GROUP OF COMPANIES

«TiSO-PRODUCTION» LTD

WAIST-HIGH TURNSTILES

JETPAN-BM of retractable lane of Speed Gate series

OPERATION AND INSTALLATION MANUAL

AUIA.168-04 rev.1.1.1

2023

UKRAINE

CONTENTS

INTRODUCTION

This Operation Manual (hereinafter referred to as OM) covers the servo-operated waist-high turnstile of “JetPan-BM" 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 1000V 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.

The turnstile “JetPan-BM" can be installed either singly or in line. The single turnstile includes two pedestals (left-hand and right-hand), each of which has one glass leaf.

The turnstile row is provided by installation one more or a number of additional pedestals equipped with glass leaves from both sides reducing costs and saving space.

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

T3. KCD. X V. □/□ / □

- Leaf for access way width (cabinet MASTER)
  - 500
- Leaf for access way width (cabinet SLAVE)
  - 500
- Turnstile configuration:
  - X - JetPan-BM-2 (two-leaf auxiliary cabinet)
  - _ - JetPan-BM-1(kit of two one-leaf cabinets)
- K — rocker mechanism
- P — Polished stainless steel
- S — Brushed stainless steel
- K — Painted housing
- KCD — Cabinet with servomotor Double-leaf
- T3 — Floor-standing waist-high turnstile

Turnstile JetPan-BM		*Modification*	*Code*
One side cabinet Master	*JetPan -BM-1.1*	*AUIA.168-04.1*	*T3.KCD.X**K***
One side cabinet Slave	*JetPan -BM -1.2*	*AUIA.168-04.1*	*T3.KCD.X**K***
Double side cabinet Master/Slave	*JetPan -BM -2*	*AUIA.168-04.2*	*T3.KCD.X**K**.X*

Example of reference designation of the single turnstile «JetPan - BM-1» consisting of Master and Slave pedestrian gates made of brushed stainless steel:

*the turnstile **T3.KCD.SK** TU U 28.9-32421280-005:2018*

Example of reference designation of the double turnstile «JETPAN-BM-2» consisting of one consisting of servo-operated Master/Slave cabinet made of polished stainless steel

*the turnstile **T3.KCD.PK.X** TU U 28.9-32421280-005:2018*

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

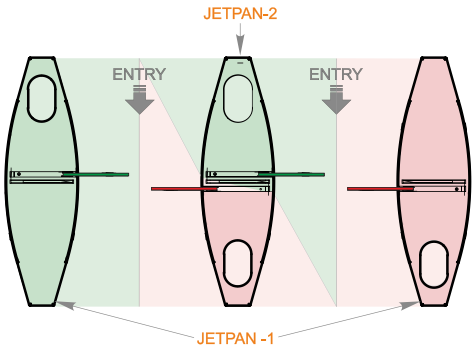


Fig. 1 – Definition of the turnstile component description

WARNINGS TO THE CUSTOMER ON SAFE OPERATION OF THE TURNSTILE

These warnings are designed for ensuring of safety during operation of the turnstile to prevent violation of safety characteristics 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 should be handed over to the customer. The OM should 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 in this OM must be observed:

– the turnstile must be connected to ground loop prior to operation;
– the turnstile should be connected to AC network with parameters specified in p.1.2 "Specifications";
– inspection, adjustment and repair should be performed only after the turnstile is deenergized.

After the turnstile is purchased 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 shall refer to the supplier or to 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 the GOST (State Standard) 12.2.007.0-75 and is not intended for operation in explosive and fire-hazardous areas by the “Electrical Installation Code”.

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 Designation

1.1.1 Purpose:

JetPan-BM - is ideally suited for areas with unmanned security, as higher wings prevent vaulting over the turnstile. The JetPan-BM is also fitted with optical sensors to prevent tailgating.

High glass leaf not only excludes the possibility of unauthorized passage and prevents the transfer of any items. The motorized turnstile is designed for pedestrian movement control at access points of industrial enterprises, banks, stadiums, administrative facilities etc. by access control system (from magnetic card readers) or manually (from manual control panel).

Traffic flow capacity of the turnstile with personal identification is at least 30 persons per minute in one direction.

1.1.2 Dimensions and weight of the turnstile correspond to the values specified in Table 1.

Table 1 - Dimensions and weight of the turnstile

Parameter	*Dimensions*	
	Stainless steel top with plastic inserts	*With solid glass top**
Width of the set with the one access way, ***W***	1080 mm	1085 mm
Unit height with leaf, ***H***	1522 mm (standard) / 1800 mm (optional)	
Length of cabinet, ***L***	1000 mm	1005 mm
Width of cabinet	290 mm	295 mm
Height of cabinet	995 mm	1000 mm
Passage width	500 mm	
Max.weight with the one access way	222 kg	223 kg

**dimension for turnstile with solid glass top*

When the turnstile with more than two access ways is ordered: *(see.Fig.2)*:

$W_{total} = 790 \cdot s + b$ *where* *s* – number of "standard" 500 mm ;

b - stainless steel lid 290 mm (295 mm glass top lid);

Example of calculation of size W_{total} for double turnstile $W_{total} = 790 \cdot 2 + 290$ (or 295) = 1870 mm (or 1875 mm)

Fig. 2 – Dimensions of turnstile group

1.1.3 The turnstile component identification code is specified in Table 2.

Table 2 - Dimensions turnstile

Description of the turnstile component	*Order code*	Dimensions, mm			*Max. weigh, kg*
		Height	*Width*	*Length*	
One side cabinet "JetPan-BM-1.2" Slave AUIA.168-04.1	T3.KCD.XK	1522 /1800	290 /295*	1000 / 1005*	110
"JetPan-BM-1.1" Master AUIA.168-04.1	T3.KCD.XK				111
Double side cabinet "JetPan-BM-2" Master/Slave AUIA.168-04.2	T3.KCD.XK.X				140
* *Overall dimension for the turnstile with glass countertop*					

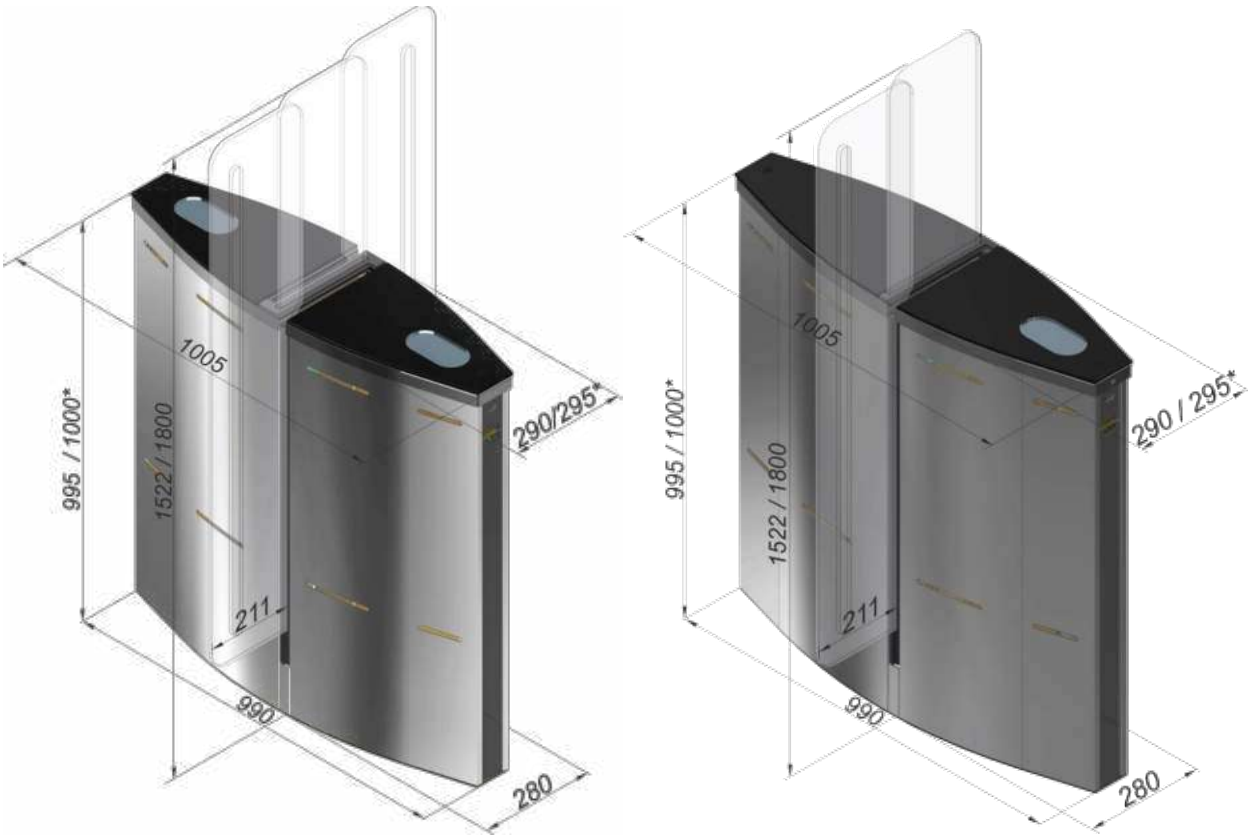


Fig. 3 – Overall dimensions of the turnstile cabinet

1.1.4 The operation condition parameters according to GOST 15150-69 *for climatic modification* ***NF4*** are specified in Table 3.

Table 3 - The operation condition parameters

Operation conditions	*Parameter value for climatic modification* ***NF4***
Ambient air temperature	+1°C to +40°C
Relative air humidity	80% at +20ºC
Ambient air allowable pressure	84 to 106,7 kPa
Transportation temperature range	- 40°C to + 50°C
Storage temperature range	+ 5°C to + 40°C
Structural design category	L3
Altitude above sea level	up to 2000m
Environment	Explosion-proof, does not contain current-conducting dust, aggressive gases and vapours in concentration destroying isolation and metals, disturbing normal operation of the equipment installed in turnstiles
Installation site	In enclosed spaces in the absence of direct impact of precipitations and solar radiation
Operating position	Vertical, deviation from vertical position no more than 1º to any side is allowed

1.2 Specifications

Key parameters of the turnstile are specified in Table 4.

Table 4- Key parameters of the turnstile

Parameter description	*Parameter value*
Maximum lane width	500 mm
Traffic flow capacity in free access mode, at least	30 *man/min.*
Opening/closing time	0,7 s
Power supply voltage: – AC power supply (primary) – DC power supply (secondary)	 100 ÷ 240 *V* ~ 50/60 *Hz* 12 *V*
Maximum power consumption	160 *W*
Index of protection according to EN 60529	IP41
Mechanism	BMDrive® servo-driven (BLDC)
Locking system	DeadLock®
In case of power failure	Fail-safe (gates can be opened manually)
LED Light: - display showing access status - card reader area - glass leaf showing turnstile	DotLights® RFIDLights® LeafLights®
Reliability indices	
Mean time to repair (without delivery time of spare parts, tools and accessories)	– at most 6 hours;
Mean time to failure	– at least 10 000 000 accesses
Mean service life between overhauls	– at least 10 years

1.3 Configuration and Scope of Delivery

1.3.1 The turnstile design depends on the number of access ways:

1) For arrangement of single access way the turnstile «JETPAN-BM-1» " is a set of two similar in design pedestrian gates (Master JETPAN-BM-1.1 and Slave JETPAN-BM-1.2) with one each of which has one glass leaf (reference designation T3.KCD.XK)).

2) For arrangement of two or more access ways the turnstile «JETPAN-BM -1» is a set of two one-leaf pedestrian gates (reference designation T3.KCD.XK) and one or more auxiliary cabinet «JETPAN-BM-2» (Master/Slave JETPAN-BM-2) with one each of which has two glass leaf (reference designation T3.KCD.XK.X).

1.3.2 Design of the single turnstile of "JETPAN -BM" type

The base model is a single turnstile «JETPAN-BM-1» *(Fig.4)* consists of two single side cabinets (left-hand and right-hand).

The body of each cabinet includes:

– frame;

– base;

– set of side panels;
– retractable glass leaf;
– fixed glass leaf;
– two LED displays.
There are installed inside cabinet:
– terminal block;
– controllers;
–IR-access sensors;
– proximity identification card reader (*to be equipped by customer, when applicable*);
– power supply unit.

Optionally the cabinet can be completed with battery (capacity 4Ah)*. For the single turnstile a control panel with power supply unit, automatic circuit-breaker and battery is installed only inside the cabinet *Master* on the protected area side.

1.3.3 Design of the turnstile of "JetPan-BM-2"

The turnstile is an additional cabinet "JetPan-BM-2" (Master/Slave) with two leaves (glass panels). The number of additional cabinets is specified in order. The turnstile "JetPan-2" operates only as part of the turnstile "JetPan-BM-1"

The body of each cabinet includes:
– frame;
– base;
– set of side panels;
– retractable glass leaf;
– fixed glass leaf;
– four LED displays.
There are installed inside additional cabinet;
–terminal blocks;
– controllers;
– IR access sensors;
– two proximity identification card readers (*to be equipped by customer, when applicable*);
– power supply unit.

Optionally the additional cabinet can be completed with battery*

1.3.4 The turnstile material of manufacture

Table 5 - The turnstile material of manufacture

Housing designation and modification		*Coding*
Standard	brushed stainless steel AISI 304	T3.KCD.***S***K
Optional	brushed stainless steel AISI 316	T3.KCD.***S***K
	polished stainless steel AISI 304	T3.KCD.***P***K
	polished stainless steel AISI 316	
	carbon steel subject to painting RAL	T3.KCD.***K***K
Glass leaves designation		
	tempered glass (8 mm)	-
Top glass designation and modification		
	stainless steel top with plastics inserts	-
	with solid glass top	

1.3.5 Turnstile scope of delivery

The turnstile is delivered in set (a kit of pedestals depending on the number of access ways).
The turnstile is delivered by one or more packages (depending on the customer).

1.4 Design and operation

1.4.1. Turnstile design

The cabinet body is a set of side panels **(9)** from stainless steel (*See Fig.4-5*), which are securely fixed to frame and installed on base ***(8).*** A decorative lid ***(6)*** is mounted on the top of frame (finishing material is determined by order). An additional fixed glass leaf ***(5)*** with 10 mm tempered safety glass is mounted in the center of body to prevent unauthorized intrusion along the upper horizontal surface of the body

The turnstile's status is displayed by ***(2)*** *DotLights®,* installed on the cabinet frame elements. Constantly lit blue LED lights means the turnstile initial state. In case of attempt of unauthorized access red LED lights starts blinking and sound signal is generated. When opening command is received, signal is transformed to green arrow from the side of authorized access. If unauthorized access is attempted when leaves ***(4)*** are open, the leaves will close if there is no any obstacle in the leaf movement area.

Eight infrared sensors (***3)***, located on the turnstile side panels from access side, are designed for detection of the turnstile access, preventing closing of leaves during pedestrian access in immediate proximity to them and minimizing potential for injury during the turnstile access.

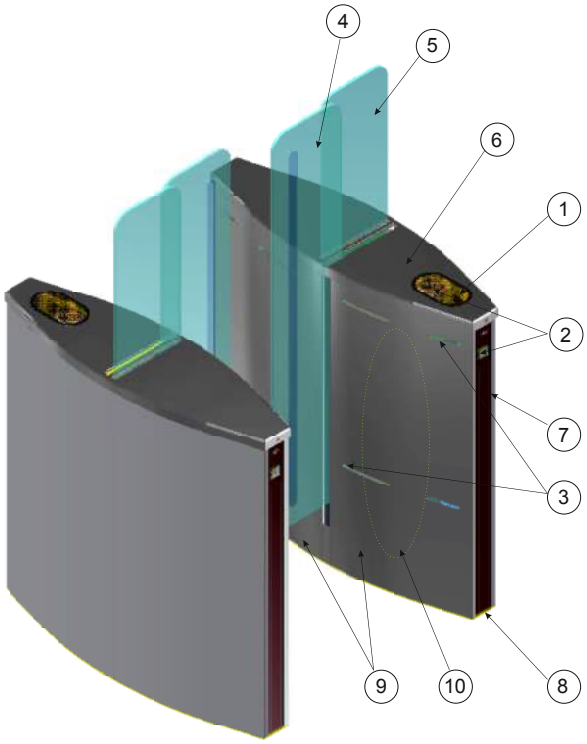
Retractable leaf ***(4)*** is made from 10 mm thick tempered glass and is located in the middle of the cabinet body, pivotally connected with servo drive. Each leaf is actuated by separate BMDrive® ***(10).*** Additional cabinet "JetPan-BM-2" is equipped with two servo drives BMDrive® (one per each access way), while each single side cabinets of "JetPan-BM-1" (left-hand and right-hand) are equipped with one servo drive

In case of 230V main power failure the turnstile leaves will remain in the position in which they were. To have a free passage, the leaves are manually pulled aside. At that, if a battery was installed, the turnstile operation will be maintained until it is discharged.

Inside the turnstile body the panels are fixed on which controllers, power supply unit, battery and terminal blocks to be connected to 230V mains and control devices are located.

Controllers AUIA.401.00.00-01 ***(25)*** control the turnstile motors ***(Fig.5)*** analyzing signals from magnetic sensor, and provide motor overload protection. Controllers AUIA.206.21.00.00 ***(24)*** analyze infrared sensors, receive control commands from peripherals (control panel, ACS etc.), control LED displays and generate feedback signals for ACS.

External control panel has the following functions: single entry and single exit, entry and exit LOCK, free entry and free exit.

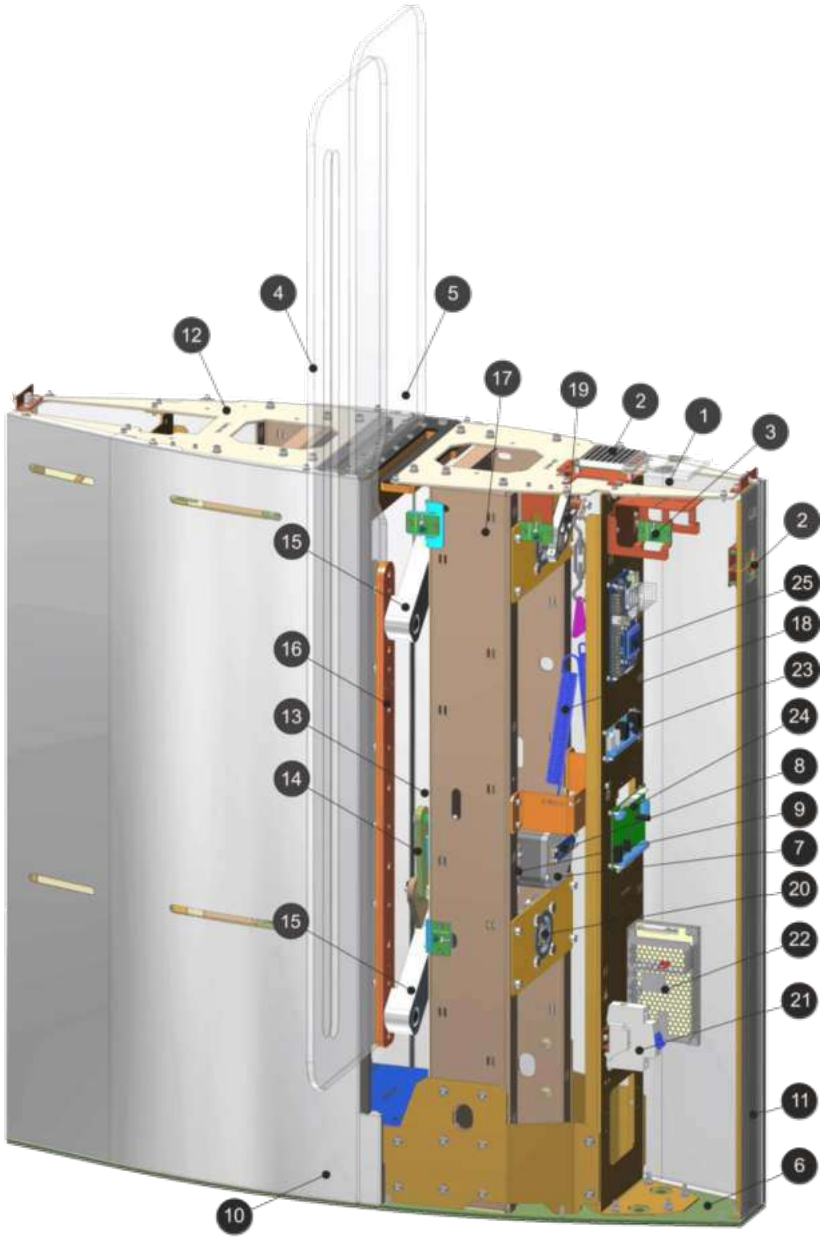


1 – place for identification card reader with LED (RFIDLights®);
2 – LED display (DotLights®);
3 – IR access sensors;
4 – retractable glass leaf with Leaflight®;
5 – fixed glass leaf;
6 – top lid (solid glass top or stainless steel top with plastics inserts);
7 – front panel;
8 – turnstile base;
9 – side panel (front and back);
10 – turnstile operating mechanism;

Fig. 4 – Design of the single turnstile of T3.KCD.XK "JETPAN-BM-1" type

1.4.2 General appearance of the turnstile operating mechanism and control desk

The cabinet rocker mechanism, shown in Figure 5, provides movement of the cabinet glass leaf.



1 - place for identification card reader with LED (RFIDLights ®);
2 - LED display (DotLights®);
3 - IR access sensors ;
4 - retractable glass leaf with Leaflight®;
5 - fixed glass leaf;
6 - turnstile base;
7 - BMDrive® gear motor ;
8 - motor shaft position sensor;
9 - leaf position sensor ;
10 - side panels
11 - front panel;
12 - top plate of frame;
13 - end position stops of leaf;
14 - drive lever;
15 - leaf lever;
16 - glass holder;
17 - frame post
18 - balancing spring
19 - adjustment the balancing spring;
20 - ball bearing unit
21 - circuit breaker
22 - power supply unit;
23 - link board for Master and Slave
24 - main controller AUIA.206.21.00.00;
25 - motor controller AUIA.401.00.00-01 ;

Fig. 5 – General appearance and design of "JetPan-BM" turnstile mechanism *(*Master cabinet)

1.4.3 Principle of operation

1) Turnstile status indication

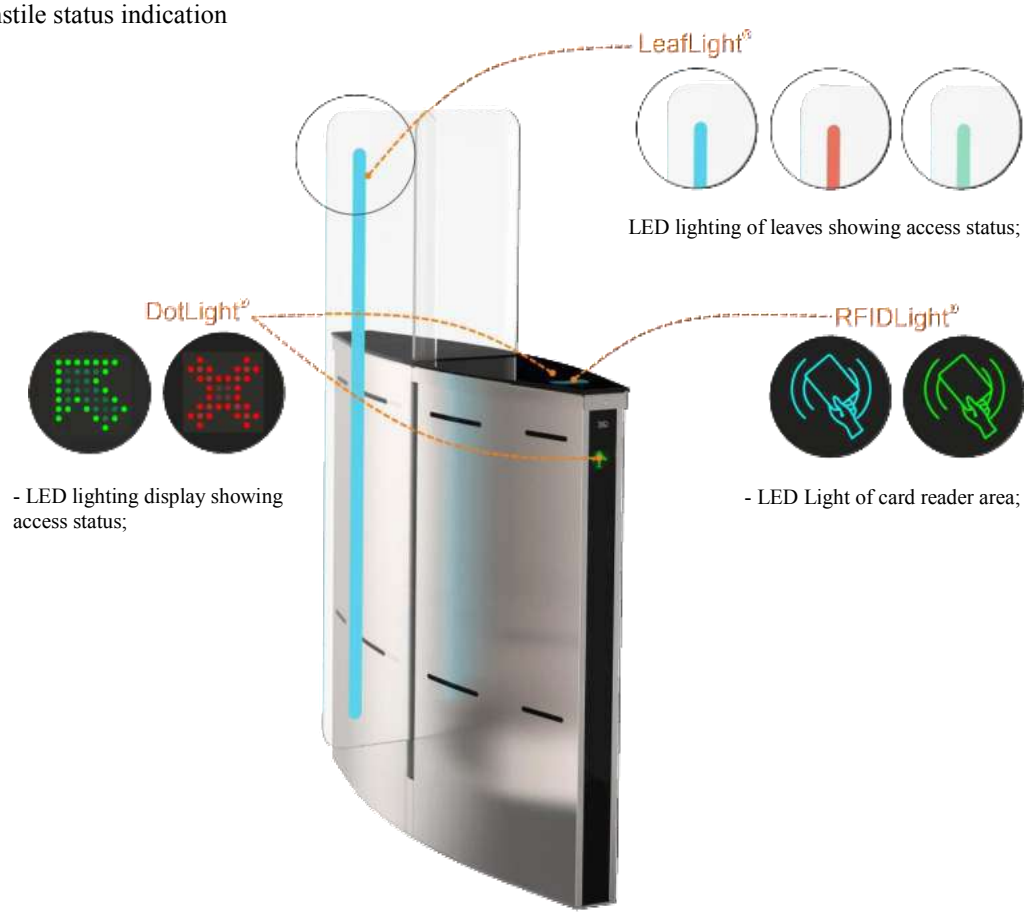


Fig.6 – Light indication of the turnstile status

2) Access cycle:

1. In the initial state the turnstile glass leaves are located perpendicular to the body blocking the access.

2. The turnstile is opened for access in the direction "A" **or** "B" after the appropriate command from ACS or control panel is issued.

3. Green arrow is lit on LED display and glass leaves go fully to slots, i.e. they open. A pedestrian is able to access through the turnstile freely.

4. After pedestrian exits from control area, the "closed" mode is set until next access. Blue LED is lit. Leaves are reliably closed preventing attempts of unauthorized access.

More detailed description of the turnstile operation modes is given in section 1.5 "Description and operation of controller as an integral component of the turnstile".

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

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

The turnstile wiring and connection diagrams are shown in Annex C.

Fig.7 - LED display status lights

1.5 Description and operation of controllers as integral component of the turnstile

1.5.1 Main controller AUIA.206.21.20.00

1.5.1.1 Description of operation

The controller provides algorithm of operation of the whole turnstile. It is assembled on the 120 x 80 mm size card from foil-clad textile laminate, on which electronic components and terminals for connection to other turnstile units as well as for connection to control peripherals (ACS, control panel etc.) are located.

The controller generates signal for 8 infrared transmitters and picks up signal from 7 infrared receivers that enables to detect human (or object) presence in the turnstile access area with high probability. Furthermore, the controller controls light and sound indication, receives commands from control panel using interface RS-485, picks up commands and generates report signals for ACS via signal inputs and outputs as well as controls operation of motor controllers (AUIA.401.00.00-01).

The controller and therefore the turnstile can be in the following modes:

- "INITIAL STATE".
- "SINGLE ACCESS IN THE DIRECTION A".
- "SINGLE ACCESS IN THE DIRECTION B".
- "SINGLE ACCESS IN BOTH DIRECTIONS".
- "FREE ACCESS IN THE DIRECTION A".
- "FREE ACCESS IN THE DIRECTION B".
- "FREE ACCESS IN BOTH DIRECTIONS".
- "LOCK OF ACCESS IN THE DIRECTION A".
- "LOCK OF ACCESS IN THE DIRECTION B".
- "LOCK OF ACCESS IN BOTH DIRECTIONS".
- «"ALARM".

"INITIAL STATE"

The turnstile is in this mode during energization and after completion of the turnstile access, if during access the mode is not changed to "LOCK", "FREE" or "ALARM". In this mode red LED is constantly lit on both LED boards, sound indication is OFF, access is locked by leaves.

"SINGLE ACCESS"

The turnstile goes to this mode when command "SINGLE ACCESS A/B" comes from control panel via interface RS-485 or when signal inputs "INP1" ("ACCESS A TO BE OPENED") or/and "INP5" ("ACCESS B TO BE OPENED") are closed on common wire (terminal "GND"). In this case if command comes via interface RS-485, the access start waiting time is 5 sec. and when signal inputs are short circuited the turnstile will wait for access start while input is closed. Green arrow is lit on LED display from the side of authorized access and red cross is lit from the side of denied access. Glass leaves go to pedestal slots clearing access. Pedestrian is able to access through the turnstile. If access start time is up and access is not started (the first IR barrier in the direction of movement was not locked), the turnstile returns to "INITIAL STATE". If within the above time period access is started, controller generates the signal "ACCESS IS OCCUPIED" (outputs "OUT1" or/and "OUT2") and starts tracing position and direction of pedestrian movement in the turnstile access way, analyzing 6 IR barriers. As soon as pedestrian is behind the leaves line they close, the controller generates the signal "DETECTION OF ACCESS" of 0,3 second duration (outputs "OUT3" or "OUT4") and LED display is switched from green to red. After the pedestrian turnstile access the controller removes the signal "ACCESS IS OCCUPIED" and returns to "INITIAL STATE".

"FREE ACCESS"

The turnstile goes to this mode either upon command "FREE ACCESS A/B" arrived via interface RS- 485 from control panel or if during "SINGLE ACCESS" initiated by signal on input "INP1" ("ACCESS A TO BE OPENED") or/and "INP2" ("ACCESS B TO BE OPENED") at the end of 0,3 sec. after the signal "DETECTION OF ACCESS A" or "DETECTION OF ACCESS B" is removed by controller, the signal on the relevant input "INP1" or "INP2" was not removed. In this mode glass leaves go to the turnstile pedestal slots, green arrow is blinking on LED display from the side of authorized access. Thus every turnstile access is traced and the signal "DETECTION OF ACCESS" of 0,3 second duration is generated to the relevant output («OUT3» or "OUT4").

In this state the turnstile will be until arrival of command "CANCELLATION OF FREE ACCESS" via interface RS-485 or until removal of signals from "INP1" or/and "INP2" depending on the cause of switching to the free access mode.

"LOCK OF ACCESS"

The turnstile switches to this mode only upon command "LOCK OF ACCESS A/B" arrived via interface RS-485 from control panel.

Thus red LED is blinking from the side of locked access, glass leaves are closed (if the turnstile is not open for free or single access from opposite side), controller does not respond to signals of inputs "INP1" ("ACCESS A TO BE OPENED") or/and «INP2» ("ACCESS B TO BE OPENED") respectively.

The lock mode prevails over single and free access mode. It means that access can be locked at any time, thus, if within the leaf closing area there is no any obstacle they will be closed. The controller will be in this mode until arrival of command "CANCELLATION OF ACCESS LOCK" via interface RS-485 from control panel.

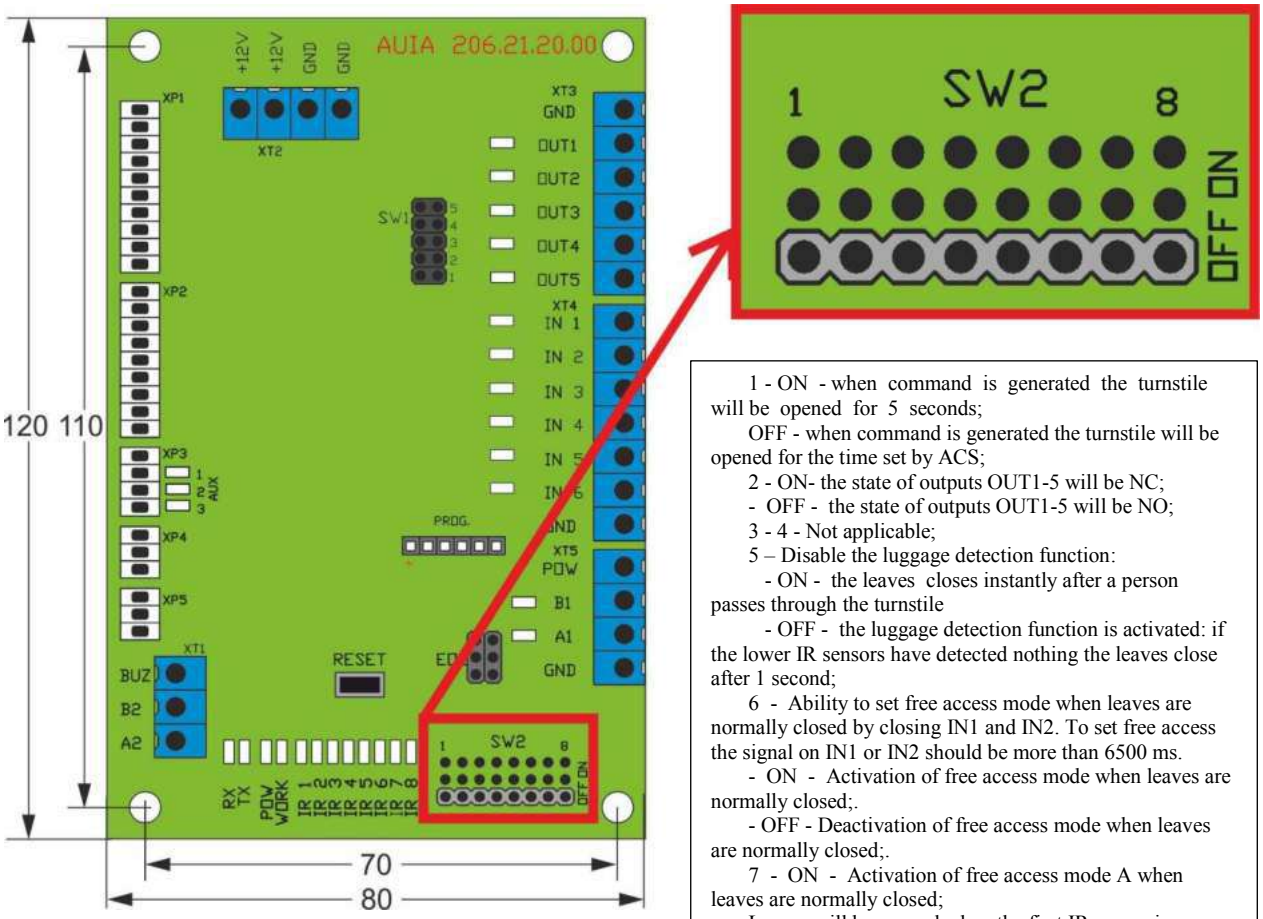


Fig. 8 – Appearance and configuration of controller AUIA.206.21.20.00

"ALARM"

The turnstile switches to this mode from any above mentioned mode in case of unauthorized access attempts. In this case red LED is frequently blinking (4 times per second), siren alarm is generated on control panel and output "OUT5" is activated on the controller board. If the turnstile was opened, then leaves would be closed if there were no obstacles in the closing area. The turnstile will return to the mode preceding the "ALARM" mode as soon as causes of this mode disappear. In this case the output "OUT5" will go to passive state, siren alarms on control panel will be off and leaves and light indication will be set according to the current mode.

The purpose of the controller contacts intended for connection to peripherals is specified in Table 6.

Table 6- The purpose of the controller contacts AUIA.206.21.20.00

№ Connector/contact	*Description*	*Direction*	*Designation*	*Signal description and parameters*
1	*2*	*3*	*4*	*5*
XT4/1	INP1 («TO BE OPENED A»)	ENTRY	Command "TO BE OPENED FOR SINGLE / FREE ACCESS"	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
XT4/2	INP2 («TO BE OPENED B»)	ENTRY		
XT4/3	INP3 («PANIC»)	ENTRY	Command "SWITCHING TO PANIC STATE"	
XT4/4	INP4	ENTRY	Not applicable	
XT4/5	INP5	ENTRY		
XT4/6	INP6	ENTRY		
XT4/7	GND		COMMON WIRE	
XT3/1	GND		COMMON WIRE	
XT3/2	OUT1 («ACCESS A IS OCCUPIED»)	EXIT	Signal is generated from the moment of blocking of the first IR barrier in the direction of movement and is removed after cancellation of the latter	1) type of output – open collector; 2) peak voltage on privacy key 55V; 3) peak current of public key 100mA; 4) resistance of public key (5 ÷ 7) Ohm; 5) active level of signal (Factory setting) – logical «0» (connection on GND)
XT3/3	OUT2 («ACCESS B IS OCCUPIED»)	EXIT		
XT3/4	OUT3 («DETECTION OF ACCESS A»)	EXIT	Signal appears during barring of the second last IR barrier and continues 0,2 sec.	
XT3/5	OUT4 («DETECTION OF ACCESS B»)	EXIT		
XT3/6	OUT5 («ALARM»)	EXIT	Output is active in case of unauthorized access attempt	
XT5/1	POW		«+» power supply	1)Power supply voltage 12V; 2)Consumption current < 150 mA
XT5/2	B1		It is used for data transmission via serial port. It is used for connection of control panel.	Interface RS-485
XT5/3	A1			Interface RS-485
XT5/4	GND		COMMON WIRE	
XT1/1	BUZ		Output for connection of audible alarm. The output is active in case of unauthorized access	1) type of output – open collector; 2) peak voltage on privacy key 60V; 3) peak current of public key 250mA; 4) resistance of public key (0,48÷640) Ohm; 5) active level of signal (Factory setting) – logical «0» (connection on GND)
XT1/2	B2		It is used for data transmission via serial port.	Interface RS-485
XT1/3	A2			Interface RS-485
XT2/1	+ 12V		«+» power supply (energization of controller)	1) Power supply voltage 12V; 2) Consumption current < 150 mA
XT2/2	+ 12V			
XT2/3	GND (common)		«-» power supply (common wire)	
XT2/4	GND (common)			

1.5.2 Motor controller AUIA.401.00.00-01

1.5.2.1. 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 from the main controller AUIA. 206.21.20.00 come to inputs XP2/ «SW1, SW2, SW3» of Master controller AUIA.401.00.00-01 (see Table 7).

Master and Slave controllers AUIA.401.00.00-01 are synchronized with each other through the CAN communication line "XP10".

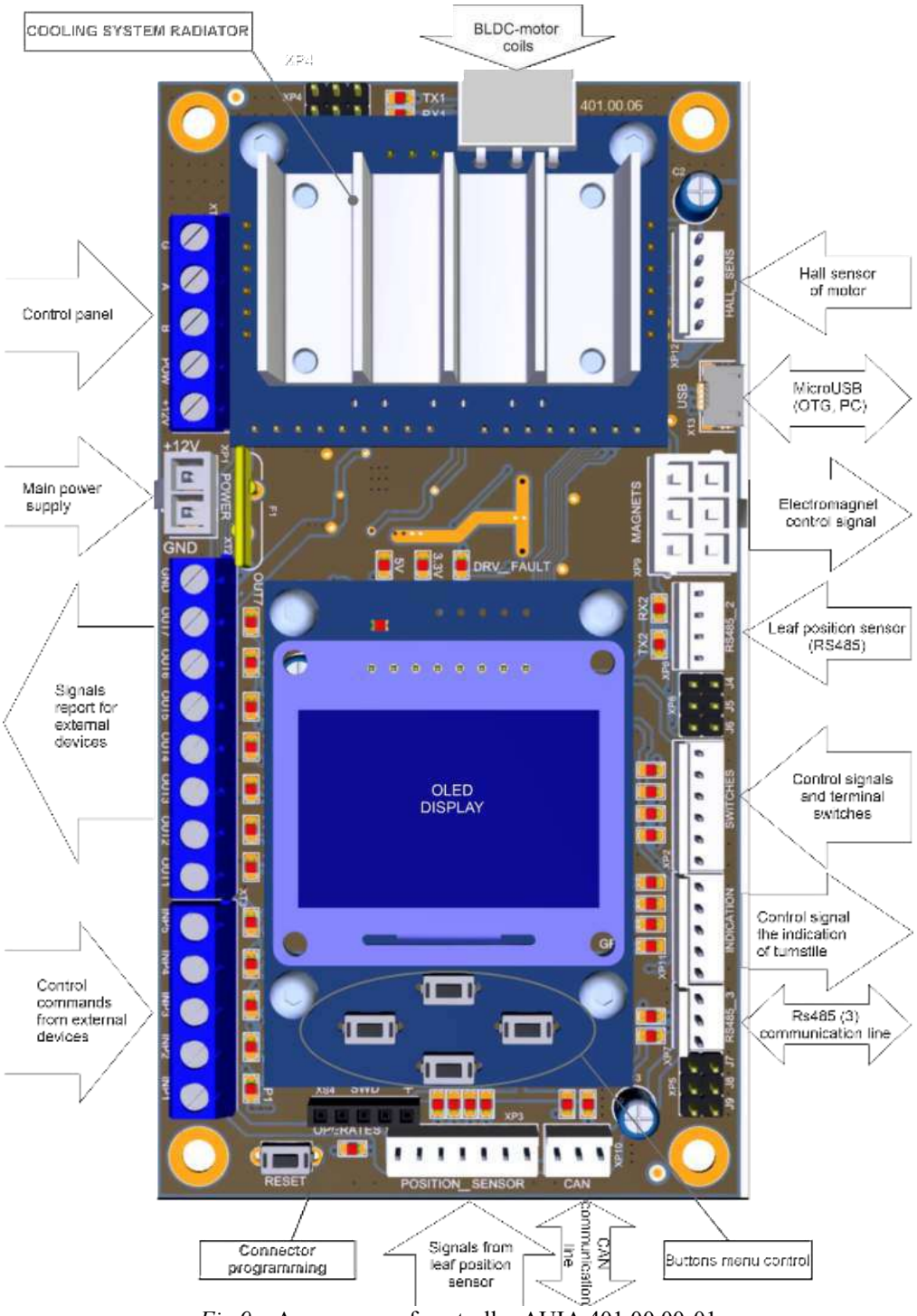
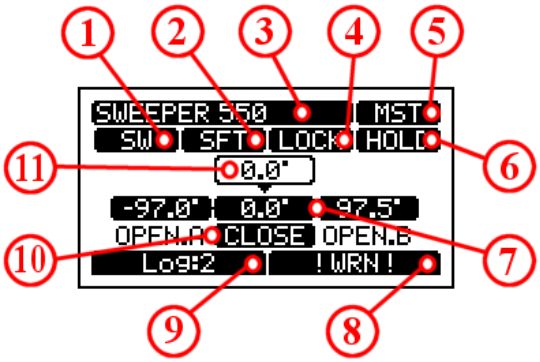


Fig.9 – Appearance of controller AUIA.401.00.00-01

1.5.2.2. 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

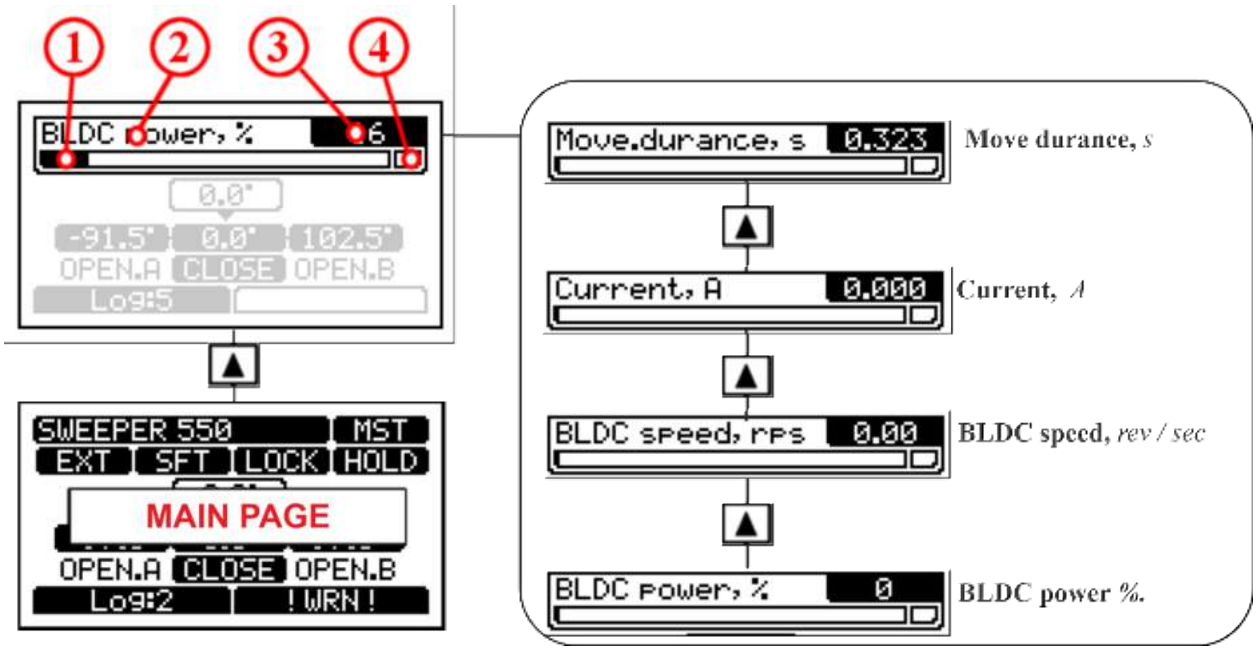
After initialization of the controller the **main page** of the menu is displayed on the screen.



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.10 – Structure of the main page indications

1.5.2.3. 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.11 – Structure of the additional indication of the main page menu

1.5.2.3. 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:

◄ 2sec - toggle to the system log page
► 2sec - toggle to the current errors page
▲ 2sec - toggle to the paired screen control mode of Slave-cabinet or Master-cabinet motor controller
▼ 2sec - toggle to the system menu page

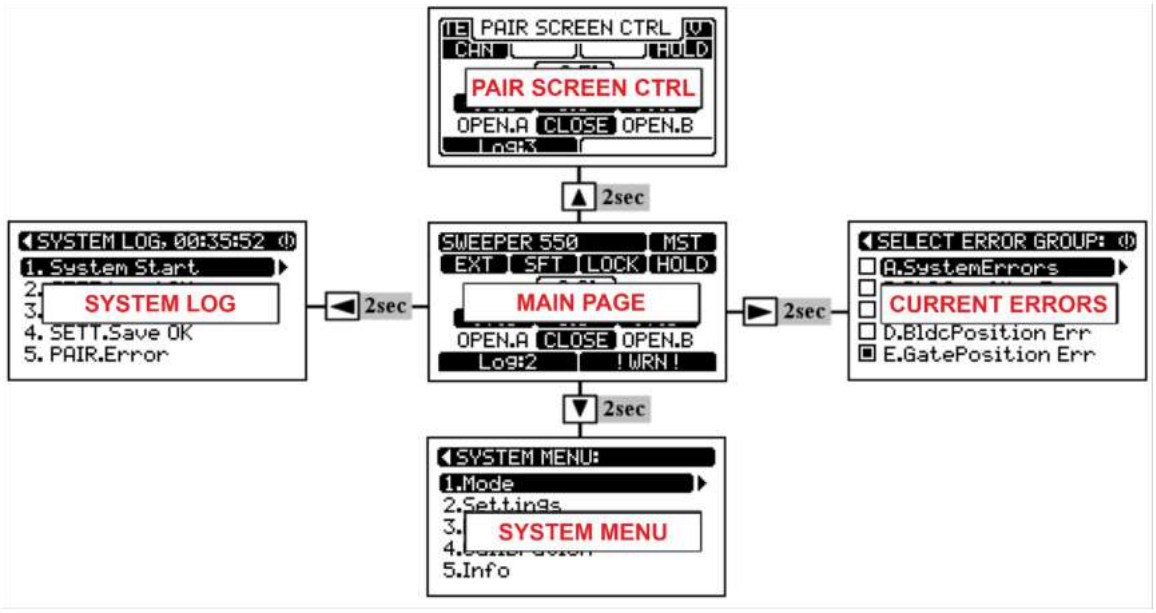


Fig.12 – Switching to other pages (functions) of the menu

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

Table 7- The purpose of the controller contacts AUIA.401.00.00-01

№ Connector/contact	*Description*	*Direction*	*Designation*
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 (+12V) for additional devices
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	Not applicable
XT2/3	OUT6	EXIT	Not applicable
XT2/4	OUT5	EXIT	Not applicable
XT2/5	OUT4	EXIT	Not applicable
XT2/6	OUT3	EXIT	Not applicable
XT2/7	OUT2	EXIT	Not applicable
XT2/8	OUT1	EXIT	Not applicable
XT3/1	INP5	ENTRY	Not applicable
XT3/2	INP4	ENTRY	Not applicable
XT3/3	INP3	ENTRY	Not applicable
XT3/4	INP2	ENTRY	Not applicable
XT3/5	INP1	ENTRY	Not applicable
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	Control signal the magnet of blocking
XP9/2	MG2	EXIT	Control signal the magnet of blocking
XP9/3	MG3	EXIT	Control signal the magnet of blocking
XP9/4	+12V	EXIT	Power supply of the magnet of blocking
XP9/5	+12V	EXIT	Power supply of the magnet of blocking
XP9/6	+12V	EXIT	Power supply of the magnet of blocking
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

Continuation of table 7

1	*2*	*3*	*4*
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	Control signal from AUIA.206.21.20.00 (Open A)
XP2/3	SW2	ENTRY	Control signal from AUIA.206.21.20.00 (Open B)
XP2/4	SW3	ENTRY	Control signal from AUIA.206.21.20.00 (Safety sensor)
XP2/5	SW4	ENTRY	Input signal of limit switch of a locking system
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
XP6/1	GND	EXIT	Common
XP6/2	RS - A	DATA	RS 485 (3) internal communication line between controllers
XP6/3	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	Common
XP10/2	CAN-R	EXIT	CAN communication line between Master / Slave motor controllers of BLDC-motor
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 Operation restrictions

2.1.1The turnstile must be used in the environment specified in p. 1.1.4 of this document subject to the specifications listed in section 1.2.

2.1.2 It is forbidden to use the turnstile:

– at the presence of mechanical rattle in movable parts of the turnstile;

– when metalwork of the turnstile and its components and accessories are mechanically damaged.

2.1.3 List of special conditions of operation

- Mean time of the turnstile access (in single access mode) equals to 2 sec.
- Escape door, portal or cabinet can be installed near the turnstile to increase the turnstile traffic flow capacity in case of emergency.

IT IS FORBIDDEN:

1) to misuse the turnstile (See Section 1 "Description and Operation");
2) to use the turnstile unearthed;
3) to use heating pipes and radiations as well as pipes of central water supply for earthing;
4) to repair and adjust without deenergization;
5) to relocate the objects exceeding the passageway width through the turnstile access area;
6) to jerk and impact barrier rods, led display or other parts the product, which may cause their mechanical damage;
7) exert force on leaves more than 400 H (40 kg) in “access locking” mode

2.2 Layout and installation

2.2.1 The turnstile and components of scope of supply to be delivered to installation site in factory packing. The turnstile to be unpacked only on installation site.

2.2.2 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.

2.2.3 Safety Measures:

- Installation to be performed only by the persons briefed on safety and studied this manual;
- Only serviceable tools to be used during installation of the turnstile;
- Connection of all cables to be performed only when power supply is OFF;
- Cables to be laid in compliance with electric code;
- The turnstile to be installed by at least 2 installers;

WARNING:

The manufacturer warns of necessity to keep seals of the manufacturer on the turnstile’s component parts!

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

2.2.4 Tools and accessories to be used *(Fig.13)*

– 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.13 - Tools and accessories for layout and installation

2.2.5 General layout of the “JetPan-BM” turnstile passage ways *(Fig. 14)*

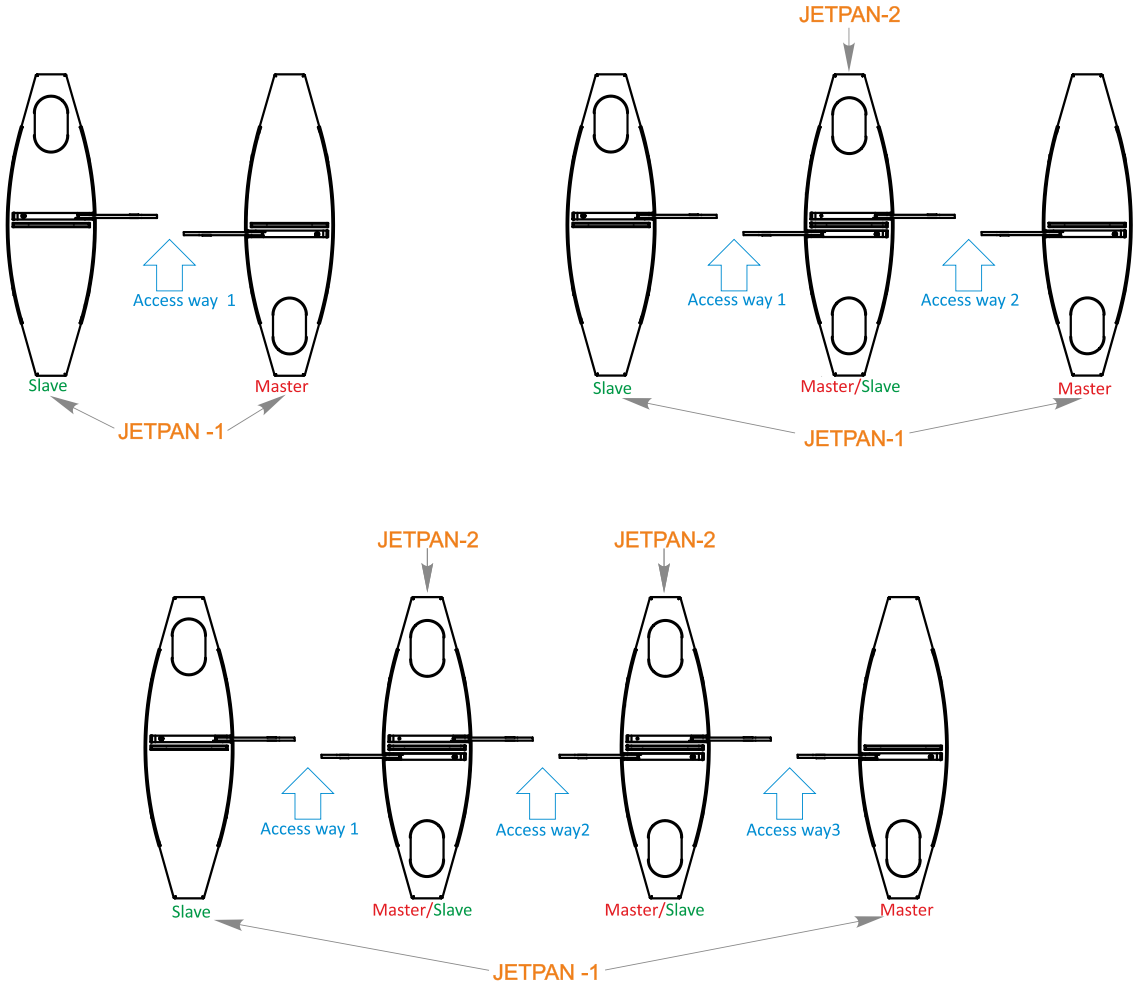


Fig. 14 – «JetPan-BM» type turnstile layout options

2.3 Installation procedure.

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.
The turnstile installation and fixation to be performed only after all electric cables to be connected to the turnstile are pulled
The turnstile is fixed by means of Redibolt (with jacket and screw) included in the scope of delivery

1) The turnstile installation procedure is as follows:

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);

The turnstile to be unpacked and inspected for defects and damages as well as completeness to be checked according to the turnstile data sheet;

2) *Dismantling and moving the turnstile from the pallet:*

The top cover and side panel must be removed to have access to the mounting holes of the cabinet base and terminal blocks.

For this (*Fig.15)*:

- Remove the turnstile cover by unscrewing the screws on both sides of its ends;
- Remove the side panel by unscrewing the screws on the frame;
- Unscrew the two screws that fix the turnstile base to the shipping container from both sides (***3***) and remove the turnstile from pallet;

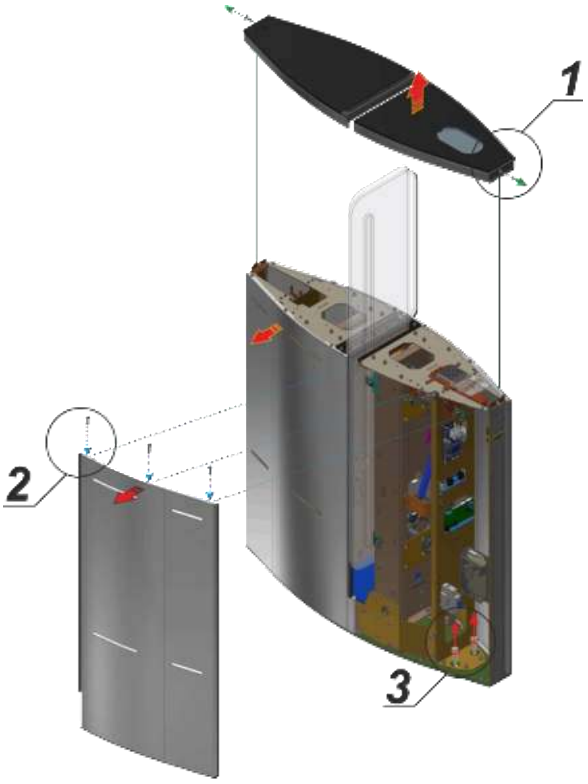


Fig. 15 – Turnstile removal from pallet

3) *Site preparation for the installation of the turnstile:*

• The surface of the site must be flat, solid and free of defects (potholes, sagging, etc.) and ensure the verticality of the installation plus minus 1 °;

• Thickness of concrete blinding coat under the site to be at least 150 mm.

• The turnstile fixation holes to be marked on the site surface according to *Figure 16*. The turnstile itself, located upright at the installation site, can be used as a template

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

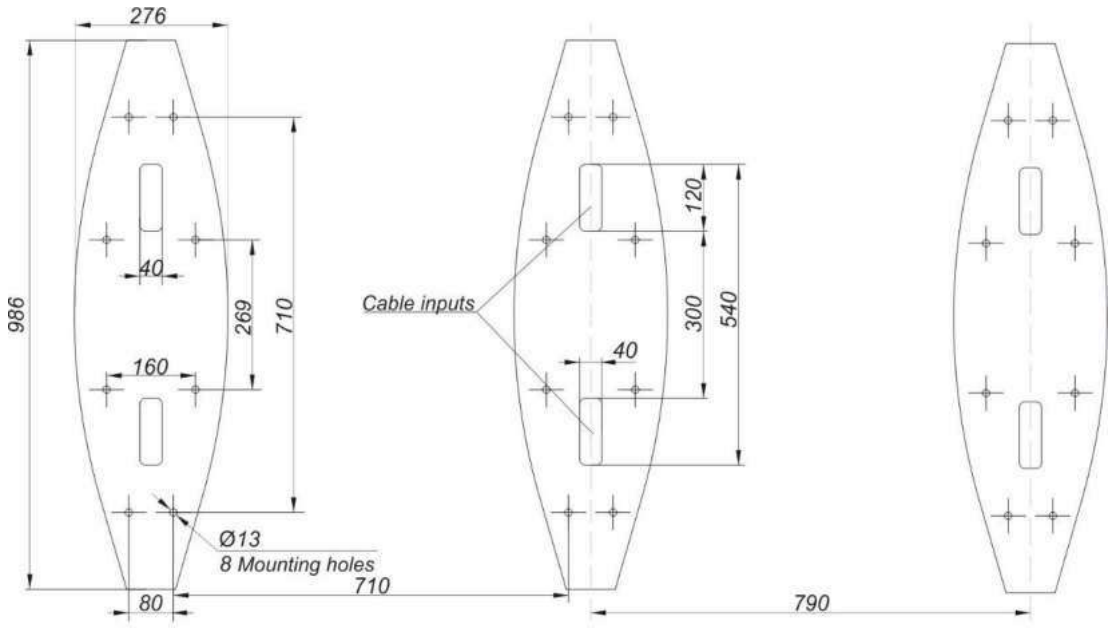


Fig. 16– Installation dimensions of the set «JETPAN-BM-1» and «JETPAN-BM-2» turnstile

IMPORTANT!
Cabinets are linked by control line optical sensor system requiring accurate positioning of cabinets. The relative position of cabinets and vertical position of the turnstile to be respected.
Cable entry must be carried out in corrugated or metal pipes.
The lengths of the free ends of the cables must be at least 1 m to provide input, cut and connect them to the corresponding terminals in the turnstile frame.
The location of the cable outlet must coincide with the location of the hole on the turnstile mounting plate.

4) The following cables to be run to the turnstile installation site:
- Power supply cable 230 V ~;
- Control panel connection cable;
- Access Control System connection cables, if it is available;
- Cables between cabinets (*Figure 17-18);*

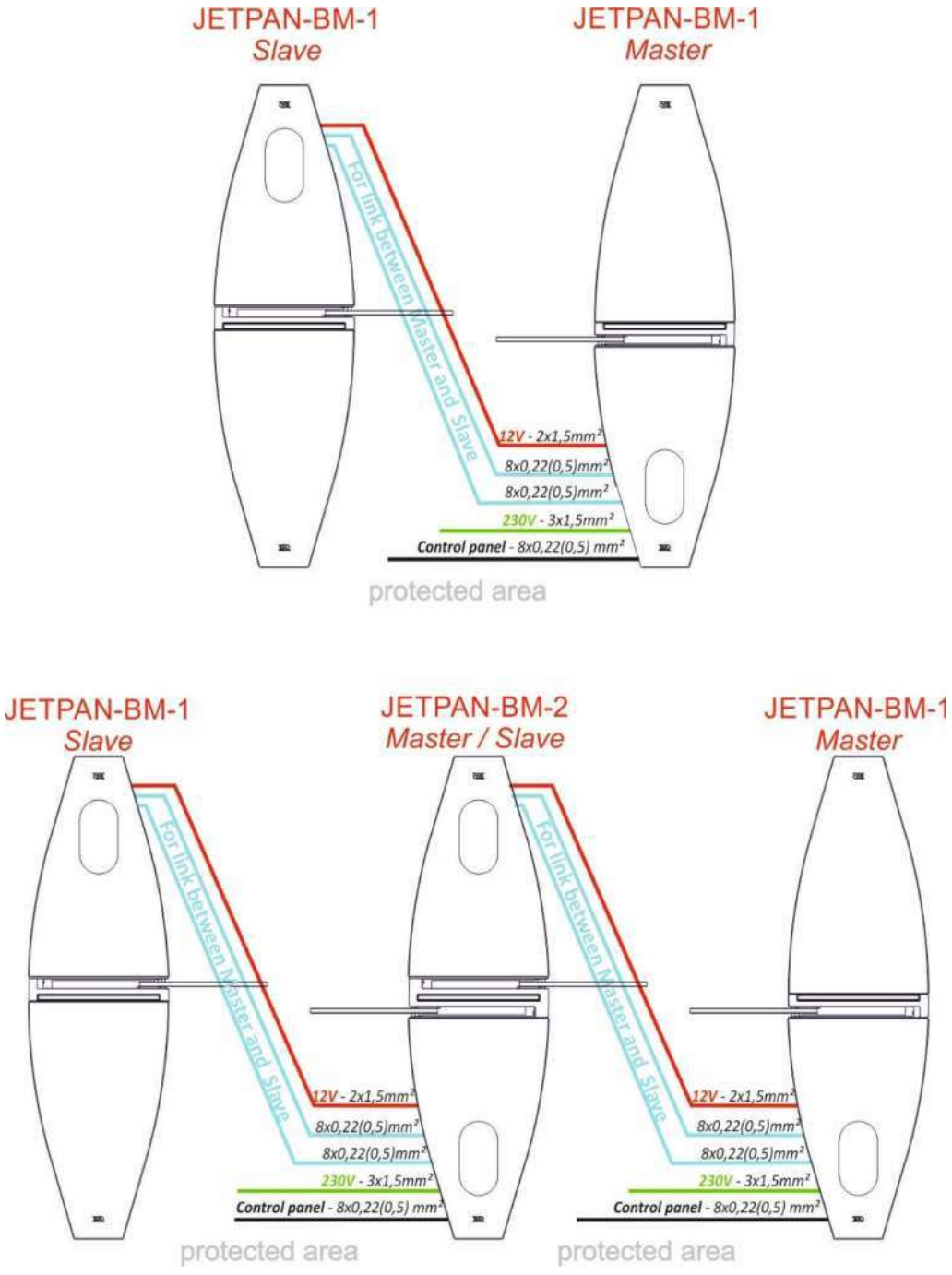
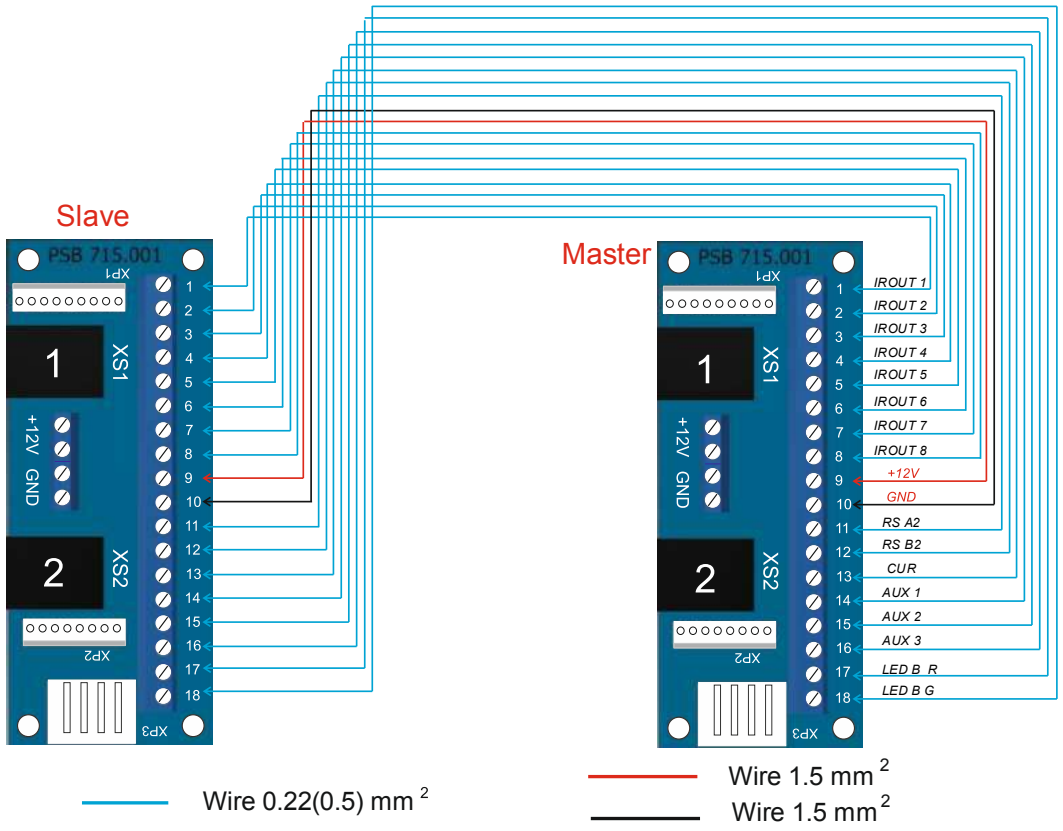


Fig. 17 – Cable entries between cabinets

Option 1



Option 2

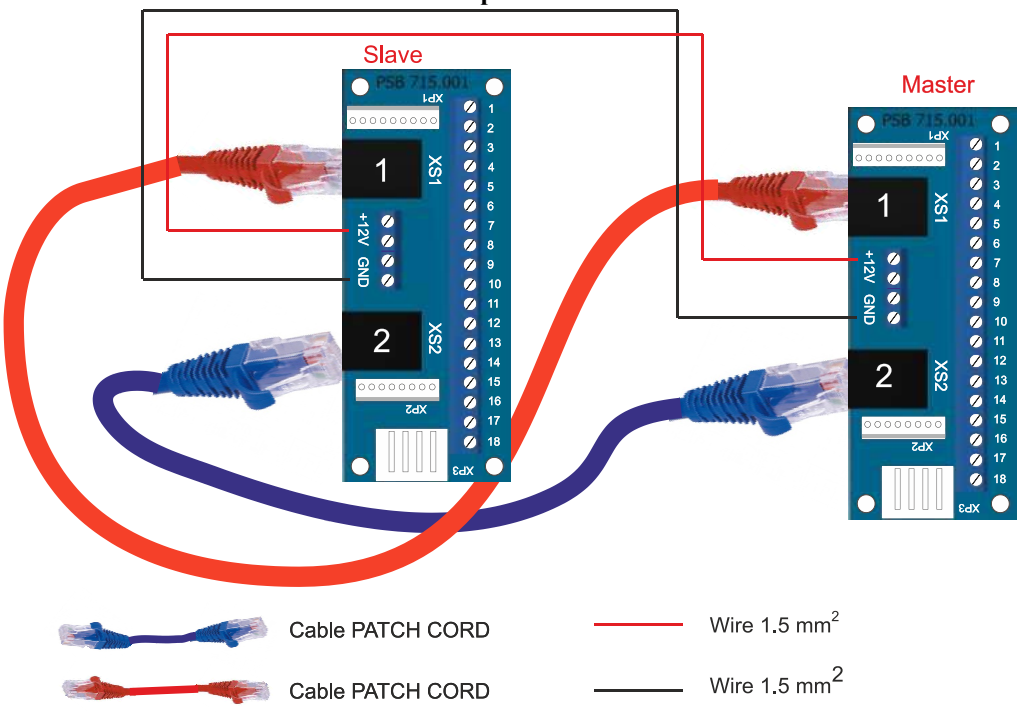


Fig. 18 – Options of cable connection between cabinets Master and Slave of "JetPan-BM"

5) General assembly and installation of cabinet of "JetPan-BM" turnstile

To provide access to fixation holes and terminal blocks from both sides of cabinet it is required to:

1. – remove the turnstile lid by unscrewing screws on the ends (*See Fig. 19*);

2. – remove side panels by unscrewing screws on the turnstile frame;

3. - cables to be pulled through available service hole in the turnstile rack bottom end part by reclining the turnstile;

4. - align fixation holes at the turnstile bottom plate with the prepared surface holes according to the marking shown in *Fig.16*;

The turnstile to be fixed by means of anchors included in the scope of delivery.

WARNING:
The turnstile to be installed and fixed only after all turnstile electric connection cables are pulled. The turnstile to be fixed at installation site by means of Redibolt (anchors with jacket and screw). Make sure that the installed turnstile is stable.

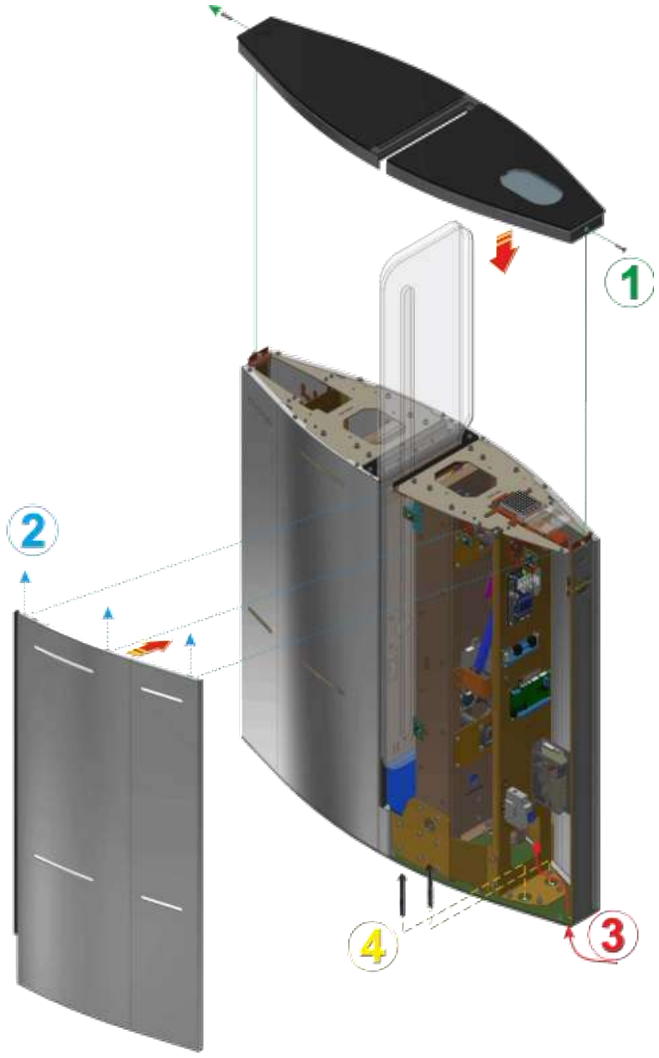


Fig. 19 – General view of the "JetPan-BM-1" turnstile cabinet installation

6) Turnstile connection:

a) Power supply cable ~230 V to be connected (*Fig. 20):*

- Phase (L) - to be connected to circuit breaker;
- Neutral (N) to be connected to terminal ~230V;
- Earth (PE) to be connected to earthing terminal (PE).

b) Control desk link cable to be connected to terminals *(Fig.21):*

- **P** (Power) – control desk power supply +12V;
- **G** (GND) - control desk common wire;
- **A** (RSA) - RSA wire control desk link line;
- **B** (RSB) - RSB wire control desk link line;

c) The turnstile to be earthed and power supply cable to be connected the turnstile according to the wiring diagrams (See Annex C).

d) Proximity card readers to be installed if access control system (ACS) is available.

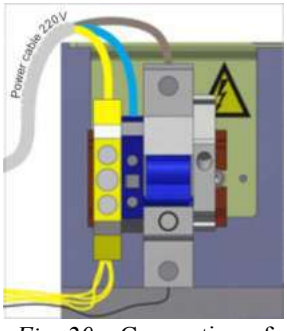


Fig. 20 – Connection of power supply cable

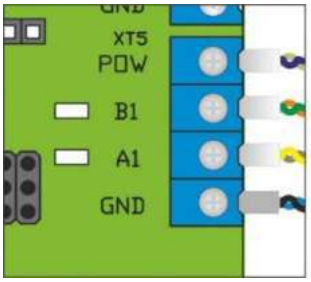
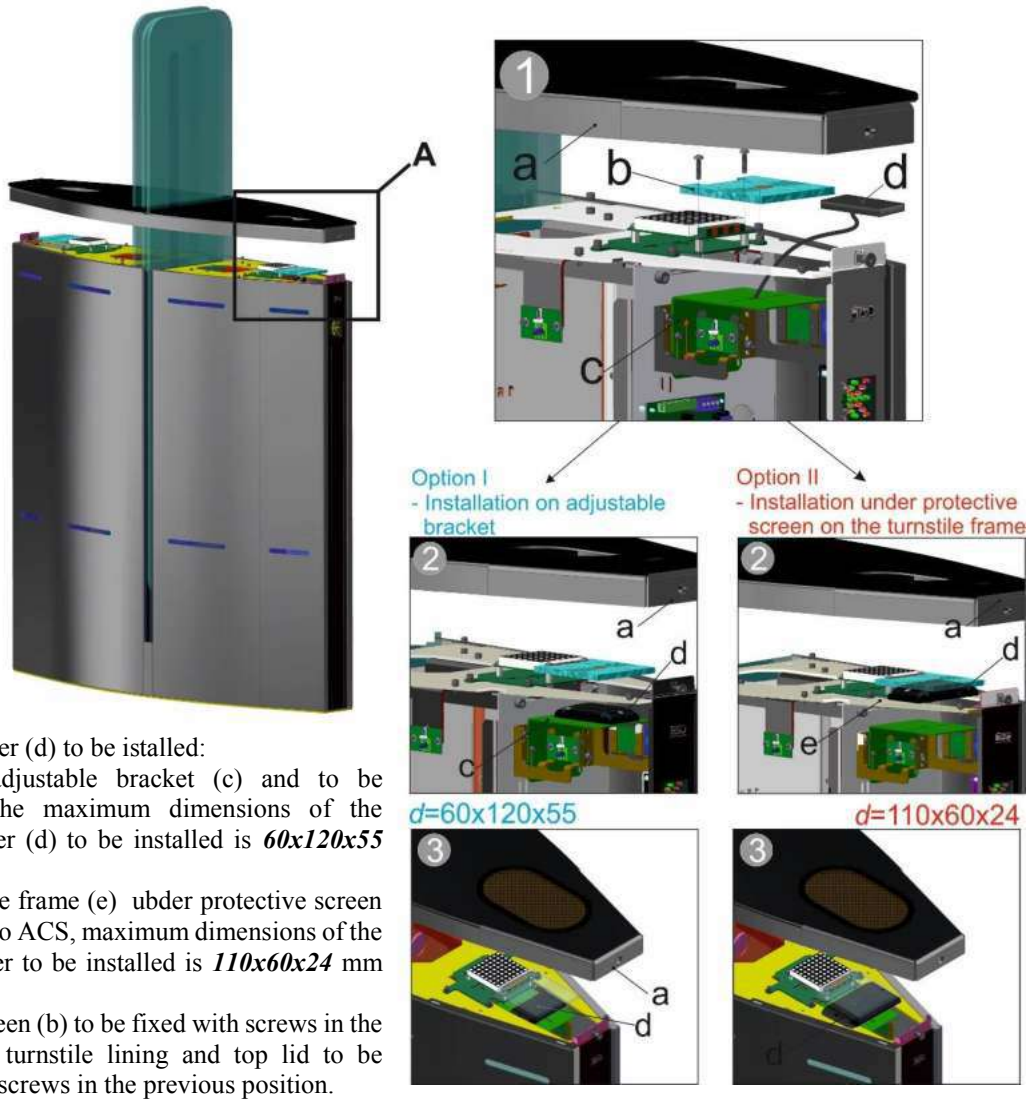


Fig.21 – Connection of control desk link cable to terminals AUIA.206.21.00.00

7) Installation of proximity card reader upon availability of access control system (ACS) (*See Fig. 22).*

1 - The turnstile top lid (a) and inner lining of the turnstile to be removed; Screws to be unscrewed and protective screen (acrylate) (b) to be removed.



2 - The card reader (d) to be istalled:

Option I- on adjustable bracket (c) and to be connected to ACS. The maximum dimensions of the identification card reader (d) to be installed is ***60x120x55*** mm (*See Fig. 22-23*);

Option II – on the frame (e) ubder protective screen (b) and to be connected to ACS, maximum dimensions of the identification card reader to be installed is ***110x60x24*** mm (*See Fig. 22-23*);

3 - Protective screen (b) to be fixed with screws in the previous position. The turnstile lining and top lid to be installed and fixed with screws in the previous position.

After the necessary installation, install the doors and side panels (*Fig. 19*) on their attachment points, fix the top lid with screws.

Fig.22 – Installation of proximity card reader

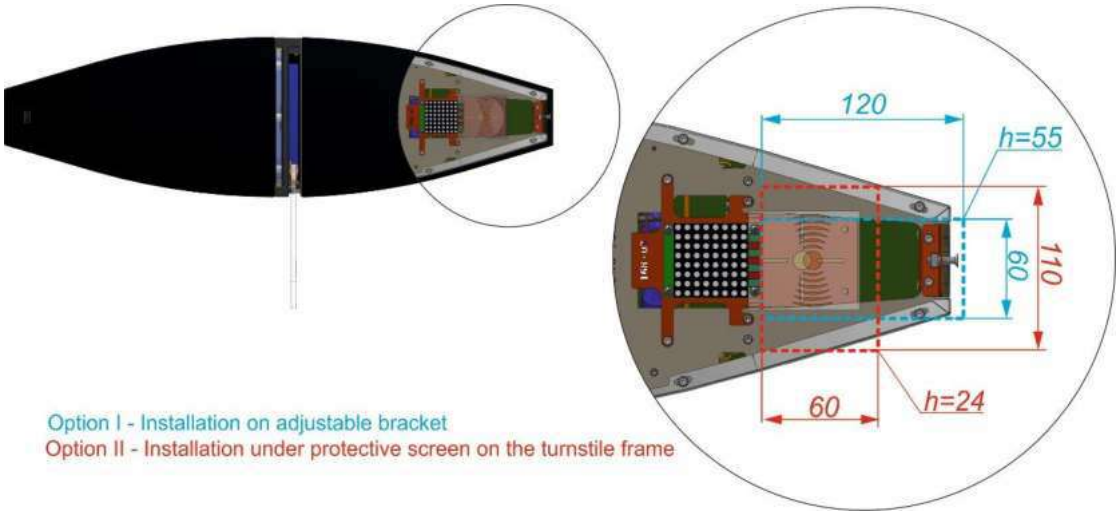


Fig. 23 – Maximum dimensions of identification card reader installed in turnstile “JetPan-BM”

2.4 Preparation for use

2.4.1 Commission guidelines

Prior to the turnstile energization:

1) make sure of proper connection and good condition of all connecting cables;

2) clear the turnstile leaf opening area from foreign particles.

When mains cable of power supply unit is connected to the network, the turnstile actuating mechanism is energized. Leaves are locked from opening.

The turnstile is set in initial state: entry and exit LED displays are blue.

2.4.2 Required inspections

When the turnstile is commissioned, it is necessary to perform inspections specified in *Table 8*. During inspections, the wiring diagram according to Annex C and the control panel according to Appendix B to be used.

Table 8 - Required inspections

Operation Mode	*Mode Setting*	*LED Display*	*Actions to check the operation*
1	*2*	*3*	
1.Turnstile is closed in both directions (initial state)	–	Blue LED brightness is changed. Glass partition blue backlight is lit	Make sure that glass leaves are locked and they can't be pushed inside the turnstile
2. Single access in one direction	"SINGLE" button to be pushed for access in chosen direction (“A” or “B”)	Green arrow of authorized single access in chosen direction is lit and blue LED brightness is changed in opposite direction. Glass partition backlight is lit green	Glass leaves are pushed inside the turnstile opening access 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 arrows of authorized single access in both directions are lit. Glass partition backlight is lit green	Glass leaves are pushed inside the turnstile opening access in the intended direction
4. Free access in one direction	"FREE" button to be pushed for access in chosen direction(“A” or “B”)	Green arrow of authorized free access in chosen direction is lit and blue LED display is lit in opposite direction	Glass leaves are pushed inside the turnstile opening access 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 arrows of authorized free access in both directions are lit	Glass leaves are pushed inside the turnstile opening access in the intended direction
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 arrow of authorized single access in chosen direction is lit and green arrow of authorized free access in opposite direction is lit	Glass leaves are pushed inside the turnstile opening access in the intended direction
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 for locking access in opposite direction	Green arrow of authorized single access in chosen direction is lit and red LED display of locked access direction is lit	Glass leaves are pushed inside the turnstile opening access 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 for locking access in opposite direction	Green arrow of authorized free access in chosen direction is lit and red LED display of locked access direction is lit	Glass leaves are pushed inside the turnstile opening access in the intended direction

Continuation of table 8

1	*2*	*3*	*4*
9. Locked access in one direction	"LOCK" button to be pushed for locking access in chosen direction (“A” or “B”)*	Red LED of locked access in one chosen direction is lit	Make sure that glass leaves are locked and they can't be pushed inside the turnstile
10. Locked access in both directions	Both "LOCK" buttons to be pushed for locking access in both directions (“A” and “B”)**	Red LED of locked access in both directions is lit	Make sure that glass leaves are locked and they can't be pushed inside the turnstile
11. Activation of "panic" mode	"PANIC" button to be pushed and hold within at least 7 sec.**	Green arrows of authorized free access in both directions are lit	Retractable leaves are opened in different directions
12 Deactivation of antipanic device	"PANIC" button to be pushed	Blue LED brightness is changed. Glass partition blue backlight is lit	Make sure that the glass doors are locked and cannot be pushed inside the turnstile
** In this case other control panel buttons of single and free access in selected direction are locked;* ***In this case all control panel buttons of single and free access in both directions are locked*			

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

2.5 Contingency actions

For emergency human escape (in case of fire, acts of God etc.) and enabling free access the turnstile to be unlocked from control desk by issuing the relevant command. 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.

In case of mains power failure the turnstile automatically switches to power supply from backup battery (optional).

If the mains power is not recovered and battery is discharged, the glass leaves are fully put manually to the turnstile cabinet slots (fail safe), to make access way free.

3. MAINTENANCE

3.1 General guidelines

3.1.1 Commissioning and subsequent maintenance of the turnstile to be performed only by the staff being in charge of the turnstile.

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

3.1.3 The turnstile to be installed and operated only by the qualified safety briefed 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 the instrumentation instruction manuals.

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

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 body and, if required, troubleshooting of mechanical damages, surface corrosion and contamination.

The recommended stainless steel detergents are given in Table 9.

Table 9- The recommended stainless steel detergents

Detergent description	*Manufacturer*	*Country of origin*
Stainless steel cleaning spray “Stainless Steel Cleaner And Polish”	3M	Group of European companies
Cleaning fluid “Well Done”	Well Done	Hungary
Stainless steel products and other metals cleaner “XANTO STEEL 3in1”	XANTO	United Kingdom
«Dr.BECKMANN»	Dr.Beckmann	Germany
Cleaning solution “Reinex Edelstahlreiniger”	Reinex	Germany
Cleaning spray “Stainless steel cleaner”	Onish	United Kingdom

IT IS FORBIDDEN:
TO USE ABRASIVE AND CHEMICALLY ACTIVE SUBSTANCES DURING CLEANING OF CONTAMINATED EXTERNAL SURFACES OF THE TURNSTILE.

3.3.3 Periodic maintenance for the purpose of defect detection and remedy is performed at least twice a year and includes as follows:

- visual inspection of the turnstile body, actuating 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 7 or when identification cards are used;
- verification of reliability of the turnstile screw joints and earthing connections;

4. ROUTINE MAINTENANCE

4.1 Possible malfunctions

Minor malfunctions of the turnstile are listed in Table 10 and to be remedied by the customer. More complicated malfunctions to be remedied by the manufacturer's representative

IMPORTANT:
INSPECTION, CLEANING, REPAIR OF THE TURNSTILE COMPONENTS TO BE PERFORMED ONLY AFTER THE TURNSTILE IS DEENERGIZED !

4.2 Possible malfunctions

Possible malfunctions of the turnstile and their remedies are listed in *Table 10*.

Table 10 - Possible malfunctions

Malfunction	*Possible cause*	*Solution*
1	*2*	*3*
The turnstile does not work after power ON	• Lack of AC power. • The power cable is not connected. • Power supply unit is out of order. • Circuit breaker switched off inside the turnstile	✓ 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	• Turnstile does not obtain permission signal from ACS • No communication with the control panel • There are critical errors on motor controllers that have been identified by the self-diagnosis system.	✓ 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.	• Leaf isn't calibrated correctly, zero point isn't adjusted. • There are critical errors on motor controllers that have been identified by the self-diagnosis system. • The mechanical stoppers of the mechanism are not adjusted	✓ 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	• Control panel don't have communication with main controller	✓ Check wires for damages and check wire connection of the control panel to the main controller (AUIA.206) ✓ Check the control panel for functionality
LED display is out of order	• No contact with controller • Wires are damaged • LED indicator is out of order	✓ Check wires for damages and check inter-cabinet connection wires. ✓ Check the indications wires for damages ✓ Check the LED indications boards ✓ LED indication board to be replaced.
Control panel sound alarm (error) and continuously lit red indication of turnstile	• Bad connection between the two cabinets of turnstile • Infrared sensors don't see each other. • Infrared sensors are out of order.	✓ Check wires for damages and check inter-cabinet connection wires. ✓ Protective plexiglass of the passage sensors to be cleaned from dust dirt ✓ Check infrared sensors for functionality. ✓ Infrared sensors to be replaced if they are out of order.
Leaf stays in semi-open position	• Mechanism jamming • There are critical errors on motor controllers that have been identified by the self-diagnosis system.	✓ 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

Continuation of table 10

1	*2*	*3*
Leaf remains open	• Mechanism jamming • "FREE ACCESS" mode is set. • Infrared sensors are out of order. • There are critical errors on motor controllers that have been identified by the self-diagnosis system.	✓ 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	• Mechanism jamming. • Infrared sensors don't see each other. • Infrared sensors are out of order. • 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 controllers	✓ Leaf opening manually to be checked with turned off power supply. ✓ Check the mechanism for jamming and backlash ✓ Check infrared sensors for functionality. ✓ 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 controllers setings.

4.3 "JetPan-BM" turnstile leaf initialization procedure

- For **JetPan-BM** turnstiles, the zero position can be at point **CLOSE (0°)**. For turnstiles of this type, the zero position is determined and set automatically during working area searching.
- The leaf can be in random position.
- The working area search procedure can be launched: from the Master or Slave cabinet controllers 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:

<u>Option 1:</u> (with PCB.730.004.01 *fig.24***)**

- Press and hold the **ZERO** (***1***) button on the PCB.730.004.01 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.
- After releasing the ***ZERO (1)*** button, the turnstile will start the working area search procedure.
- The controller will automatically determine the minimum and maximum of working area and reset the leaf magnetic sensor at the required point.
- Following a successful procedure, The controller will display a message for a few seconds *«The workspace search was successful»* and then switch to the home page:
- Turnstile is ready for work.

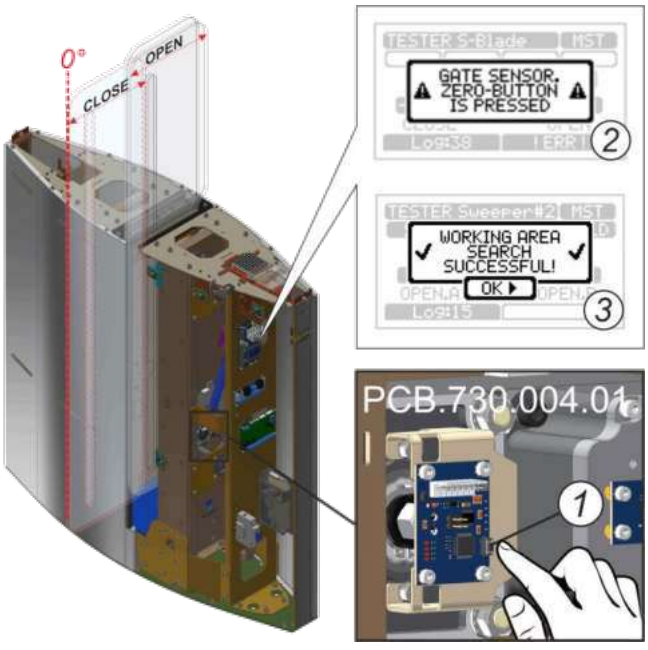


Fig.24 –Adjustment of the leaf zero position using the "zero" button

Option II **(with AUIA.401.00.00-01** *fig.25***)**

- Run the menu holding for 2 seconds the lower button (***1***) on the controller **AUIA.401.00.00-01** and choose "**Calibration**"->"**GateZeroSet**" controller. If you request a calibration procedure, the turnstile will go to **"OFF"** mode.
- Confirm the start of working area search procedure by pressing "**YES**" (2) on the **AUIA.401.00.00-01 controller display.**
- The controller will automatically determine the minimum and maximum of working area and reset the leaf magnetic sensor at the required point.
- Following a successful procedure, The controller will display a message for a few seconds *«The workspace search was successful»* and then switch to the home page:
- Turnstile is ready for work.

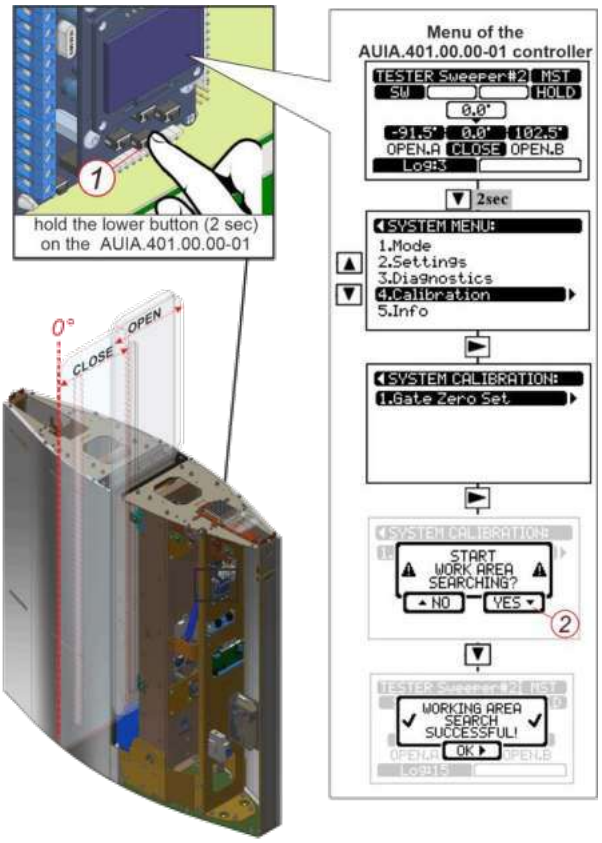


Fig.25 – Adjustment of the leaf zero position using the menu of controller AUIA.401.00.00-01

5. TRANSPORTATION AND STORAGE

5.1 Turnstile storage

It is forbidden to subject the turnstile to jerks and impacts during storage. Transportation trolleys to be used for handling of the turnstile. In storage facilities there should not be aggressive gases and vapours causing metal corrosion.

Air temperature during storage should not be below +50° C and above +40° C and relative air humidity should not be more than 80% at the temperature 20° C.

5.2 Turnstile transportation

The ready-to-install turnstile to be transported according to the transportation regulations related to the relevant mode of transport, such as:

– in railway or special containers;
– in closed vehicles;
– waterborne (in ship's hold) .

Air temperature during transportation should not be below -40°C and above +50°C.

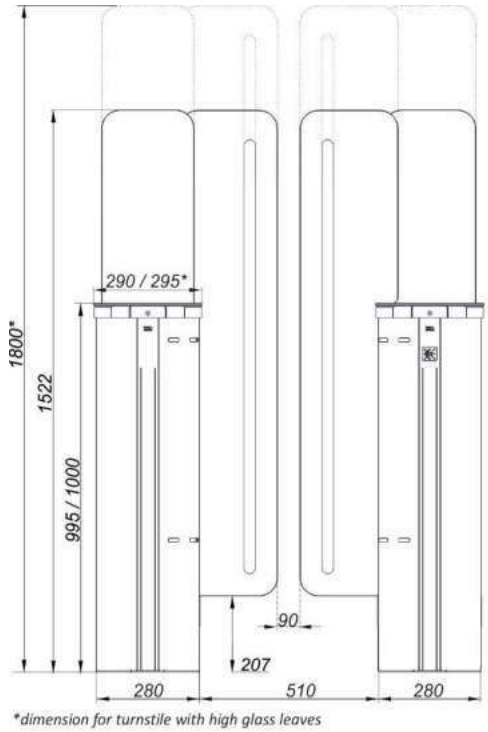
After transportation or storage of the turnstile at negative temperatures or increased humidity the turnstile to be kept indoor with normal climatic conditions without original packing within 12 hours before commissioning:

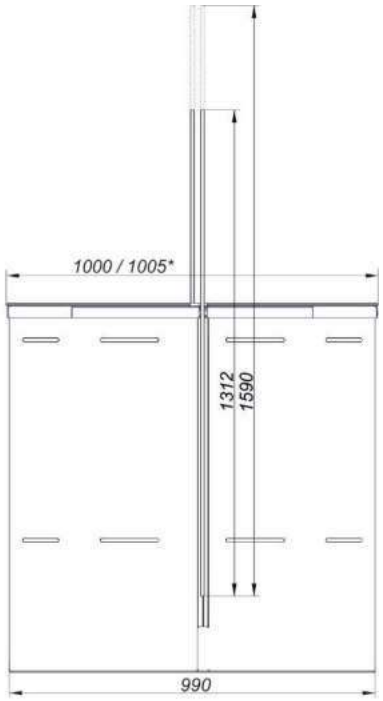
1) ambient temperature: + 15°C to +35°C;
2) relative humidity: 45% to 80 %;
3) atmospheric pressure: 84,0 to 106,7kPa (630-800 mm Hg).

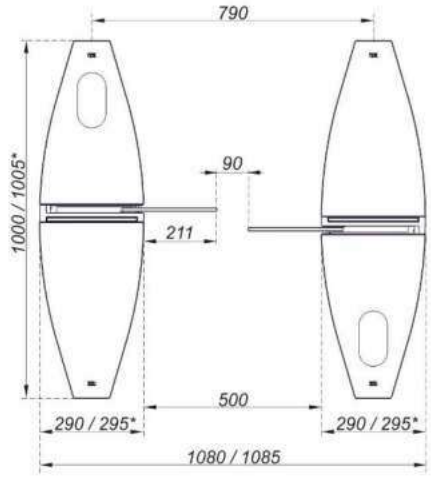
6. DISPOSAL

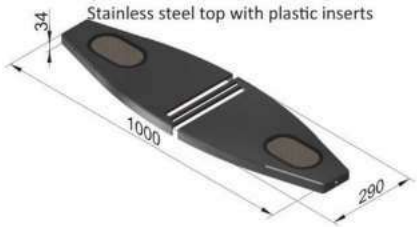
The turnstile design does not contain materials environmentally hostile and hazardous to health and special measures are not required for its disposal.

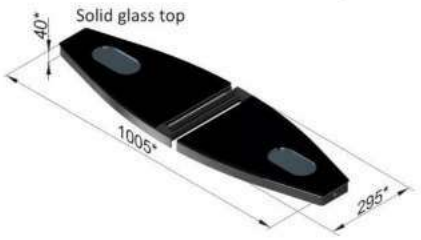
Annex A.1 - Overall and installation dimensions of the set of turnstile JetPan-BM (with different top and access way width)

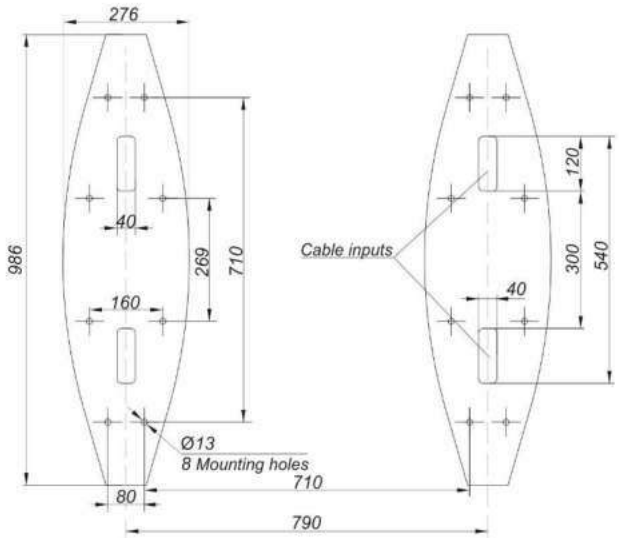


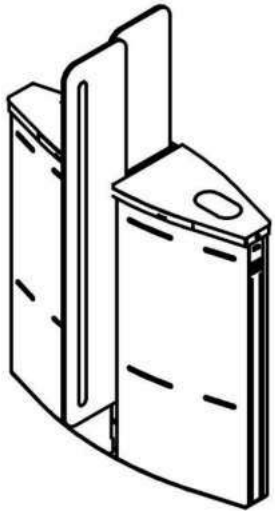




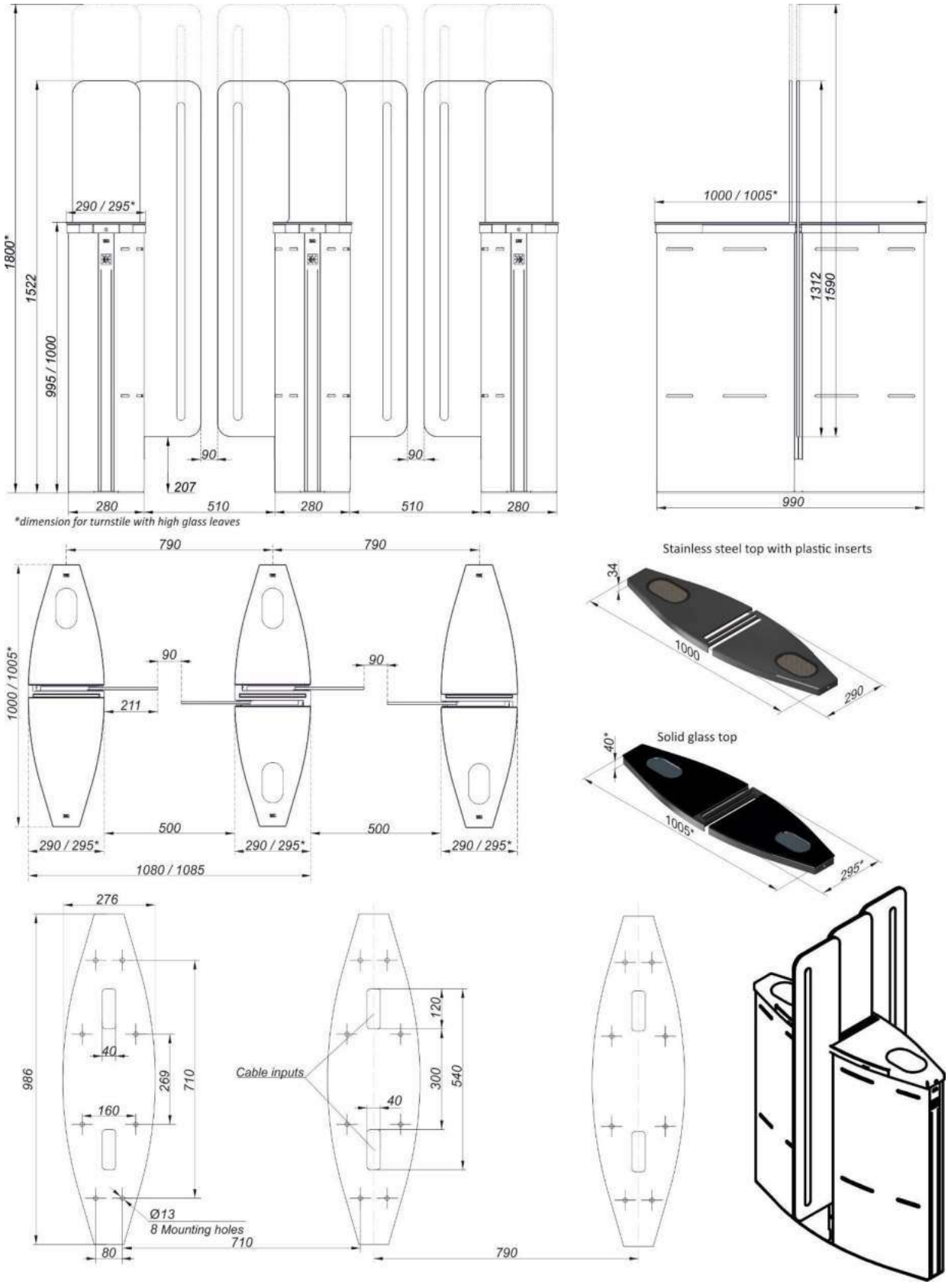




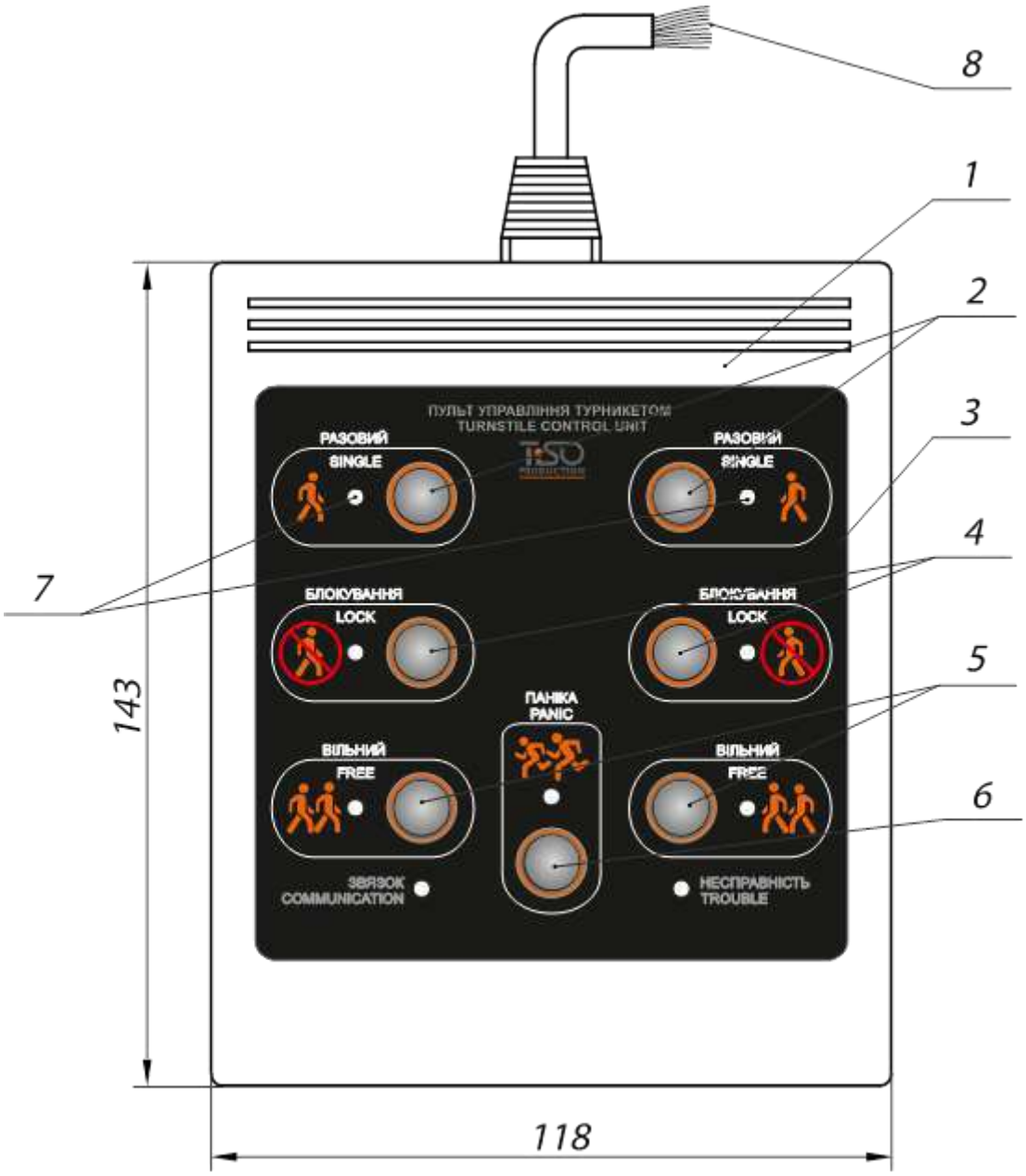




Annex A.1 - Overall and installation dimensions of the set of Master, Slave и Master/Slave cabinets of turnstile JetPan-BM (with different top and access way width)

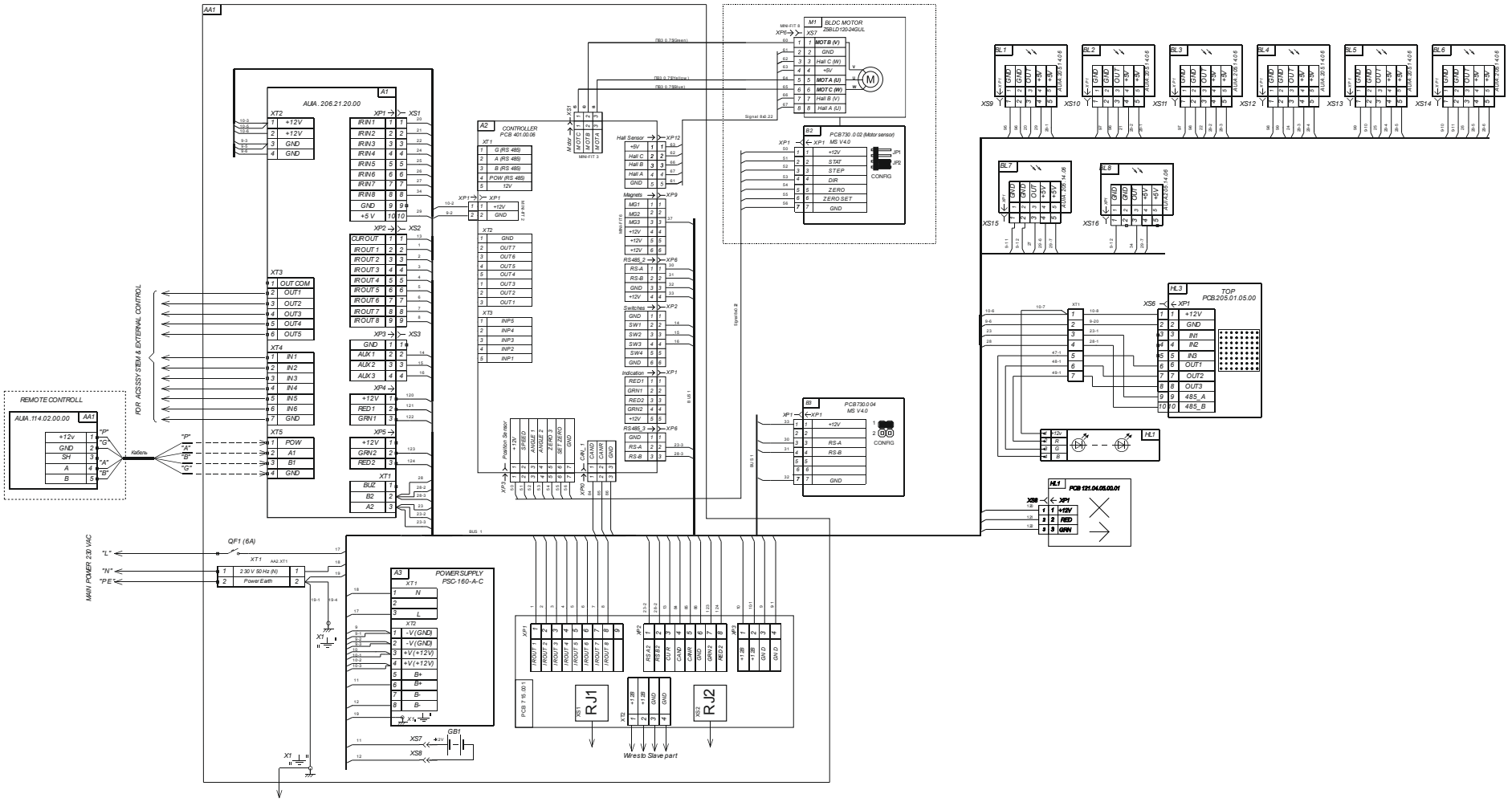


Annex B. Control panel and connection diagram

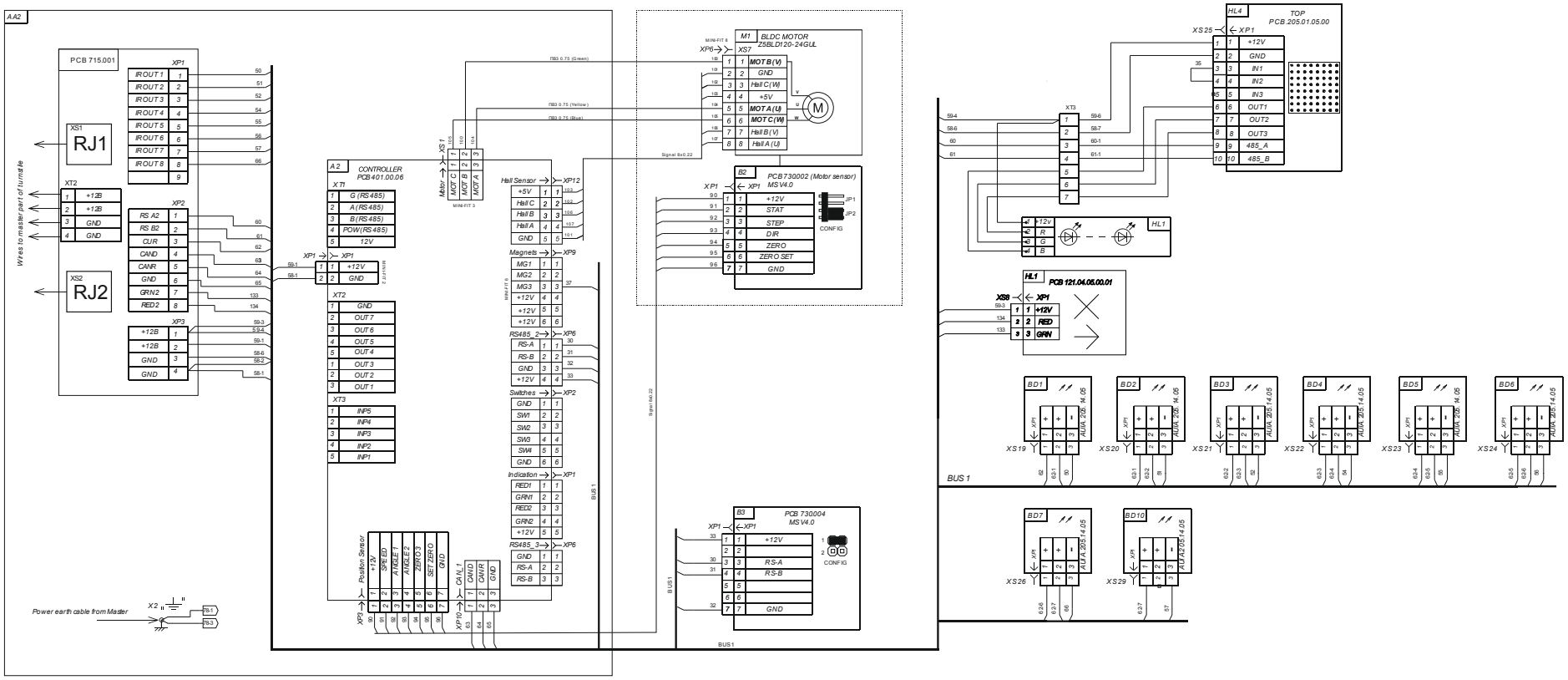


1 – control panel body;
2 – "SINGLE ACCESS" mode control button
3 – front plate;
4 – "LOCK" mode control button;
5 – "FREE ACCESS" mode control button
6 – "PANIC" mode control button
7 – access direction LED display;
8 – controller connection terminals

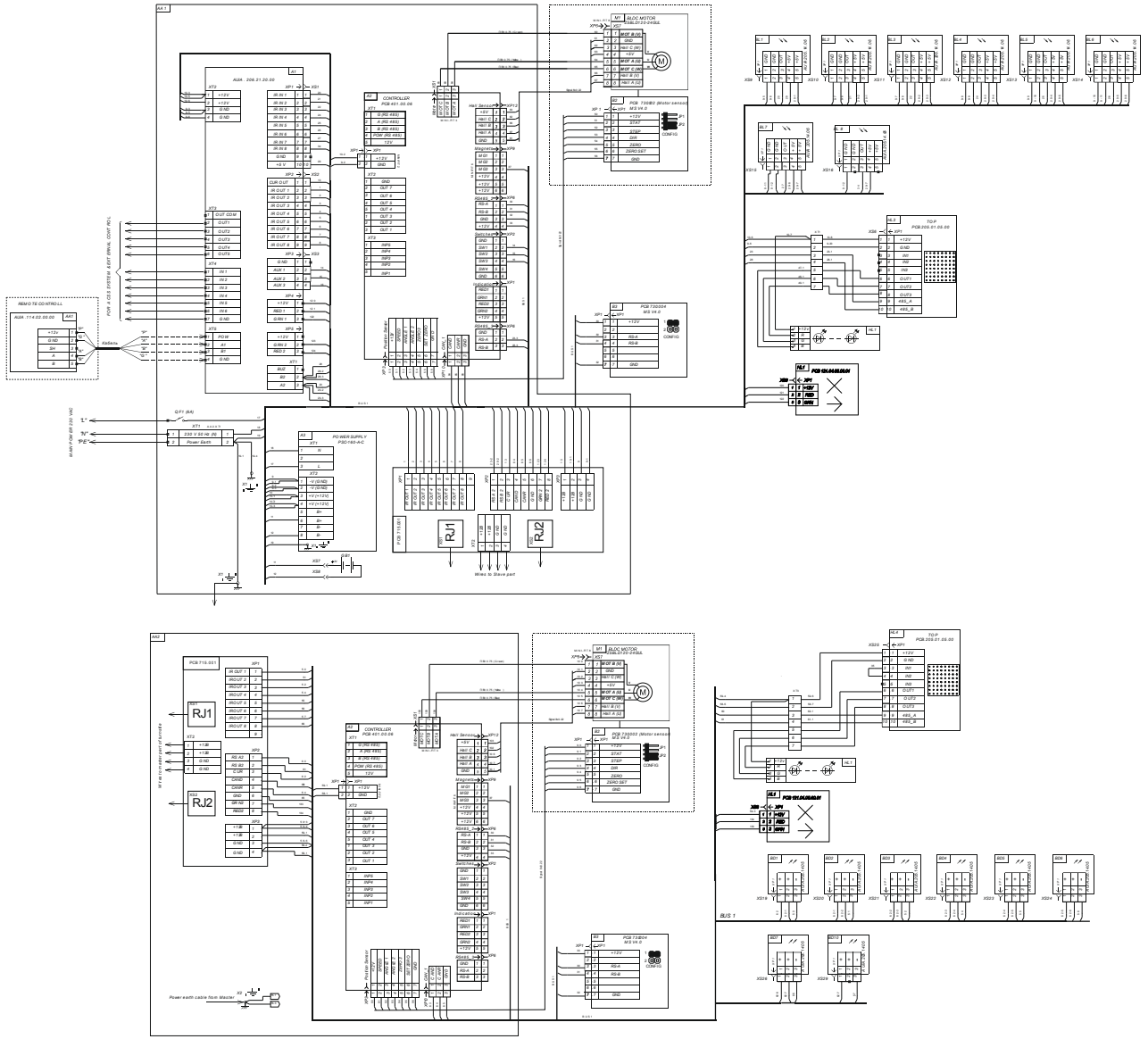
Annex C.1. Wiring diagram of JetPan-BM 1.1 BLDC Master (AUIA 168-04) Rev 0.7



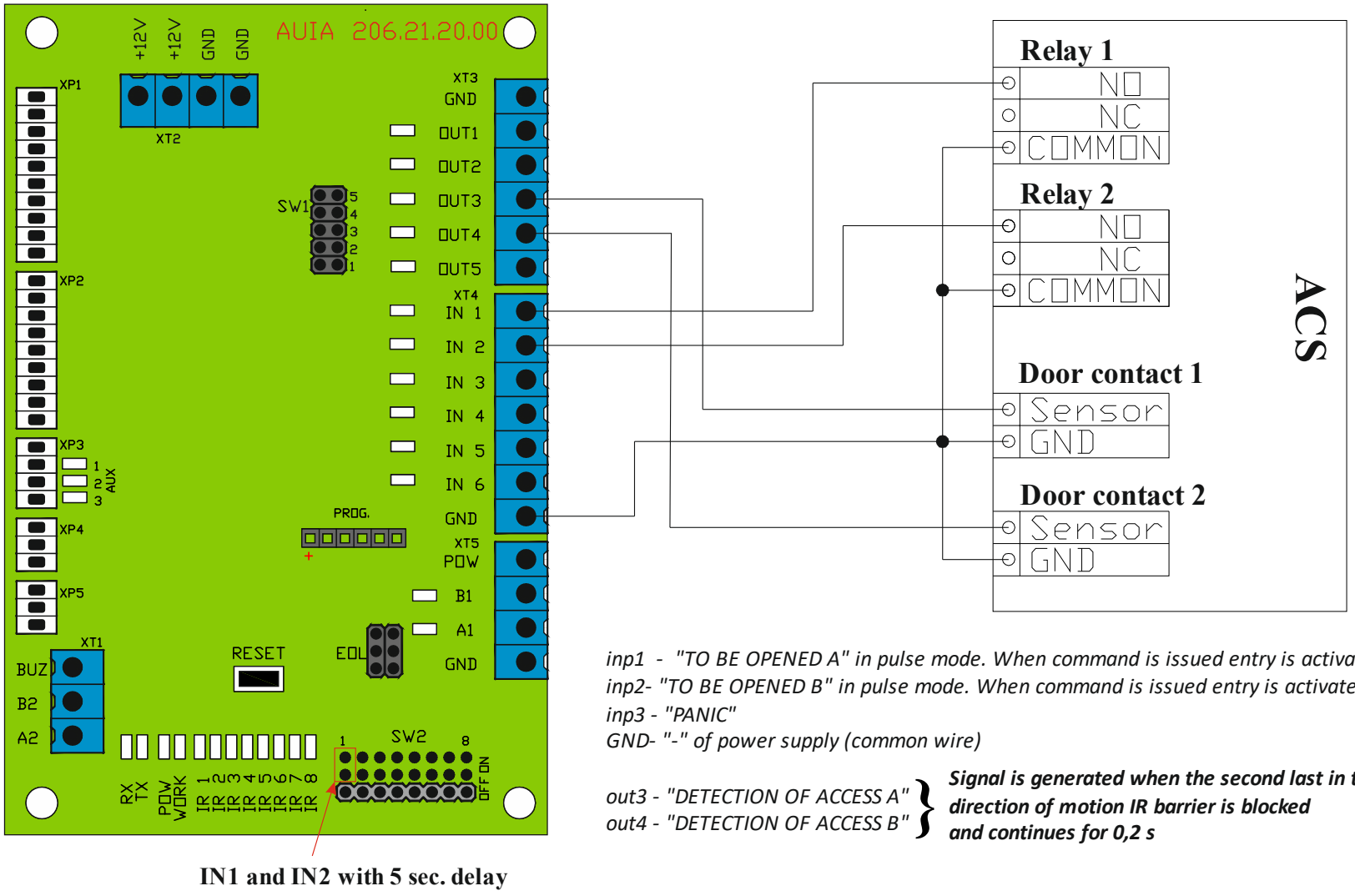
Annex C.2. Wiring diagram of JetPan -BM 1.2 BLDC Slave (AUIA.168-04) Rev 0.7



Annex C.3. Wiring diagram of JetPan-BM 2 BLDC Master/Slave (AUIA 168-04) Rev 0.7



Annex D.1. Diagram of the turnstile connection to access control system (ACS)



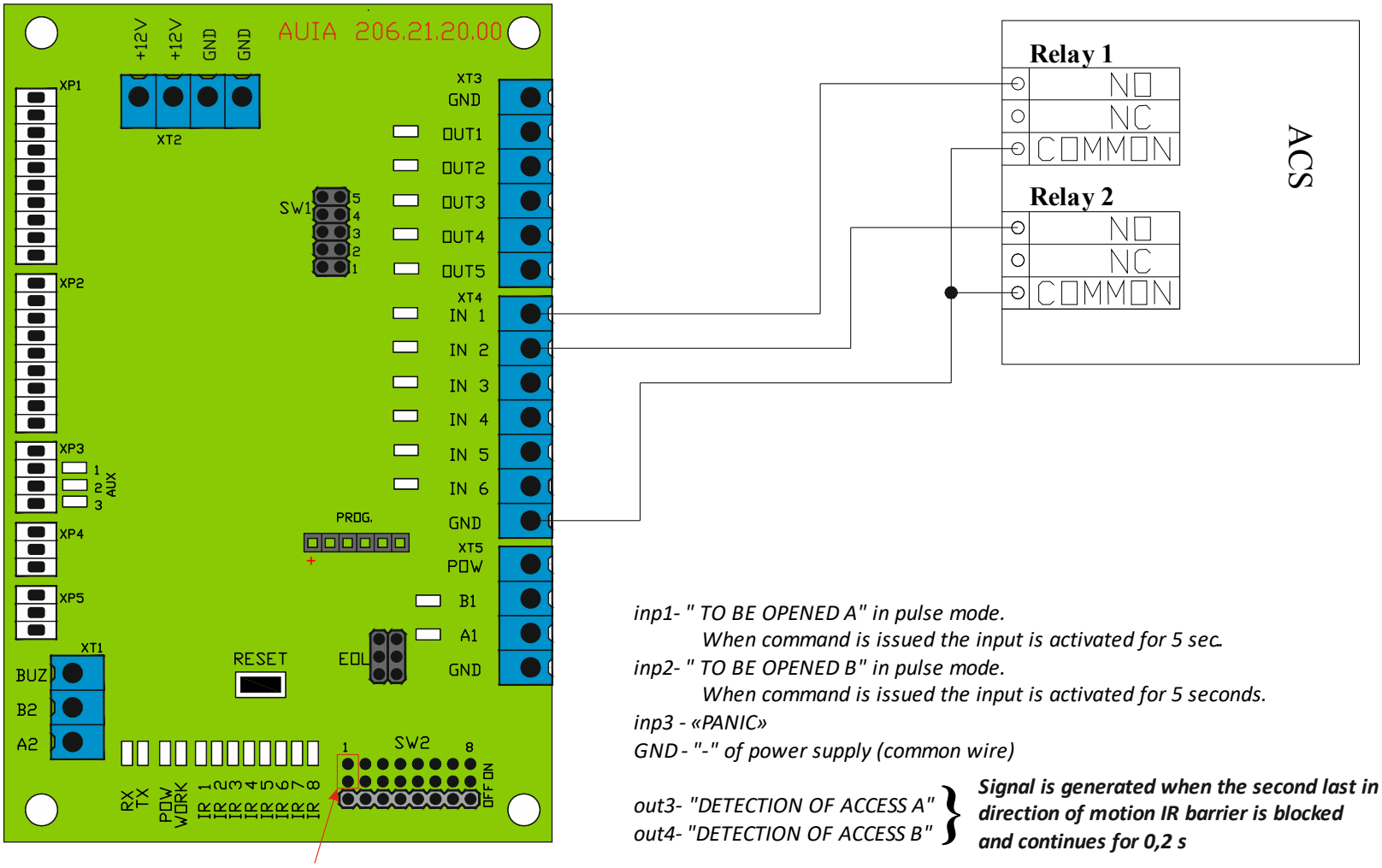
IN1 and IN2 with 5 sec. delay

inp1 - "TO BE OPENED A" in pulse mode. When command is issued entry is activated for 5 se
inp2- "TO BE OPENED B" in pulse mode. When command is issued entry is activated for 5 sec.
inp3 - "PANIC"
GND- "-" of power supply (common wire)

out3 - "DETECTION OF ACCESS A"
out4 - "DETECTION OF ACCESS B"

Signal is generated when the second last in the direction of motion IR barrier is blocked and continues for 0,2 s

Annex D.2. Diagram of the turnstile connection to access control system (ACS)



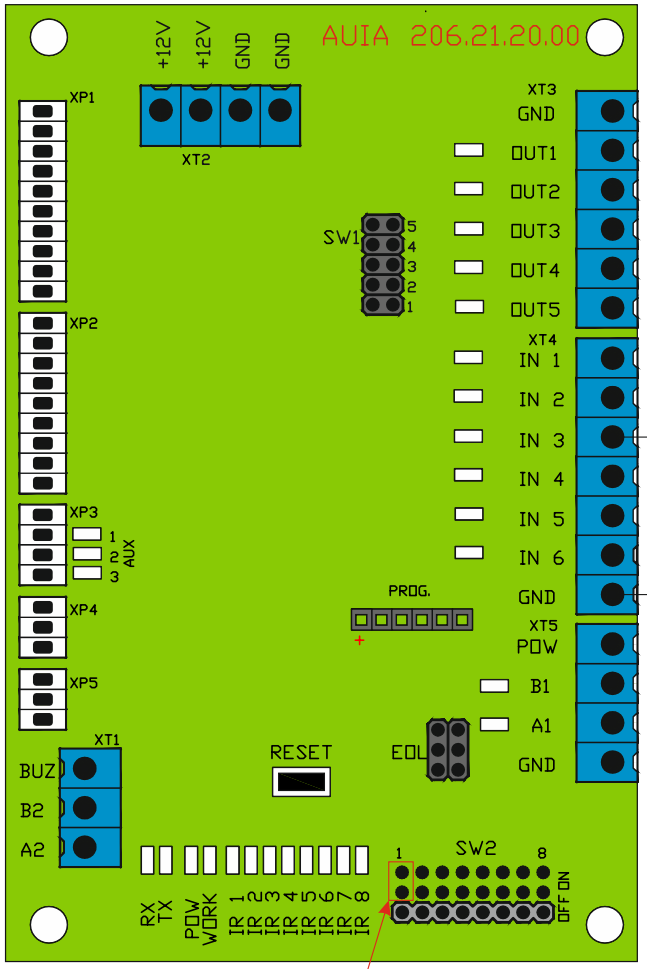
IN1 and IN2 with 5 sec. delay

inp1- " TO BE OPENED A" in pulse mode.
When command is issued the input is activated for 5 sec.
inp2- " TO BE OPENED B" in pulse mode.
When command is issued the input is activated for 5 seconds.
inp3 - «PANIC»
GND - "-" of power supply (common wire)

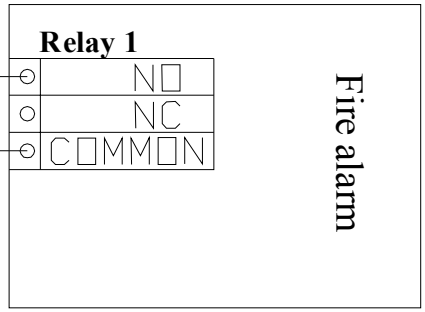
out3- "DETECTION OF ACCESS A"
out4- "DETECTION OF ACCESS B"

Signal is generated when the second last in the direction of motion IR barrier is blocked and continues for 0,2 s

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



IN1 and IN2 with 5 sec. delay

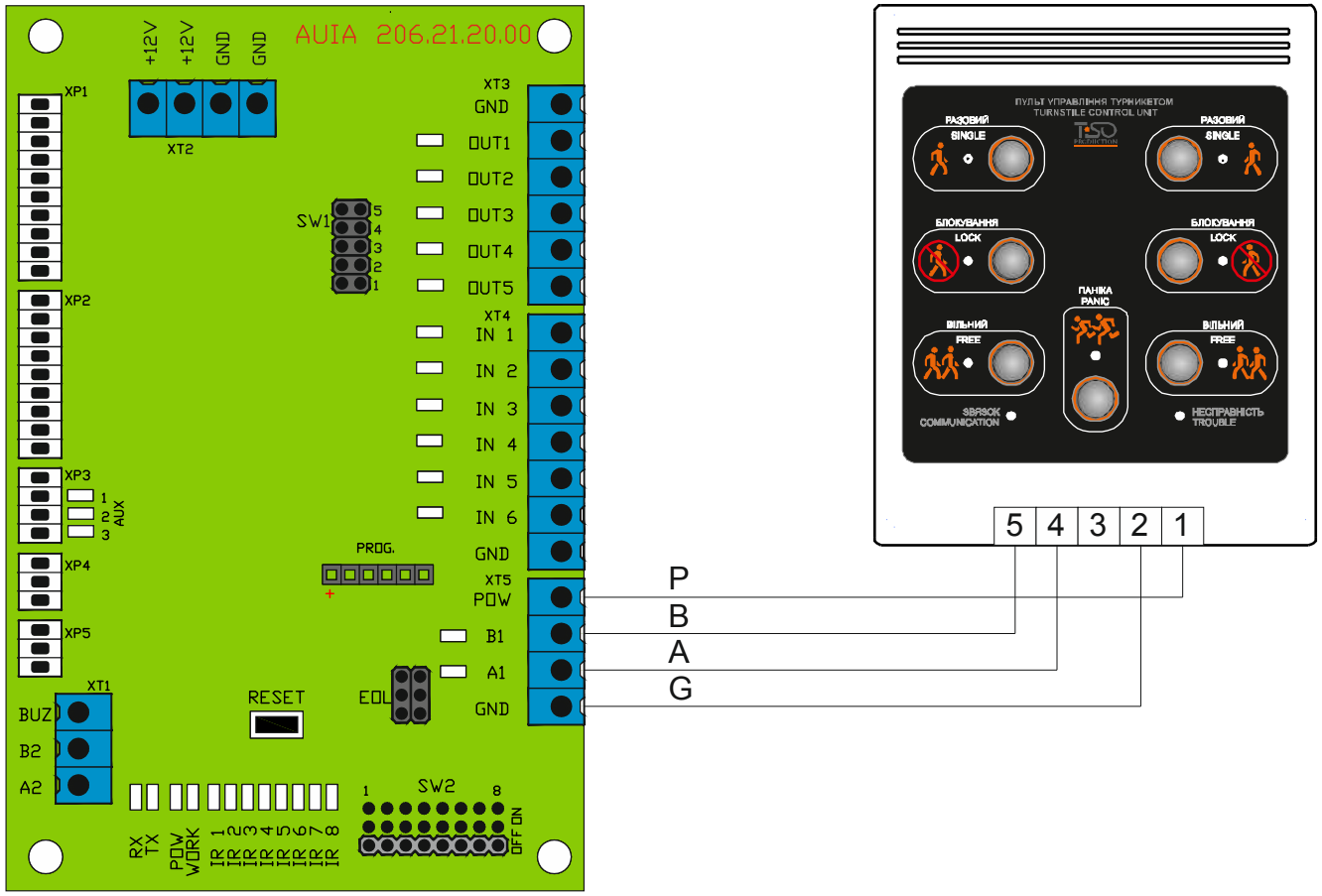


inp1- " TO BE OPENED A" in pulse mode. When command is issued the input is activated for 5 sec.
inp2- " TO BE OPENED B" in pulse mode. When command is issued the input is activated for 5 seconds.
inp3- «PANIC»
GND- "-" of power supply (common wire)

out3- "DETECTION OF ACCESS A"
out4- "DETECTION OF ACCESS B"

} *Signal is generated when the second last in the direction of motion IR barrier is blocked and continues for 0,2 s*

Annex D.4. Diagram of the turnstile connection to control panel



MANUFACTURER
"TISO-PRODUCTION" LLC
14 Promyslova str., 02088 Kyiv, Ukraine
+380 (44) 291-21-11
www.tiso.global
sales@tiso.global

SERVICE CENTER
14 Promyslova str., 02088 Kyiv , Ukraine
+380 (44) 291-21-11
service1@tiso.global

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.

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