (3÷5) V 3) Active level of signal (Factory setting) - Logic «0» 4) Voltage on open input < 5 V
XT1/2	INP2 («TO BE OPENED A»)	ENTRY	"TO BE OPENED FOR SINGLE ACCESS" in pulse mode command.	
XT1/3	INP3 («TO BE OPENED B»)	ENTRY	When this command is issued the turnstile is opened for 5 sec.	
XT1/4	INP4 («TO BE OPENED A»)	ENTRY	"TO BE OPENED FOR SINGLE/FREE ACCESS" command.	
XT1/5	INP5 («TO BE OPENED B»)	ENTRY	Access remains open during holding. Free access occurs when the input is held in active state after rotor reaches an angle of 120.	
XT1/6	GND (common)		«-» power supply (common wire)	
XT2/1	GND (common)			
XT2/2	OUT1 («START OF ACCESS A»)	EXIT	Signal is generated by controller when rotor revolves from 6° to 54° in the relevant direction	1) type of output – open collector; 2) peak voltage on privacy key 55V; 3) peak current of public key 100mA;
XT2/3	OUT2 («START OF ACCESS B»)	EXIT		

Continued Table 9

1	2	3	4	5
XT2/4	OUT3 («DETECTION OF ACCESS A »)	EXIT	Signal is generated by controller when rotor revolves from 64° to 120° in the relevant direction	4) resistance of public key (5÷7) Ohm; 5) active level of signal (Factory setting) – logical «0
XT2/5	OUT4 («DETECTION OF ACCESS B»)	EXIT		
XT2/6	OUT5 («ACCESS IS OCCUPIED»)	EXIT	Signal is generated by controller when rotor revolves from 8° to 120° in any direction	
XT2/7	OUT6 ("ERROR")	EXIT	Signal is generated by controller when violation of operation logic is detected	
XT2/8	OUT7 ("PANIC")	EXIT	Signal is generated by controller when "PANIC" function is activated°	
XT3/1	OPTO1	ENTRY	It is used for acquisition of data about the turnstile rotor position	1) Logical «0» (0 ÷ 2,2) V 2) Logical «1» (3 ÷ 5) V 3) Active level of signal (Factory setting) Logical «0» 4) Voltage on open input < 5 V
XT3/2	OPTO2	ENTRY		
XT3/3	OPTO3	ENTRY		
XT3/4	SGN1	ENTRY		
XT3/5	SGN2	ENTRY	Selection of turnstile modification	
XT3/6	SGN3	ENTRY	Not applicable	
XT3/7	SGN4	ENTRY	Not applicable	
XT3/8	INDAR	EXIT	It is used for the turnstile LED display control	1) Type of output - open collector 2) Peak voltage on privacy key 30 V 3) Peak current of public key 2A 4) Resistance of public key 0,1 Ohm
XT3/9	INDAG	EXIT		
XT3/10	INDBR	EXIT		
XT3/11	INDBG	EXIT		
XT3/12	PSW1	EXIT	Not applicable	1) Type of output - open emitter. 2) Voltage on output in ON state 12 V. 3) Peak current consumed from output 1 A. 4) Resistance of public key 0.25 Ohm
XT3/13	PSW2	EXIT	Not applicable	
XT3/14	RSB		It is used for data transmission via serial port	Interface RS-485
XT3/15	RSA			Interface RS-485
XT3/16	GND			
XT4/1	- MGA	EXIT	Used to supply power on the electromagnet of the leash release system in the "PANIC" function	1) Type of output - open collector. 2) Peak voltage on public key 50 V 3) Peak current of public key 9A 4) Resistance of public key 0,11 Ohm
XT4/2	- MGB	EXIT	Not applicable	
XT4/3	+ MGA		Not applicable	
XT4/4	+ MGB		Not applicable	
XT5/1	+ 12 V		«+» power supply (controller energization)	1) power supply voltage 12V; 2) consumption current < 150 mA
XT5/2	+ 12 V			
XT5/3	+ 12 V			
XT5/4	GND (common)		«-» power supply (common wire)	
XT5/5	GND (common)			
XT5/6	GND (common)			
XP1	XP1	ENTRY / EXIT	PCB.201 controller link communication port	1) logical «0» (0 ÷ 1) V; 2) logical «1» (3,5 ÷ 5) V

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 TURNICETE WITHOUT EARTHING;**
- 3) USE GROUNDING PIPES AND BATTERIES OF HEATING SYSTEMS, CENTRAL WATER SUPPLY PIPE;**
- 4) PRODUCE ADJUSTMENT AND REPAIR WORKS WITHOUT DISCONNECTION OF POWER SUPPLY;**
- 5) MOVE THROUGH THE TURNKEY PASSAGE ZONE AREAS OUTS 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 1000 N (100 KG)**

2.1.2 Do not operate the turnstile with:

- 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 specific operating conditions

- The average time of a person's passage through the turnstile (in the mode of a single pass) is 3 seconds.
- The turnstile's mechanism allows emergency access by means of function "PANIC".
- To increase the capacity of the turnstile in the event of abnormal situations, a door, gate or wicket gate can be installed aside to the turnstile.

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 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.

2.2.2 General layout of the turnstile access ways

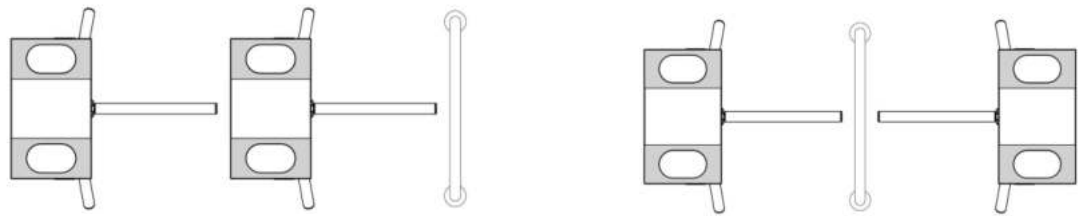
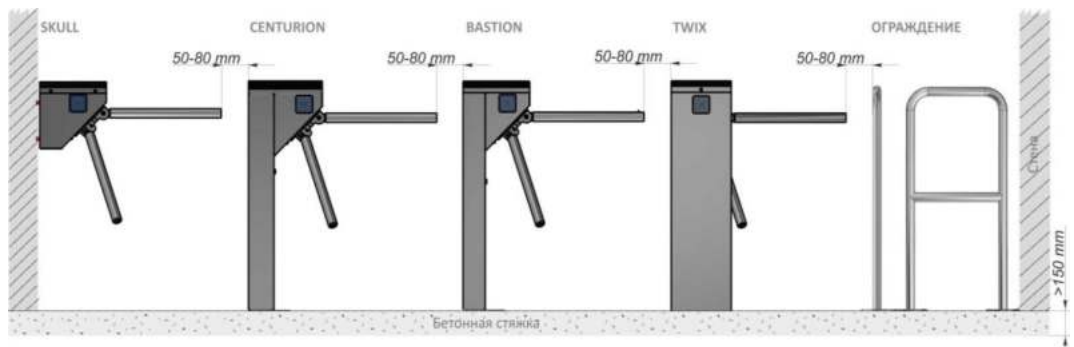


Fig. 12 – Turnstile layout options (conditionally)

Side view



Top view

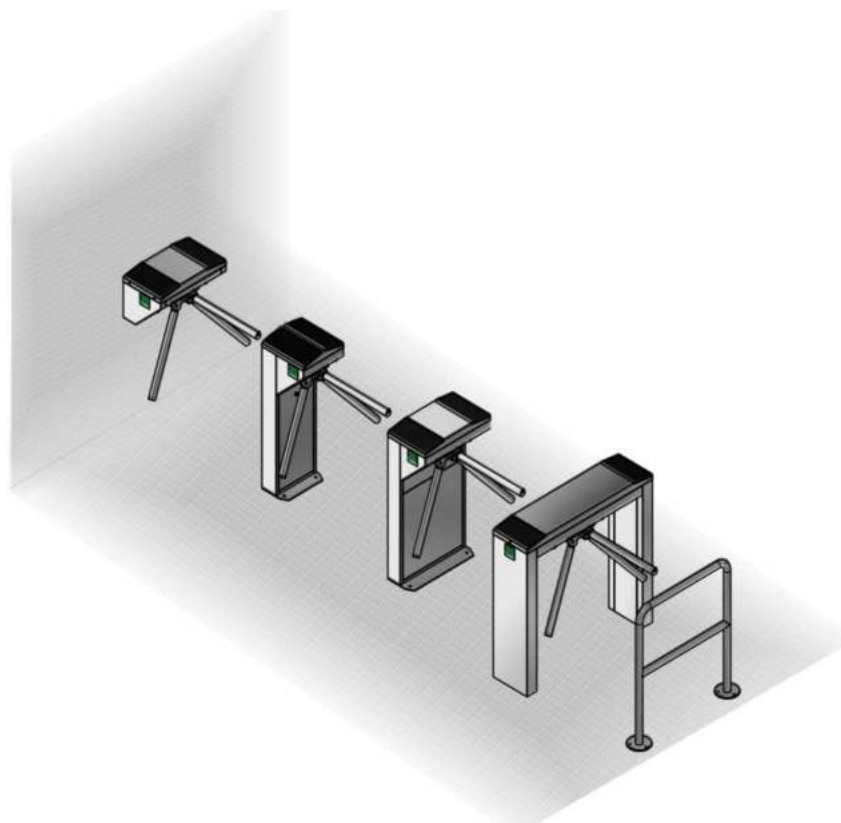
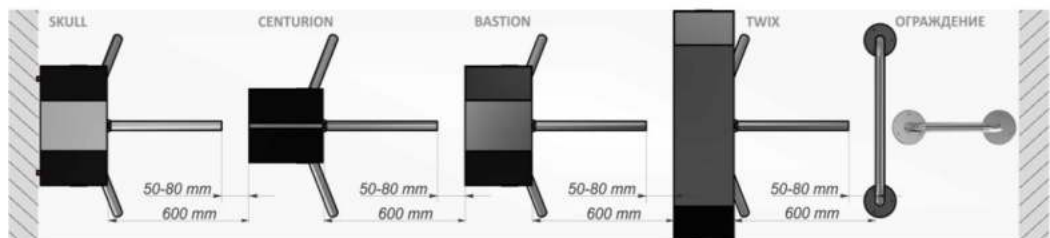


Fig.13 – Tripod turnstile layout (conditionally)

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.

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

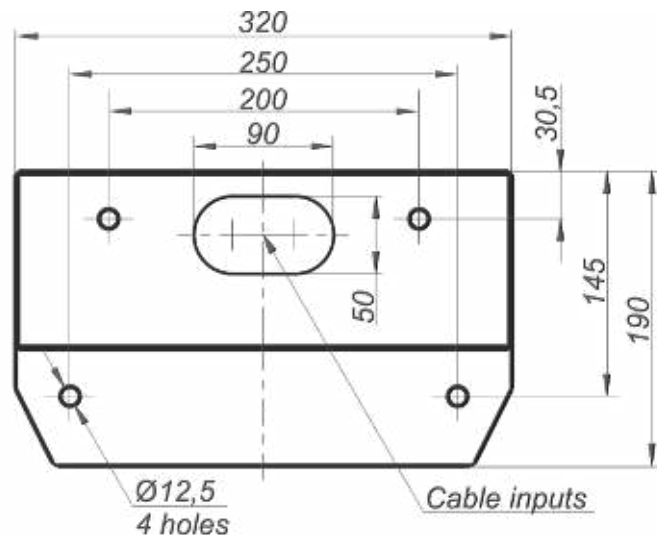
- The installation site surface to be flat and horizontal;
- Thickness of concrete blinding coat under site to be at least 150 mm.

The turnstile fixation holes to be marked on the area surface according to Fig. 14. The turnstile itself can be used as a template, when installed upright on installation site.

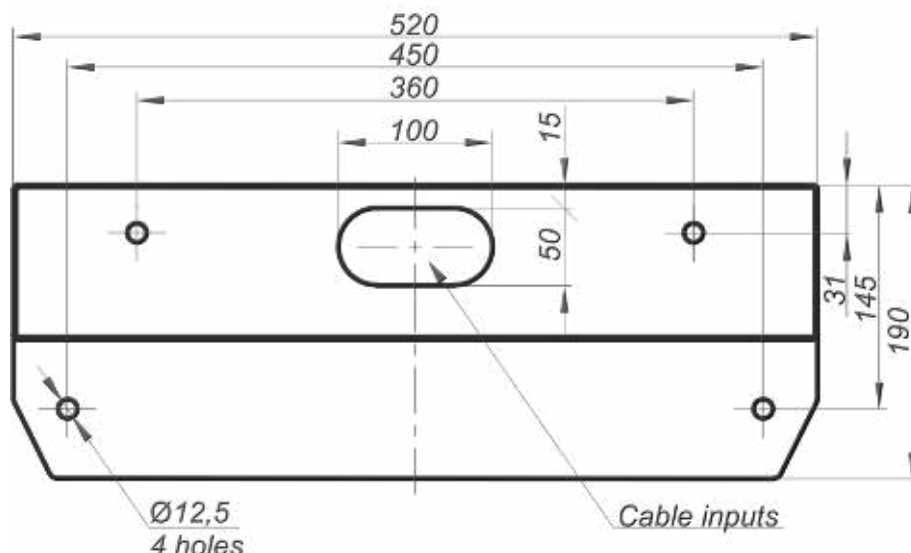
The relevant holes to be drilled on the surface according to the marking due to diameter of anchors (12×120M10) for the turnstile fixation. Anchor jackets to be inserted into the prepared holes.

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.14 diagram.

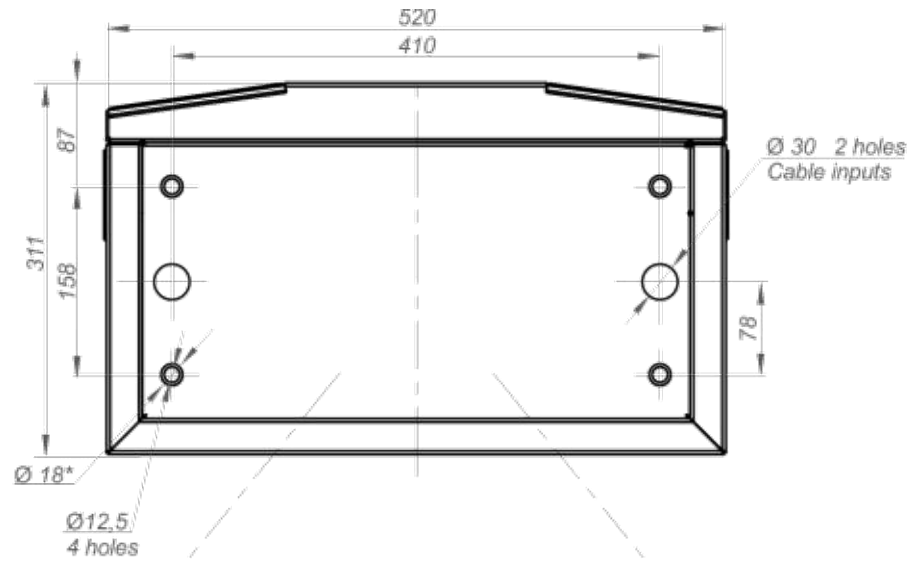
a) CENTURION-M



b) BASTION-M



c) SKULL-M



d) TWIX-M

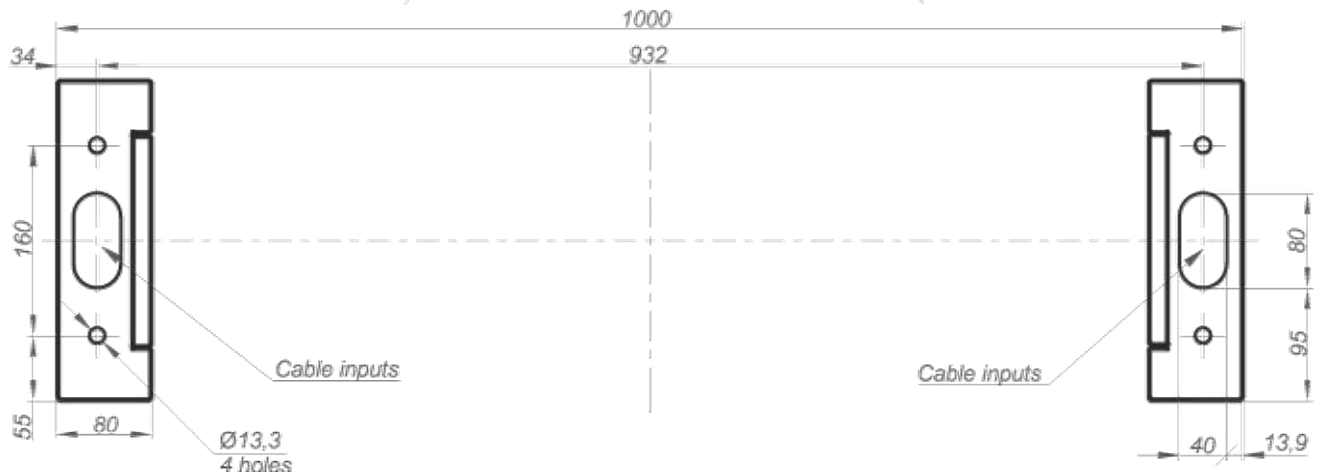


Fig. 14 – Tripod type turnstile installation marking

7) Installation of hub on the tripod turnstile (Through the example of the turnstile AUIA.095-10 "CENTURION-M"). (For the sake of convenience installation of the hub with barrier rods is acceptable at the end of installation and connection of the turnstile):

- a) The hub (1) barrier rods (2) to be set out manually (See Fig. 15).
- b) The hub (1) to be mounted on center of the turnstile mechanism (4) connecting the mark on the hub (5) to the mark on the mechanism (6) (the position of the marks can be in any of the 3 positions);
During installation attention to be paid that the mechanism fixation holes to be aligned with the hub holes;
- c) The hub (1) to be secured with three screws (3).

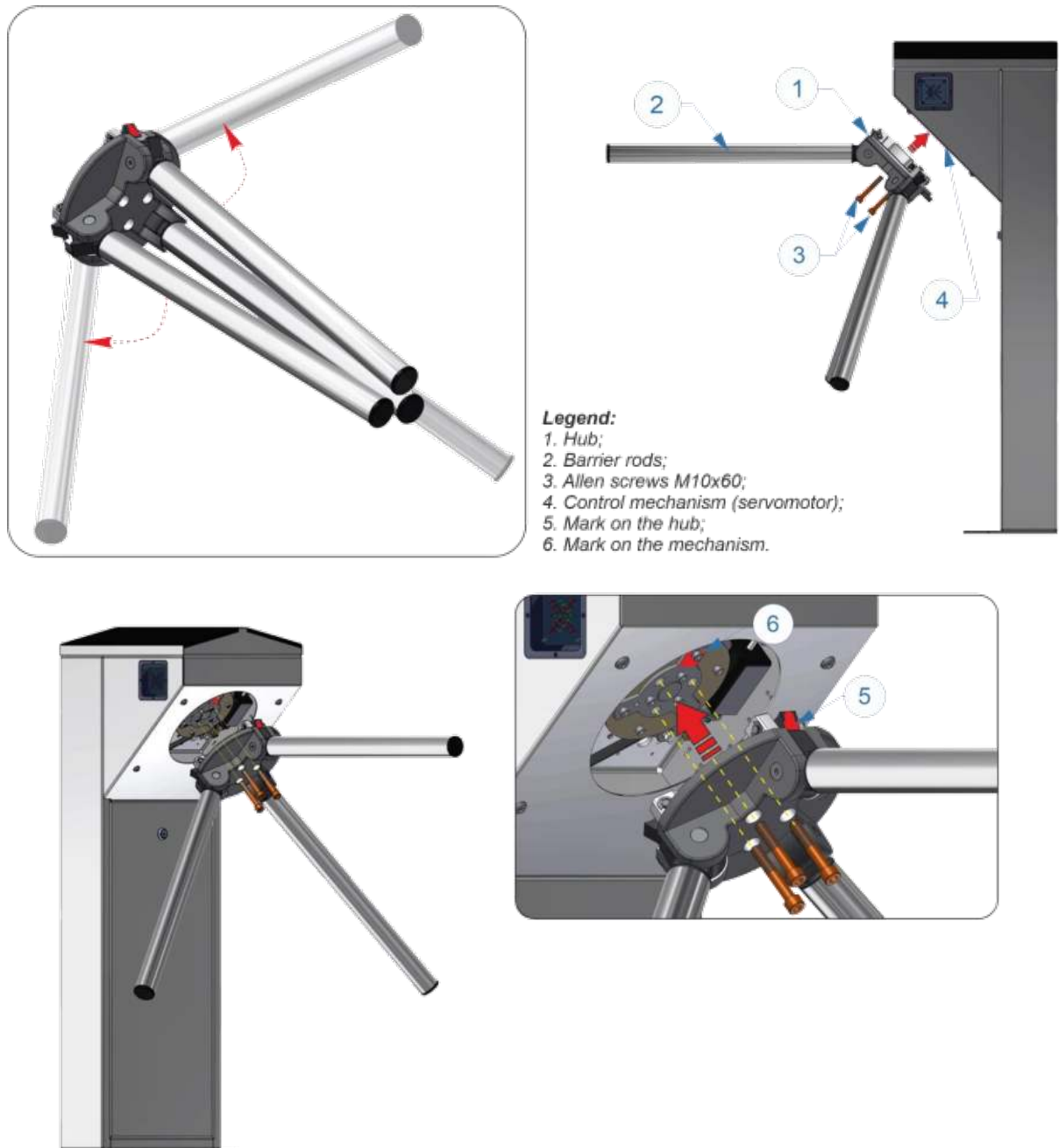


Fig. 15 – Installation of the hub with barrier rods into the tripod turnstile body

WARNING:



- 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) The rack door to be removed by turning the lock key (Fig. 16) to access to the "CENTURION-M" and "BASTION-M" tripod turnstile base fixation and service holes as well as terminal blocks.

The lock pin (1) to be removed and the latch (2) to be opened by lifting it up to remove the rack lid (Fig. 16, View A)

1. Door to be opened;
2. Cable to be pulled;
3. Lid to be removed;
4. Card reader to be installed;
5. To be secured with anchors.

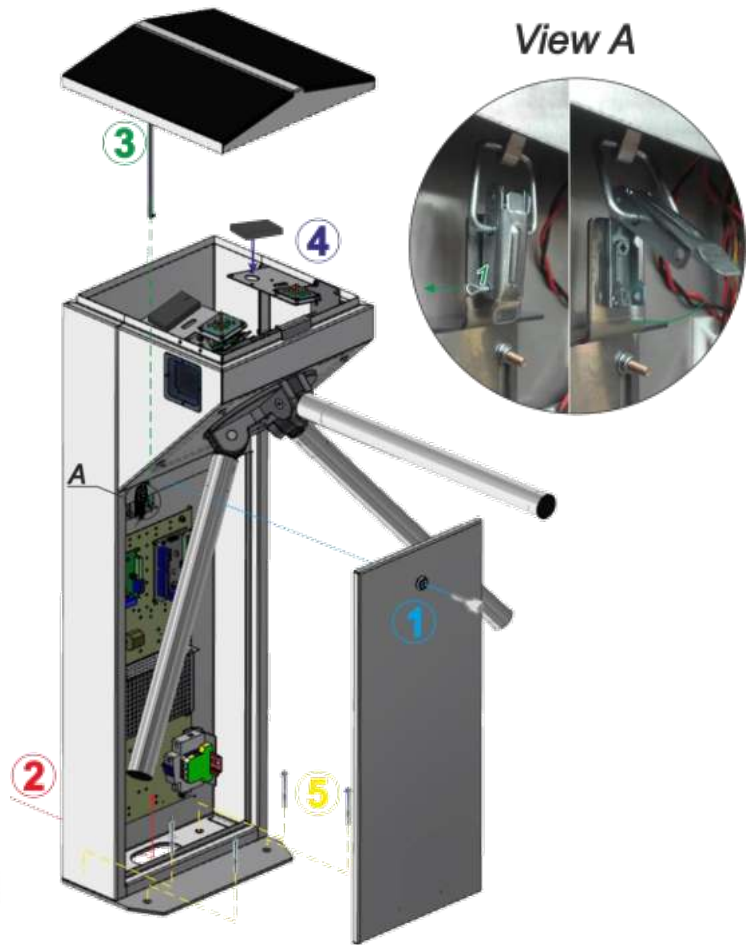


Fig. 16 – General view of the "CENTURION-M" and "BASTION-M" and turnstiles assembly

9) Two turnstile stand doors to be removed by uncrewing one screw fastening door to the body to access to the "TWIX-M" tripod turnstile base fixation holes.

The screws on the turnstile rack lid butt ends to be unscrewed and the lid to be removed to access to terminal blocks.

1. Door to be opened;
2. Cable to be pulled;
3. Lid to be removed;
4. Card reader to be installed;
5. To be secured with anchors.

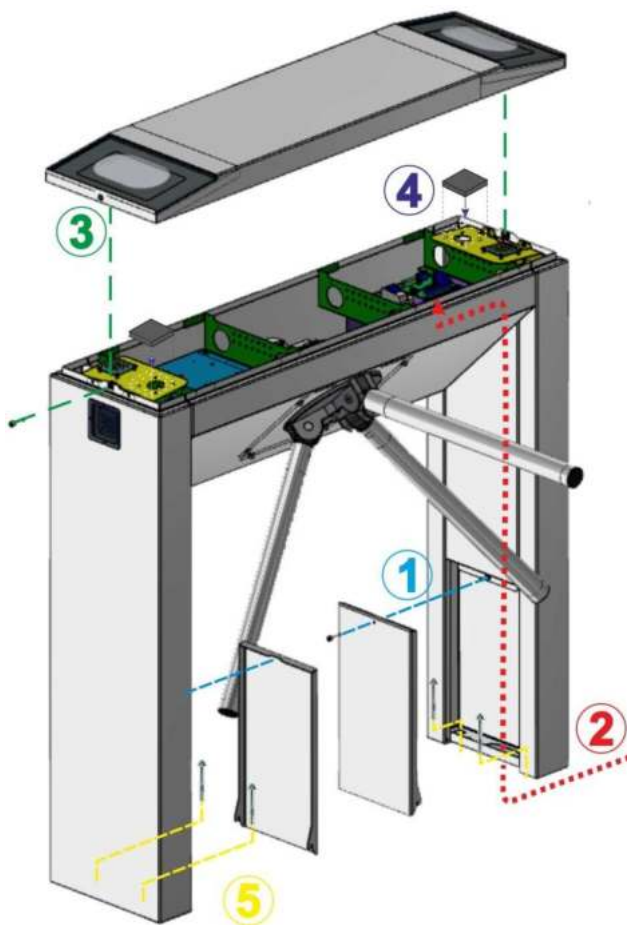


Fig. 17 – General view of the "TWIX M" tripod turnstile assembly

10) The lid to be removed by unscrewing 4 screws on butt ends to access to the "SKULL-M" tripod turnstile fixation and service holes as well as terminal blocks (See Fig.18).

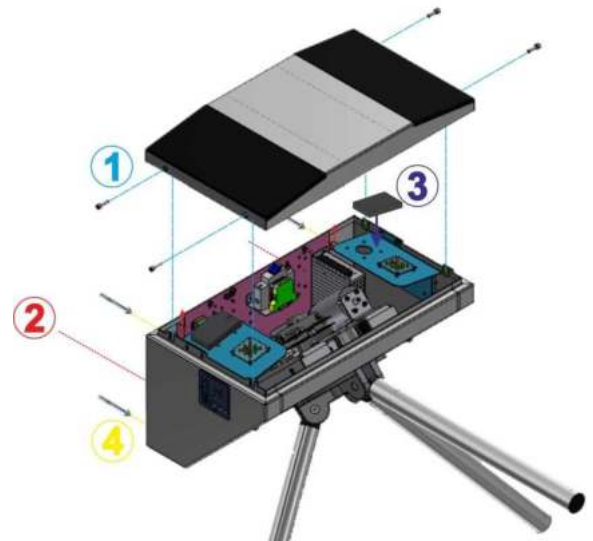


Fig. 18 – General view of the "SKULL-M" tripod turnstile assembly



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 mountingplate (Fig.14)

11) 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;

12) The turnstile to be installed upright at the prepared location.

- Cables to be pulled through available service hole in the turnstile rack bottom butt end part by reclining the turnstile.
- Fixation holes at the turnstile bottom plate to be aligned with prepared surface holes.

13) Turnstile connection (Fig. 19):

a) ~230 V power supply cable to be connected:

- 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) – RSA wire of control panel link
- **B** (RSB) - RSB wire of control panel link;

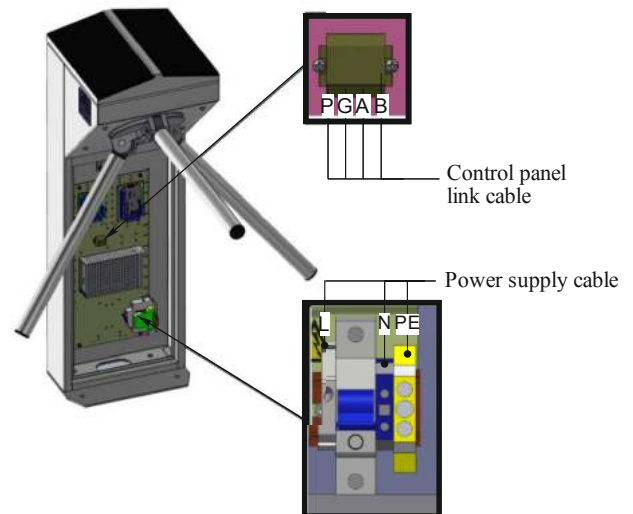


Fig. 19– Connection of power supply and control panel link cable

c) Proximity card readers² to be installed if access controlsystem (ACS) is available:

- In the turnstiles CENTURION, TWIX, SKULL and BASTION card readers are installed on special and height adjustable bracket, which is located under upper lid 4 next to LED display 3 (Fig. 20).

- Maximum sizes of the card reader to be installed are at least 100x100x25 mm*;

14) The turnstile to be secured with anchors included in the scope of delivery.

15) The turnstile rack lid to be installed in the removal reverse sequence.

16) The turnstile door to be installed in the removal reverse sequence.

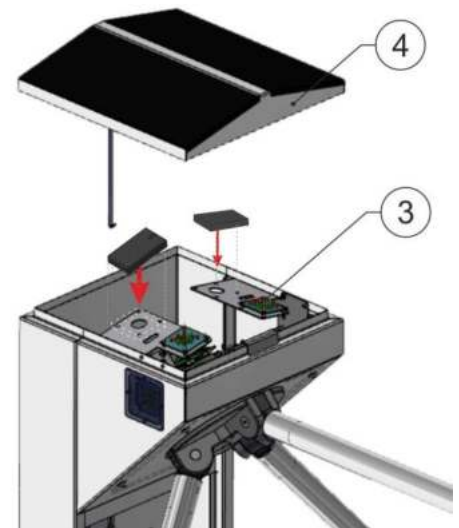


Fig. 20 – Installation of card reader into the tripod turnstile



WARNING:

During the turnstile installation it should be taken into account that horizontally positioned barrier rod 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 Adjustment of the locking position of the hub with barrier rods

1. On the electronic board of the magnetic sensor press the button and hold (not less than 1 second and make sure that the force on the button does not bend the board);

2. Adjustment the new locking position of the leaf;

3. Release the button;

4. After releasing the button on the electronic board of the magnetic sensor, LED diode for indication of locking position must light;

5. Check the status by moving the angle of the gate, speed and locking position on the controller PCB 201 – connections: IN5, IN6, IN7, IN8. By turning the leaf:

- IN5, IN6 – need to wink.

- IN7 – light brightly- if the leaf is not rotated or is rotated slowly, brightness decreases – if rotated rapidly.

- IN8 – need to light only in locking position;

6. Adjustment of the new zero position is finish.

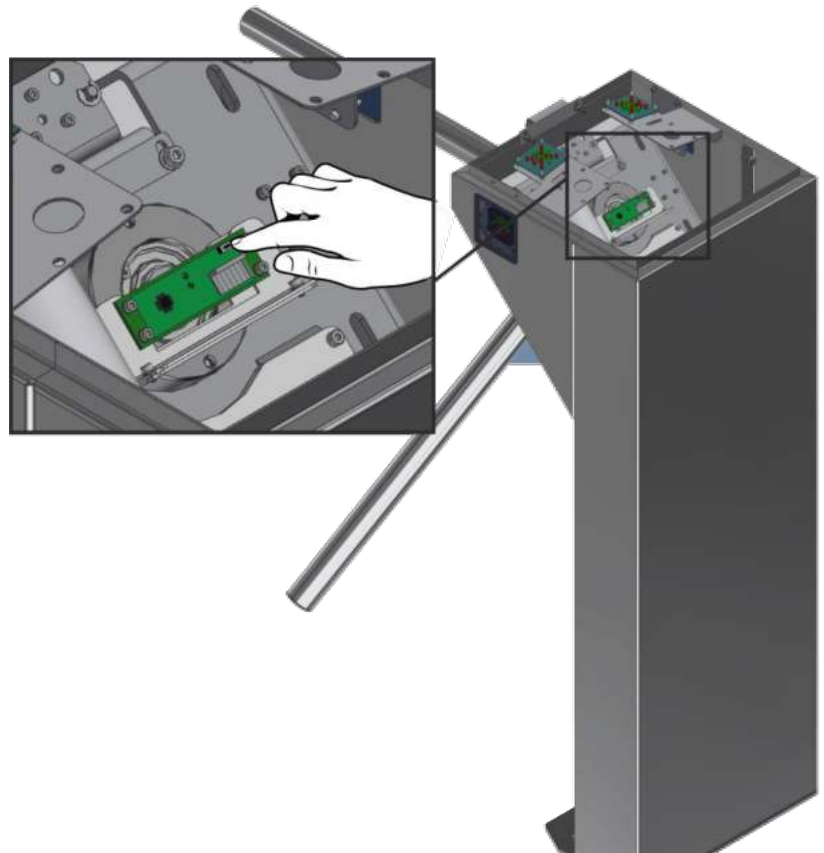


Fig. 21 – The barrier rod in initial position

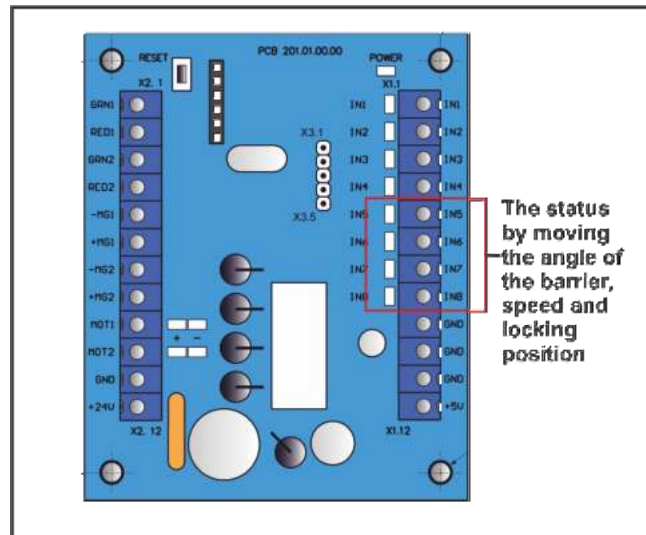


Fig. 22 –Signals for changing rotation angle on PCB 201 controller

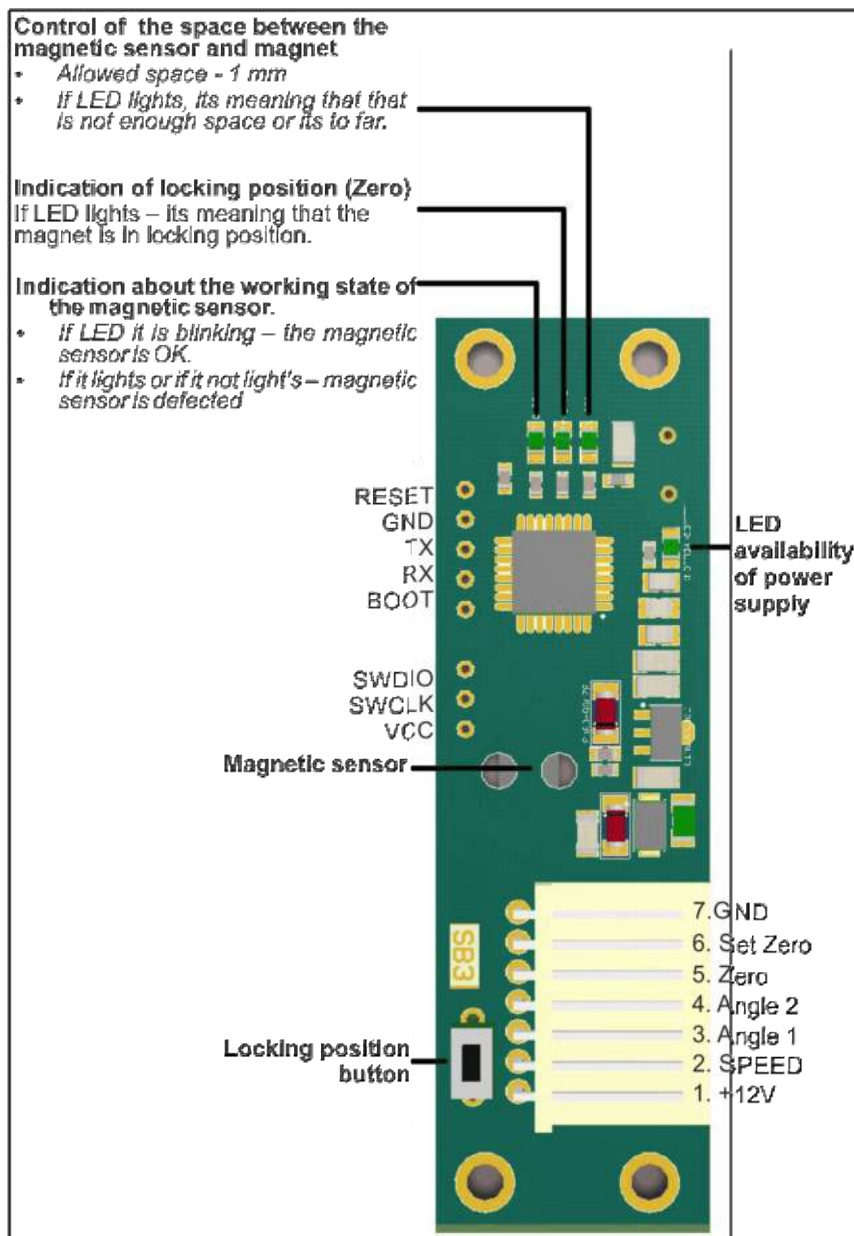


Fig. 23 – Magnetic sensor board

2.3 Preparation for use

2.3.1 Commission guidelines

Prior to the turnstile energization:

- 1) make sure of proper connection and good condition of all connecting cables;
- 2) the turnstile barrier rod 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 rods are locked from rotation in both directions barring access.

The turnstile is set in the initial state: red cross is displayed for entry and exit (« × » is lit).

2.3.2 Required inspections

2.3.2.1 When the turnstile is commissioned it is necessary to perform the inspections specified in *Table 10*.

The wiring diagram according to Annex C and the control panel according to Annex B.

Table 10

Turnstile operation mode	Operation mode setting	LED display
1	2	3
1. Turnstile is closed in both directions (initial state)	–	Red LED is lit
2. Single access in one direction	SINGLE button to be pushed for access in selected direction ("A" or "B")	Green arrow of authorized single access is lit in selected direction and red LED is lit in opposite direction
3. Single access in both directions	Both SINGLE buttons to be pushed for access in both directions ("A" and "B")	Green arrows of authorized single access are lit in both directions
4. Free access in one direction	FREE button to be pushed for access in selected direction ("A" or "B")	Green arrow of authorized free access is lit in selected direction and red LED is lit in opposite direction
5. Free access in both directions	Both FREE buttons to be pushed for access in both directions ("A" and "B")	Green arrows of authorized free access are lit in both directions
6. Single access in one direction and free access in opposite direction	SINGLE button to be pushed for access in selected direction ("A" or "B") and FREE button to be pushed for access in opposite direction	Green arrow of authorized single access is lit in selected direction and green arrow of authorized free access is blinking in opposite direction
7. Single access in one direction and locking access in opposite direction	SINGLE button to be pushed for access in selected direction ("A" or "B") and LOCK button to be pushed for blocking access in opposite direction	Green arrow of authorized single access is lit in selected direction and red LED of locked access is blinking in opposite direction
8. Free access in one direction locking access in opposite direction.	FREE button to be pushed for access in selected direction ("A" or "B") and LOCK button to be pushed for blocking access in opposite direction	Green arrow of authorized free access is lit in selected direction and red LED of locked access is blinking in opposite direction
9. Locked access in one direction	LOCK button to be pushed to lock access in selected direction ("A" or "B")*	Red LED of selected single access is blinking
10 Locked access in both directions	Both LOCK buttons to be pushed to lock access in both directions ("A" or "B")**	Red LED of blocked access in both directions is blinking
11 Activation of antipanic device	PANIC button to be pushed and hold within at least 5 sec.***	Green arrows of authorized free access in both directions are blinking
* 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. *** In this case all control panel buttons are locked in both directions		

2.4. Contingency actions

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. To have fully open passage please use the anti-panic mechanism.

The anti-panic mechanism is automatically activated when the turnstile is powered off (*Fail-safe*), and barrier rod cannot be restored to its initial position during an active panic mode.

Also, lowering of barrier rod (see *Fig. 6*) and release of the passage occurs when the “PANIC” button to be held for more than 7 sec. or by sending signal to the relevant input (**in1**) of the turnstile controller.

After alarm or panic mode are deactivated from control panel, barrier rod is set to its initial position automatically. When power supply is ON and panic is deactivated, locking of barrier rods should be checked manually.

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.



**IT IS FORBIDDEN:
TO USE DEFECTIVE APPLIANCES, TOOLS, FUSES, INSTRUMENTATION THE SERVICE
LIFE OF WHICH EXPIRED**

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.

Table 11

<i>Name of means</i>	<i>Manufacturer Company</i>	<i>Manufacturer country</i>
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

3.3.2 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 ABRASIVE AND CHEMICALLY ACTIVE SUBSTANCES DURING CLEANING OF
CONTAMINATED EXTERNAL SURFACES OF THE TURNSTILE.**

The means recommended for cleaning stainless steel products are given in *Table 11*.

3.3.3 Visual inspection of the turnstile body, control mechanism and other components for absence of corrosion, warps and other mechanical defects and pollutions;

- visual inspection of connecting, network and earthing cables condition;- verification of the turnstile performance during manual control in the modes specified in Table 10 or as part of ACS when pendants, identification cards are used;

- verification of reliability of the turnstile screw joints and earthing connections - to be tightened, if applicable;
- lubrication of all rubbing stop levers, wheel and pinion teeth of the turnstile control mechanism at least monthly with lubricant OKB-122-7 according to GOST 18179-72 or LITOL 24, Ciatim or engine oil.

Table 12 - 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 9 are remedied by the customer. More complicated malfunctions are remedied by the manufacturer's representative.



ATTENTION:

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

4.2 List of possible malfunctions

The list of possible malfunctions and ways of their elimination is given in Table 13

Table 13

<i>Malfunction</i>	<i>Cause of malfunction</i>	<i>Action</i>
<i>1</i>	<i>2</i>	<i>3</i>
The turnstile does not work when power on.	No AC power supplied to unit Loose power cable Faulty power supply unit	Check the power supply switch Restore AC power. Connect power cable. Replace power supply unit
Tripod bars (arms) are free rotated when power is ON	Damaged wires No DC power +12V Faulty power supply unit Faulty the PCB.201.01.00.00	Check wires Check power supply unit Replace power supply unit Replace PCB.201.01.00.00
Bars (arms) are not rotated	Faulty locking mechanism No communication between controllers (boards) The position sensor is set wrong The position sensor is faulty	Check connections and movement of latches Check the connectors and wires between controllers (boards) Adjust or replace the position sensor
Bars (arms) are not locked	Faulty locking mechanism	Check and clean fault latches Adjust or replace the position sensor Check and clean the locking solenoids
Turnstile is not unlocked	Have no a communication between controllers The turnstile is not receiving an activation signal from the Access Control System.	Check the connectors and wires between controllers (boards) Check and clean fault latches Adjust or replace the position sensor Check and clean the locking solenoid Check that the access control system is properly connected to the Entry Accept terminal(s) on the controller board. Check that the access control system is providing a proper activation signal
The Control panel beeps "Communication"	The Control panel have no communication with the controller	Check the wires Check the control panel Check the controller Change the controller/ control panel
The Indication does not work	Have no a communication with the controller Damaged the wires The LED indicator is faulty	Check the wires Check the LED indicator Replace the faulty LED indicator
Bars (arms) stay in half opened position.	The position sensor is set wrong The position sensor is faulty Jamming in the mechanism	Adjust the position sensor Replace the faulty position sensor Check the mechanism parts
Bars (arms) rotate slowly	Jamming in the mechanism The sensor of position/speed is set wrong	Check for rubbing and damages at the mechanism Check the rotor parts Adjust or replace the position sensor Check the wires
Bars (arms) get stuck intermittently during rotation	Jamming in the mechanism The position sensor is set wrong The PCB.201.01.00.00 is faulty	Check for mechanical jamming and damages at the mechanism Check the mechanism parts Adjust or replace the position sensor Check the connectors and wires
Bars (arms) are not locked in place / falls on its own	Jammed locking mechanism Loose / deformed retainer Damaged / worn retainers	Clearing jams in the mechanism Replace retainers
Turnstile unlocks but motor does not work	The position sensor is set wrong The PCB.201.01.00.00 is faulty	Adjust or replace the position sensor Check and adjust the driving belt tension Check or replace PCB.201.01.00.00 Check or replace gear motor
Bars (arms) keeps moving without stop at center (standby) position	The position sensor is set wrong Damaged wires between sensor and controller The position sensor is faulty	Adjust or replace the position sensor Check the connectors and wires

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 10*

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.

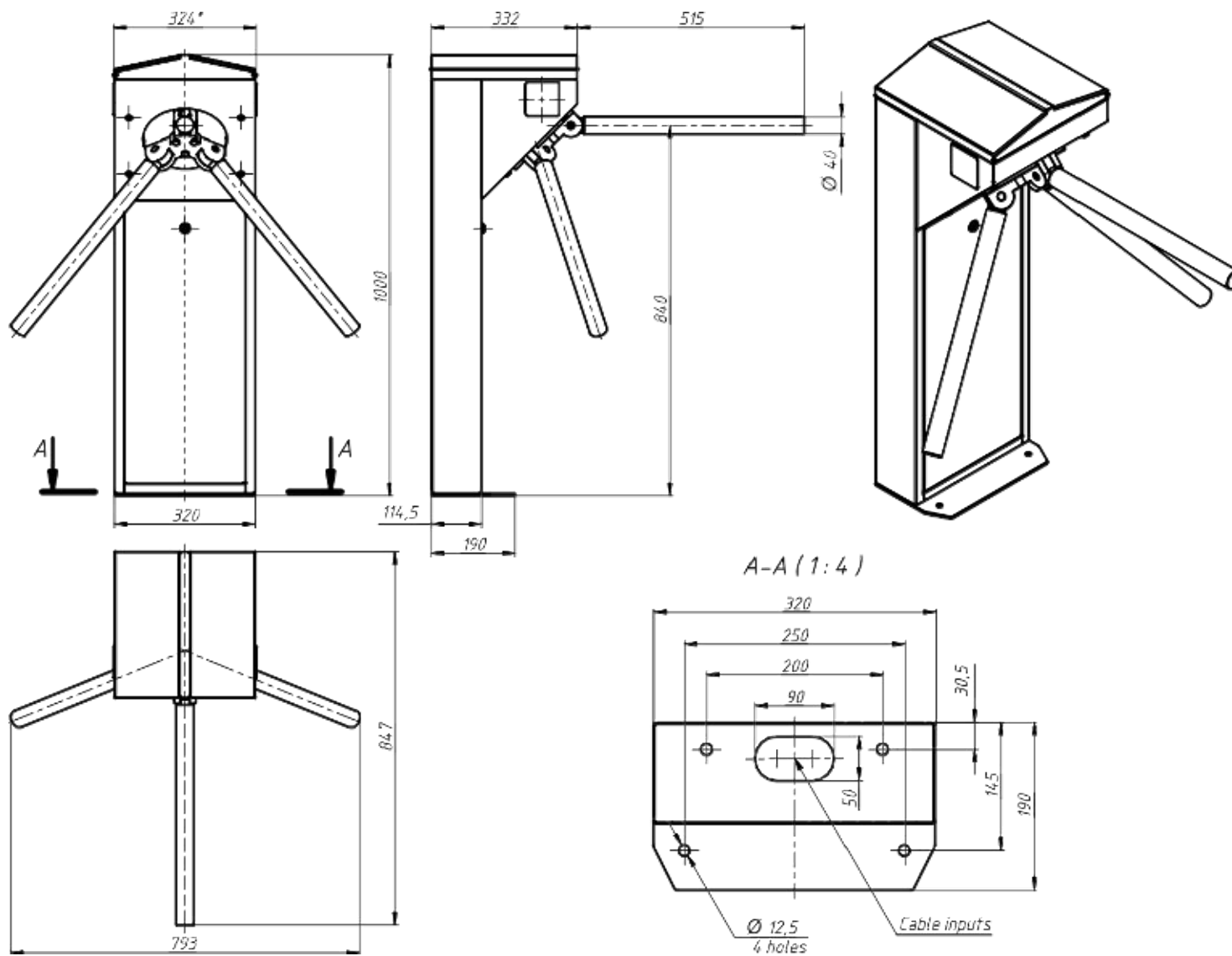
After transportation or storage of the turnstile at negative temperatures or high humidity of the air, the turnstile should be kept before startup without the original packaging for 12 hours in an enclosed space with normal climatic conditions:

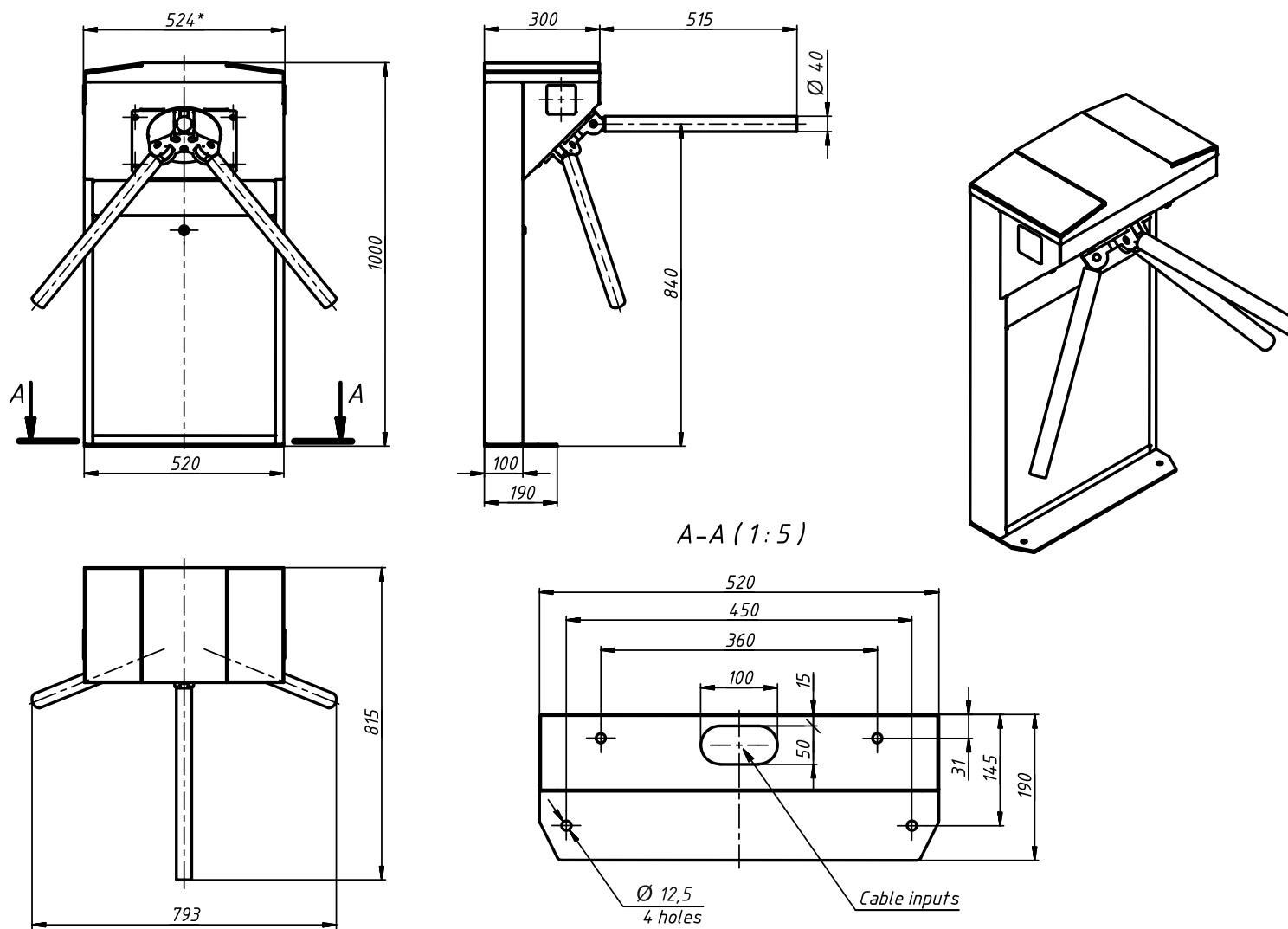
- 1) ambient temperature - from plus 15 to plus 35° C;
- 2) relative humidity - from 45 to 80%;
- 3) atmospheric pressure - from 84.0 to 106.7 kPa (630-800 mm Hg).

6. DISPOSAL CONSIDERATIONS

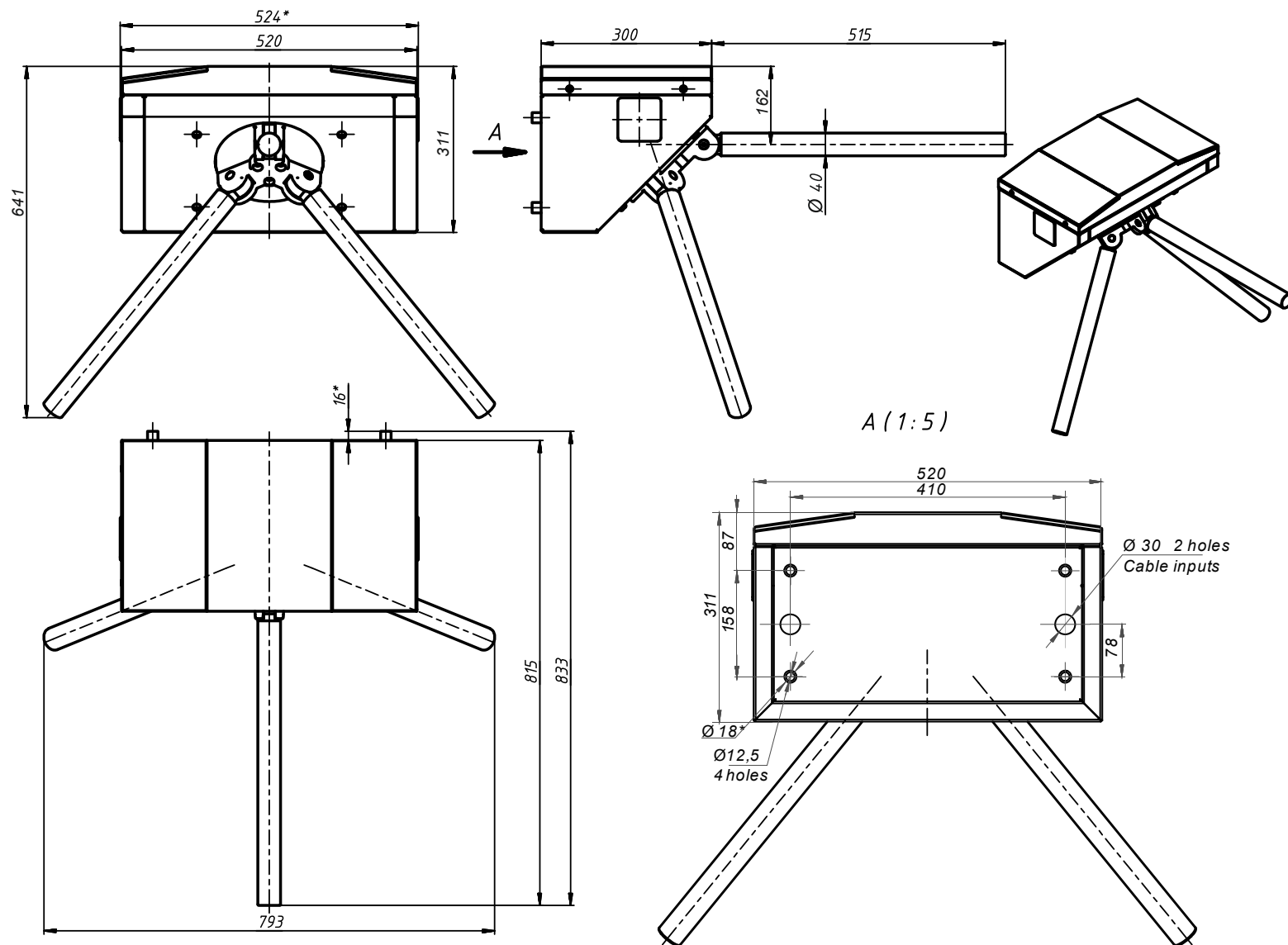
The turnstile does not contain in its structure materials that are hazardous to the environment and human health, and does not require special measures for its disposal.

Annex A 1. Overall and installation dimensions of the turnstile "CENTURION-M"

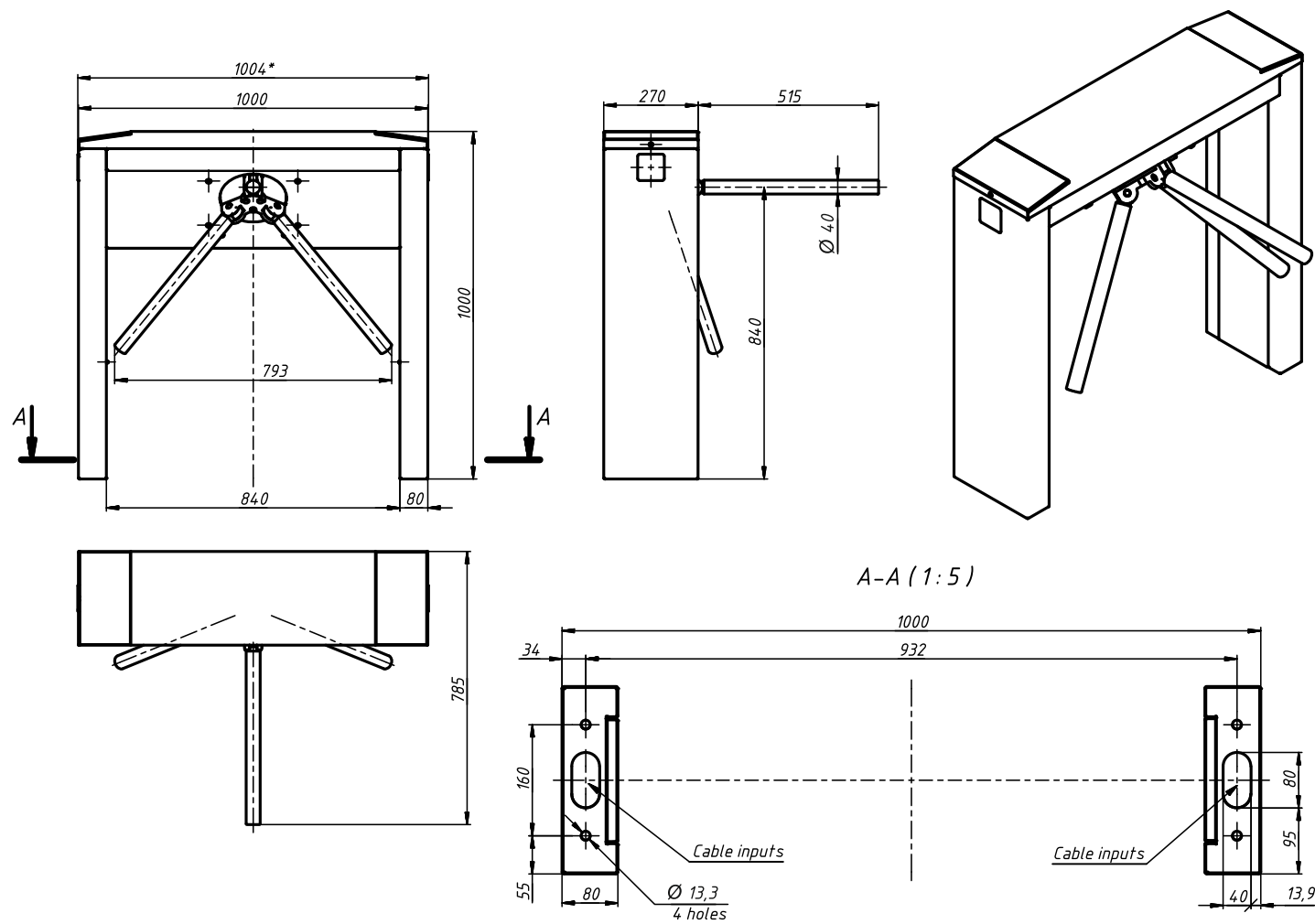


Annex A.2 Overall and installation dimensions of the turnstile "BASTION-M"

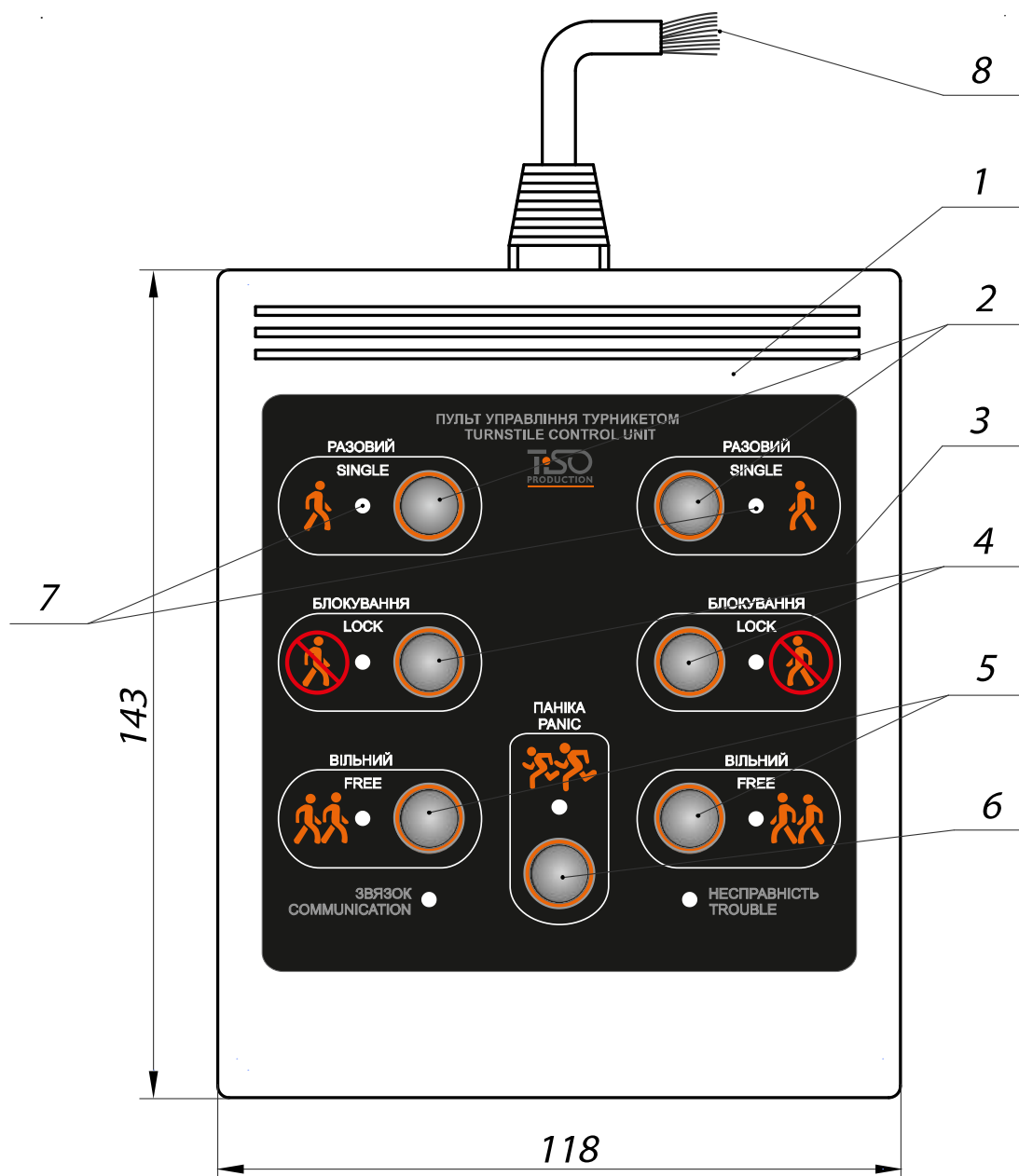
Annex A.3 Overall and installation dimensions of the turnstile "SKULL-M"



Annex A.4. Overall and installation dimensions of the turnstile "TWIX-M"



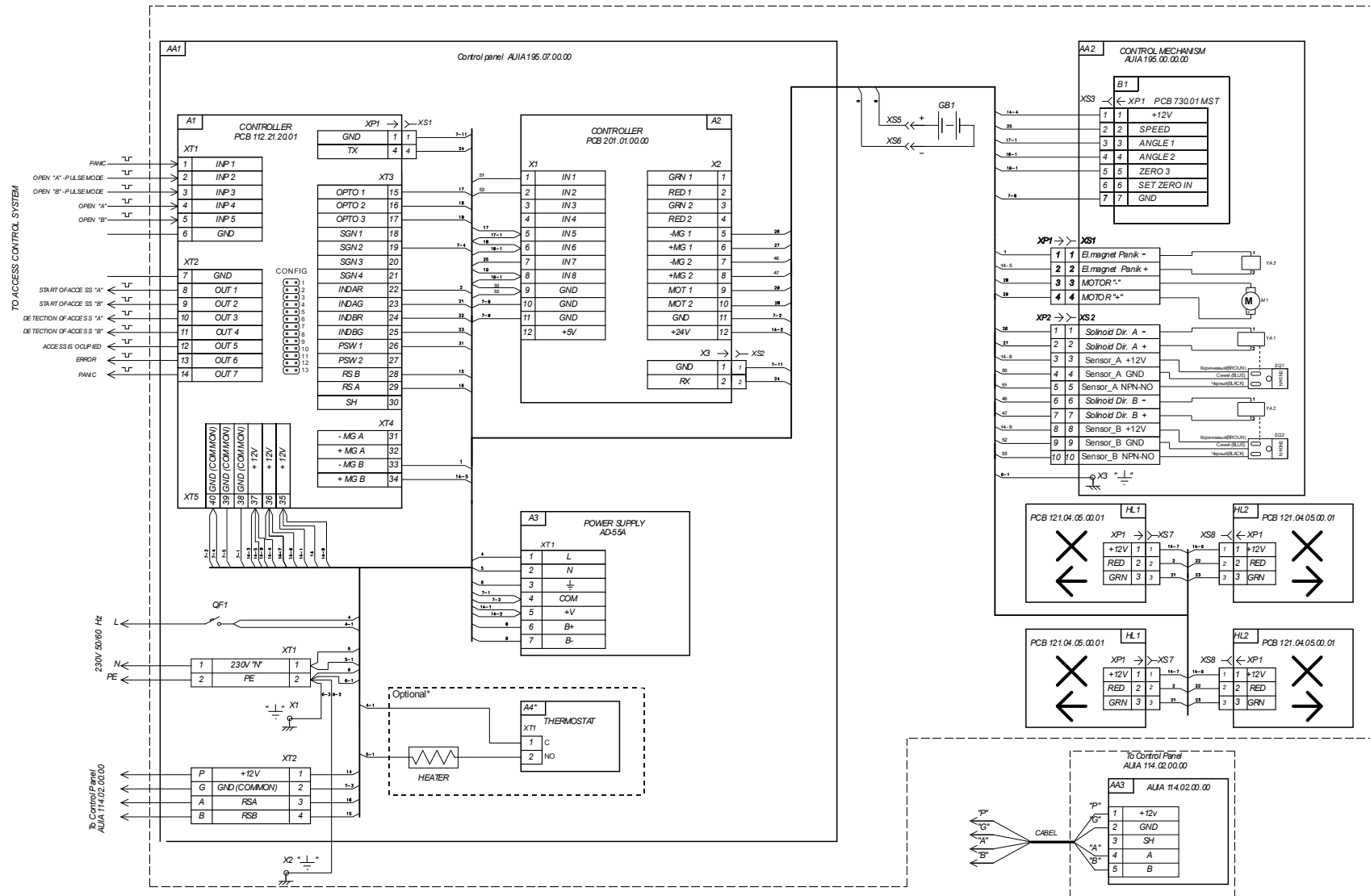
Annex B . Control panel and connection diagram



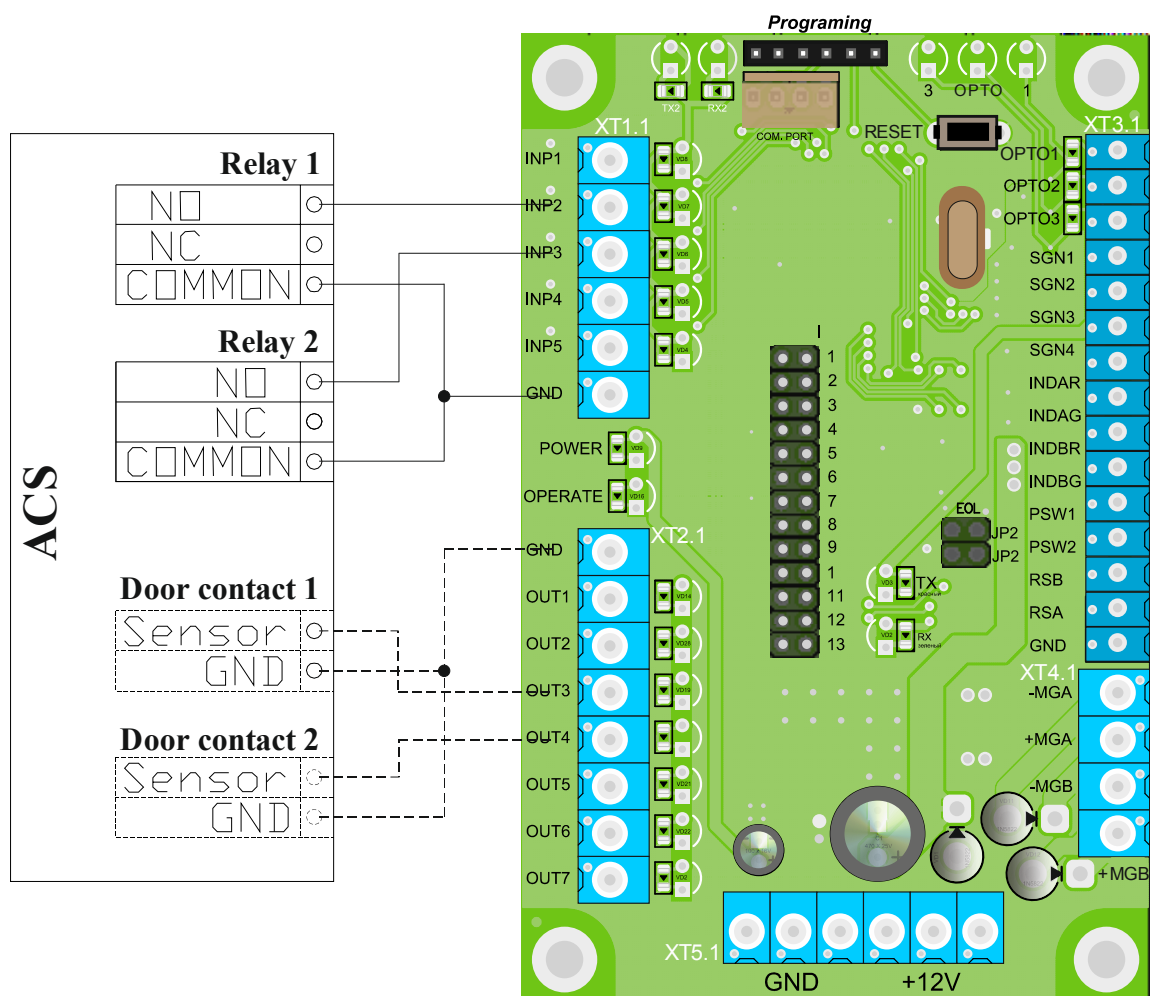
- 1 – control panel body;
- 2 – "SINGLE ACCESS" mode control button
- 3 – front plate;
- 4 – "LOCK" mode control button;

- 5 – "FREE ACCESS" mode control button
- 6 – "PANIC" mode control button
- 7 – access direction LED display;
- 8 – controller connection terminals

Annex C. Servo-operated tripod turnstile wiring diagram



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



inp1 - "PANIC"

inp2 - "TO BE OPENED A" in pulse mode.

When command is issued entry is activated for 5 sec.

inp3 - "TO BE OPENED B" in pulse mode. When command is issued entry is activated for 5 sec.

inp4 - "TO BE OPENED A". Entry is activated for the time of keeping in active state

inp5 - "TO BE OPENED B". Entry is activated for the time of keeping in active state

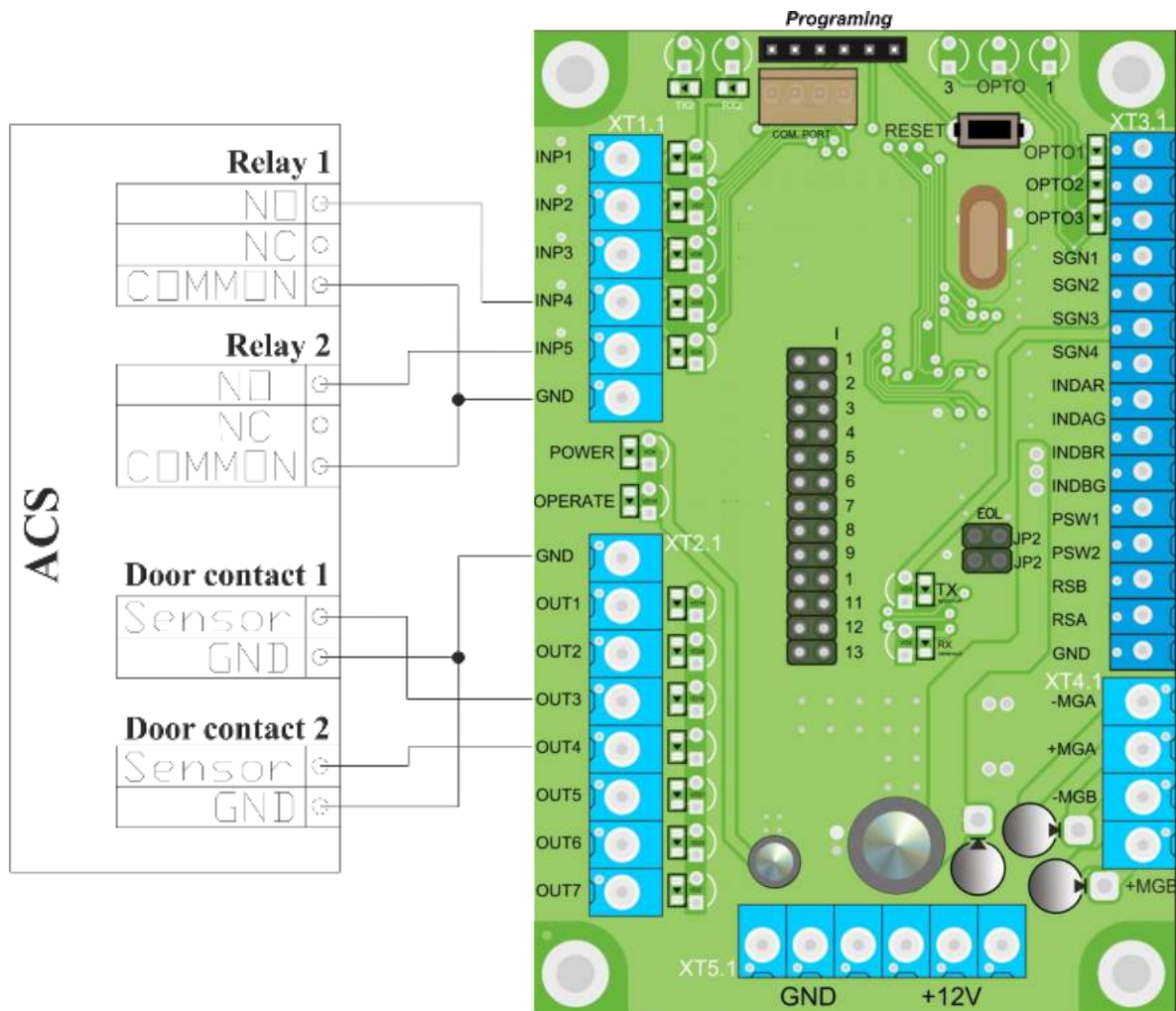
GND- "-" of power supply (common wire)

out3 - "DETECTION OF ACCESS A"

out4 - "DETECTION OF ACCESS B"

} Signal is generated by controller when rotor is rotating from 64° to 120° in the relevant direction

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



inp1 - "PANIC"

inp2 - "TO BE OPENED A" in pulse mode.

When command is issued entry is activated for 5 sec.

inp3 - "TO BE OPENED B" in pulse mode. When command is issued entry is activated for 5 sec.

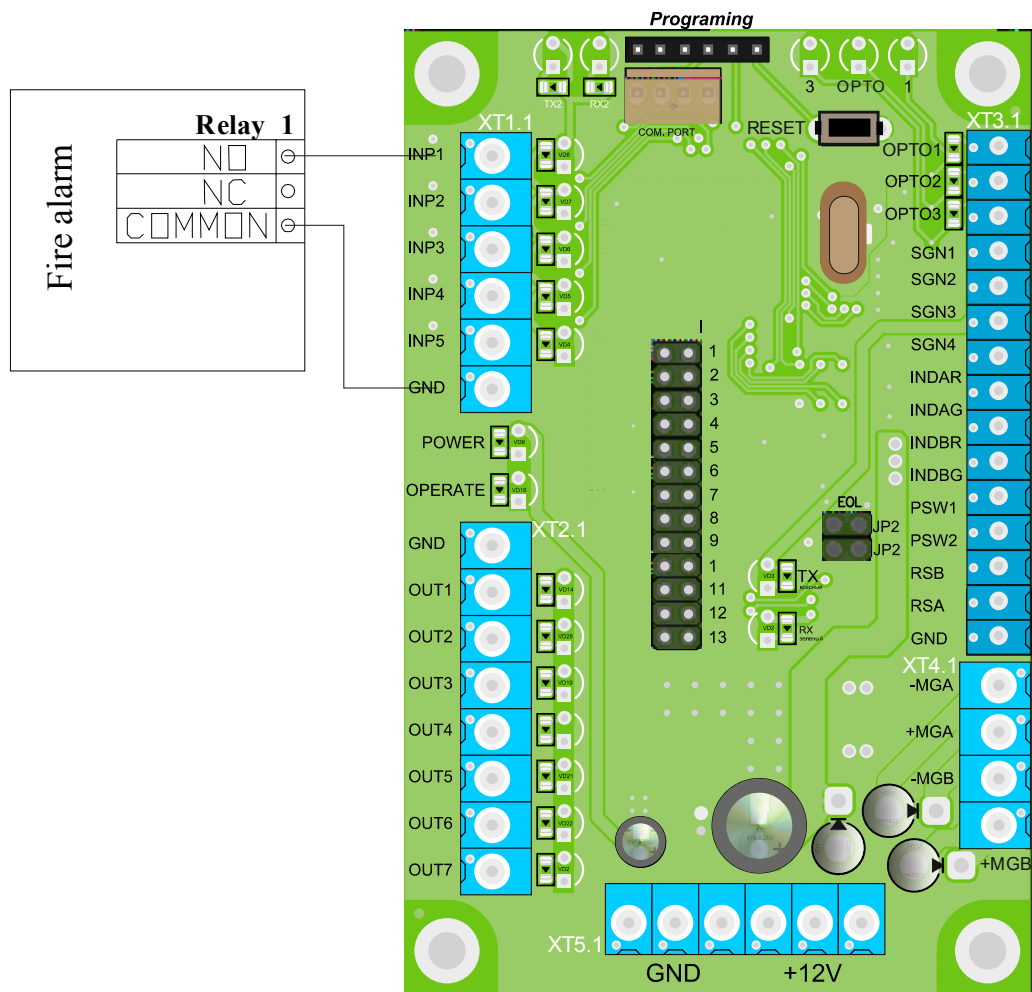
inp4 - "TO BE OPENED A". Entry is activated for the time of keeping in active state

inp5 - "TO BE OPENED B". Entry is activated for the time of keeping in active state

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

out3 - "DETECTION OF ACCESS A" } Signal is generated by controller when rotor is
out4 - "DETECTION OF ACCESS B" } rotating from 64° to 120° in the relevant direction

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



inp1 - "PANIC"

inp2 - "TO BE OPENED A" in pulse mode.

When command is issued entry is activated for 5 sec.

inp3 - "TO BE OPENED B" in pulse mode. When command is issued entry is activated for 5 sec.

inp4 - "TO BE OPENED A". Entry is activated for the time of keeping in active state

inp5 - "TO BE OPENED B". Entry is activated for the time of keeping in active state

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

out3 - "DETECTION OF ACCESS A" } **Signal is generated by controller when rotor is**
out4 - "DETECTION OF ACCESS B" } **rotating from 64° to 120° in the relevant direction**

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

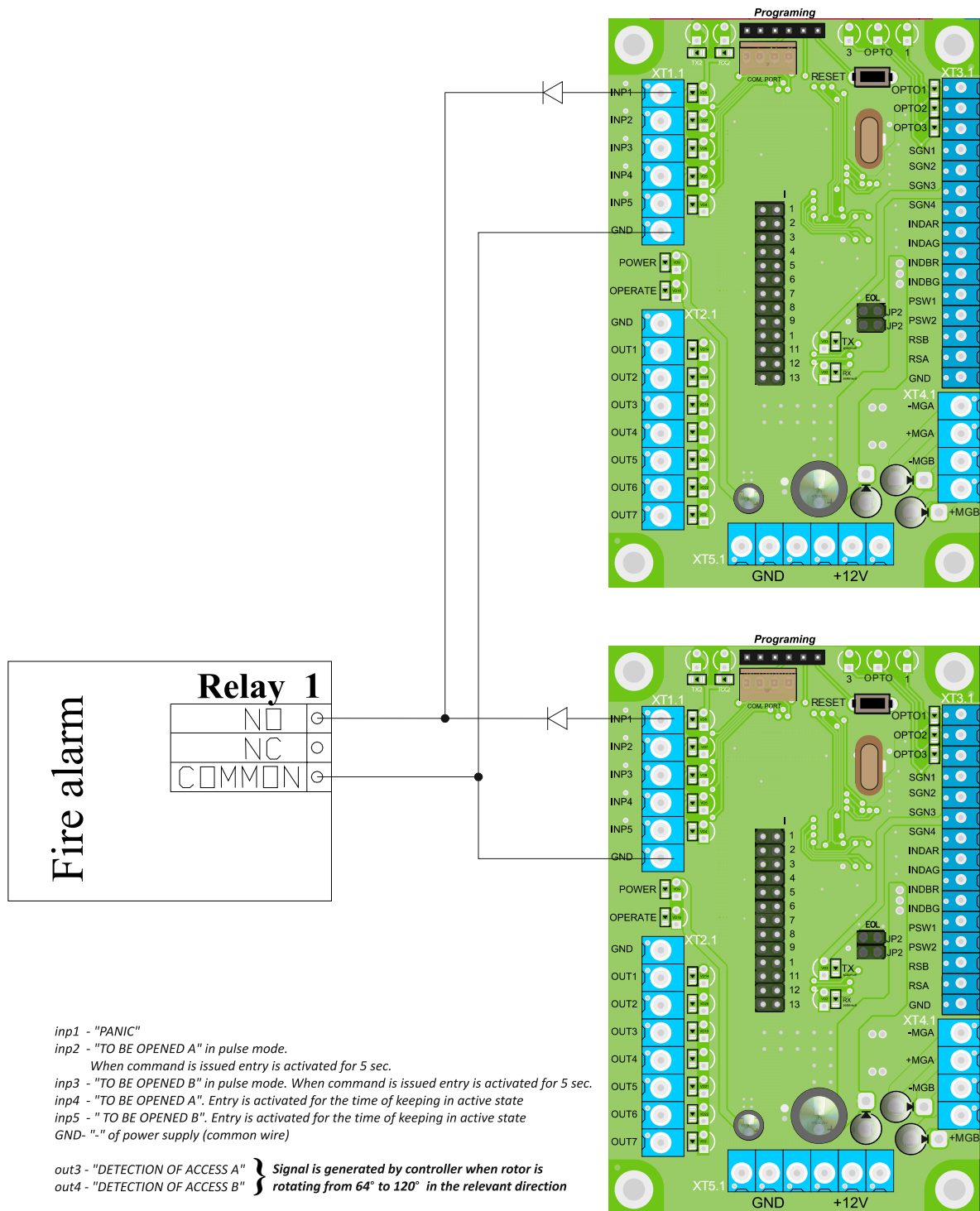
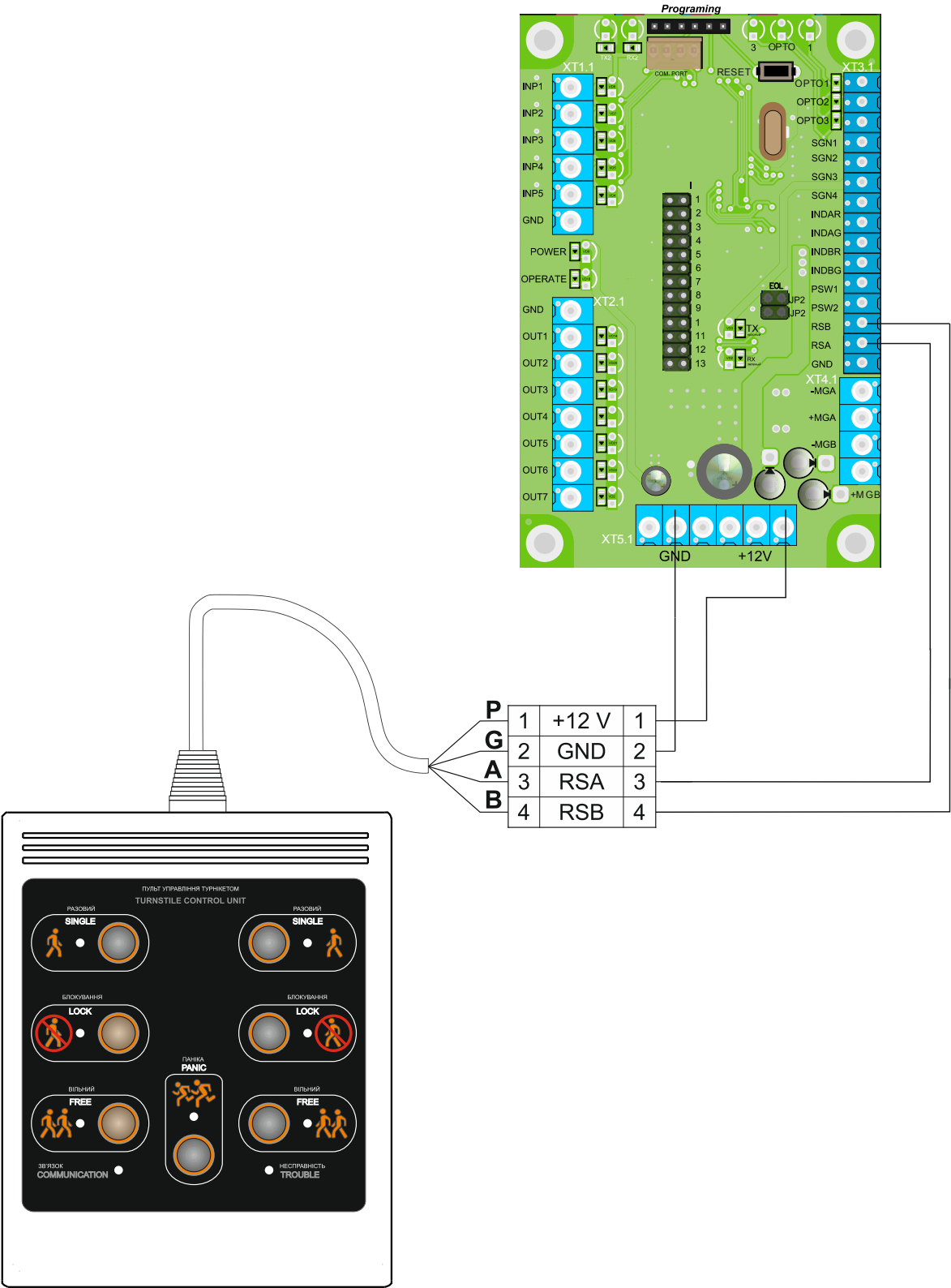


Figure D.4 – Wiring diagram of the turnstile connection to fire alarm system (FAS)

Annex D.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

