



# **IP-Stile with Automatic Anti-Panic Function**

## **KT-08.3A**

ASSEMBLY AND OPERATION MANUAL

**CE EAC**



**IP-Stile with automatic  
anti-panic function**

***KT-08.3A***

**Assembly & Operation Manual**

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## ***Dear Customer!***

*Thank you for purchasing PERCo IP-Stile.  
Please follow instructions given in this Manual carefully,  
and this quality product will provide many years of trouble-free use.*

**KT-08.3A IP-Stile Assembly & Operation Manual** (hereinafter – the **Manual**) contains data on transportation, storage, installation, operation and maintenance of the product.

Installation of the product must be carried out by skilled workers in strict accordance with this Manual.

Abbreviations agreed in the Manual:

IM – indication module;	RC panel – remote control panel;
EVD – external verifying device;	PC – personal computer;
ID – intrusion detector;	ACS – access control system;
PS – power supply;	ACM – access control mode;
OD – operating device;	WRC – wireless remote control.

## **1 APPLICATION**

**KT08.3A IP-Stile** (hereinafter – **IP-Stile**) is designed for control of access to a facility by means of proximity cards. Access control through IP-Stile is performed by the operator with the RC-panel, which is included in the standard delivery set or, using **PERCo-Web** software, with the proximity cards.

The IP-Stile is equipped with the built-in mechanism of an automatic drop arm, which automatically falls down by the command from the device (hereinafter – *Fire Alarm*) or at de-energizing.

IP-Stile can operate either as a standalone unit, without permanent connection to a local network or a PC, or as a part of **PERCo-Web** security system. All registered events are logged in the nonvolatile memory of the IP-Stile controller. As a part of **PERCo-Web** ACS supports all the performance capabilities of the system.

Up to 8 **CL-201** controllers can be connected to the IP-Stile. Each controller has a built-in reader and allows to control one electromechanical (electromagnetic) lock. This gives an opportunity to provide one-direction access to eight rooms by proximity card presentation.

Number of IP-Stiles, required for quick and comfortable passageway should be defined on the base of IP-Stile throughput rate, stated in Section 3. It is recommended to install one IP-Stile per each 500 people working the same shift or at the rate of 30 persons per minute at the peak mode.

## **2 OPERATION CONDITIONS**

With regards to resistance to environmental exposure, IP-Stile conforms to category N1 as per GOST15150-69 (for outdoor application). IP-Stile can be operated at ambient air temperature from –20°C to + 45°C (up to +55°C under the shelter) and at relative air humidity of up to 100% at +25°C.

IP-Stile should be stored indoors at ambient temperature from –20°C to +55°C and at relative air humidity up to 80% at +25°C.

RC panel, included in the standard delivery set, conforms to category NF4 as per GOST15150-69 (for application indoors).

RC panel should be operated at ambient air temperature from +1°C to + 40°C and at relative air humidity of up to 80% at +25°C.

### 3 TECHNICAL SPECIFICATIONS

Setup options<sup>1</sup>:

1. IP-Stile only; without second level controllers connection
2. IP-Stile with possibility of up to 8 **CL-201** lock controllers connection

Operating DC voltage .....	12±1.2V
Consumption current .....	max 6A <sup>2</sup>
Maximum power consumption .....	max 72W <sup>3</sup>
Throughput capacity in single passage mode .....	30 persons/min
Throughput capacity in free passage mode .....	60 persons/min
Passageway width .....	500 mm
Barrier arm rotation force .....	max 3 kgf
Number of readers .....	2
Card reading distance at the nominal operating voltage:	
HID cards .....	min 6 cm
EM-Marine cards .....	min 8 cm
Number of users (access cards):	
IP-Stile configuration without 2nd level controllers connection .....	up to 50 000
IP-Stile configuration with controllers connection .....	up to 10 000
for each controller connected to the IP-Stile .....	up to 1000
Number of commissioning cards <sup>4</sup> :	
IP-Stile controller .....	192
For each controller connected to the IP-Stile .....	64
Event memory capacity .....	max 135 000 <sup>5</sup>
Number of built-in controller inputs .....	2
Number of built-in controller relay outputs .....	2
Communication interface standard .....	Ethernet (IEEE 802.3)
Remote control panel cable length .....	min 6.6 m <sup>6</sup>
Electric shock protection class .....	III as per IEC 335-1-94
Mean time to failure .....	min. 4,000,000 passage
Mean lifetime .....	8 years
Ingress Protection Rating .....	IP44 under EN 60529
Web-interface .....	yes

<sup>1</sup> IP-Stile configuration variants are chosen by **XP3.1** jumper installation on IP-Stile controller board (Section 5.5 of this Manual).

<sup>2</sup> Use the power supply of not less than 6A during 5 seconds to power the IP-Stile.

<sup>3</sup> IP-Stile power consumption can reach 72W in 5 seconds after powering the IP-Stile or removing the *Fire Alarm signal*. In all other cases power consumption does not exceed 30W.

<sup>4</sup> Using **PERCo-Web**.

<sup>5</sup> In case the IP-Stile controller event log is overloaded, new events replace the oldest ones; the events are deleted in blocks of 256 events.

<sup>6</sup> Maximum allowable length of RC panel cable is 40 m.

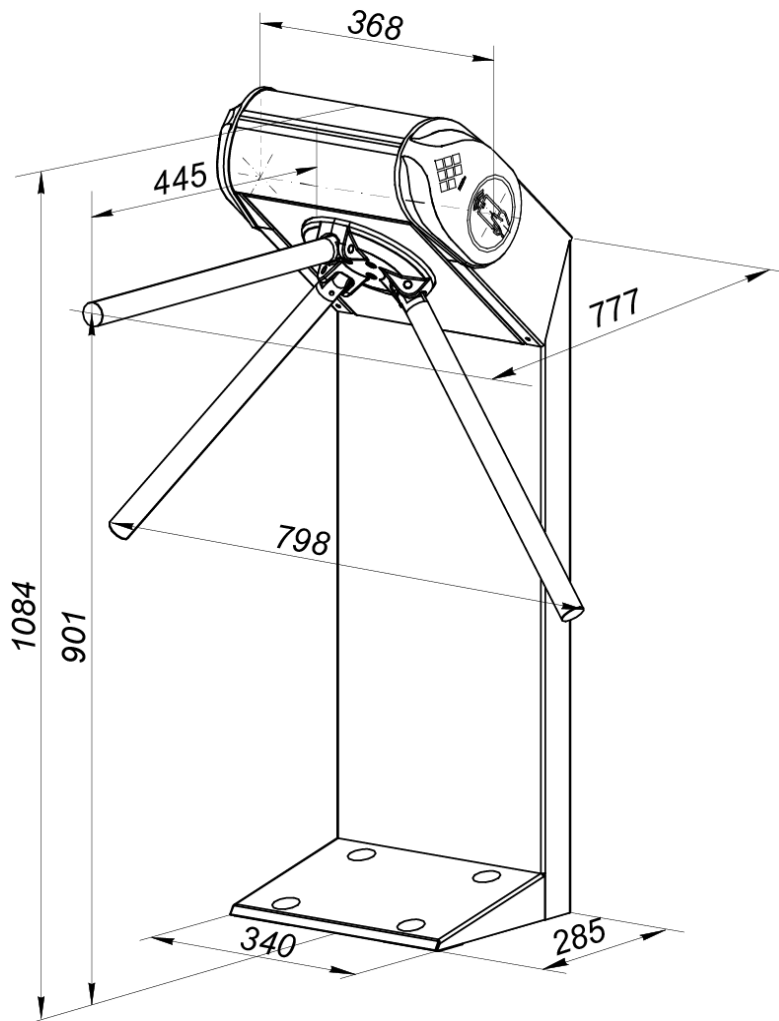
## IP-Stile overall dimensions:

without the hub and with the barrier arms .....	332×368×1084 mm
assembled with the dropped upper barrier arm .....	332×798×1084 mm
assembled with the lifted upper barrier arm.....	777×798×1084 mm

Maximum net weight ..... max 40 kg

**Note:**

At the production stage the controller is assigned a unique physical address (MAC-address) and IP-address (given in the label of the processor microchip), the subnet mask (255.0.0.0) and IP-address of the gateway (0.0.0.0). The controller provides capability of firmware update through the Ethernet.



**Figure 1. IP-Stile overall dimensions**

## 4 DELIVERY SET

### 4.1 Standard delivery set

#### Basic equipment:

IP-Stile housing with the <b>CT-03</b> controller board installed .....	1
Hub with barrier arms and the fixing system .....	1
RC panel with cable .....	1
SW3 hexagon key for IP-Stile cover .....	1
Jumper .....	2

#### Mounting hardware:

Plug .....	5
Self-adhesive cable tie mount .....	5
Nylon cable tie 100 mm .....	5

#### Technical documentation:

Certificate .....	1
Assembly & Operation Manual .....	1
User Guide .....	1

#### Software:

Software <b>PERCo</b> (DVD) .....	1
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#### Package:

Transportation box .....	1
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### 4.2 Optional equipment

Technical specifications of optional devices are given in corresponding documentation to the same devices.

#### Optional equipment:

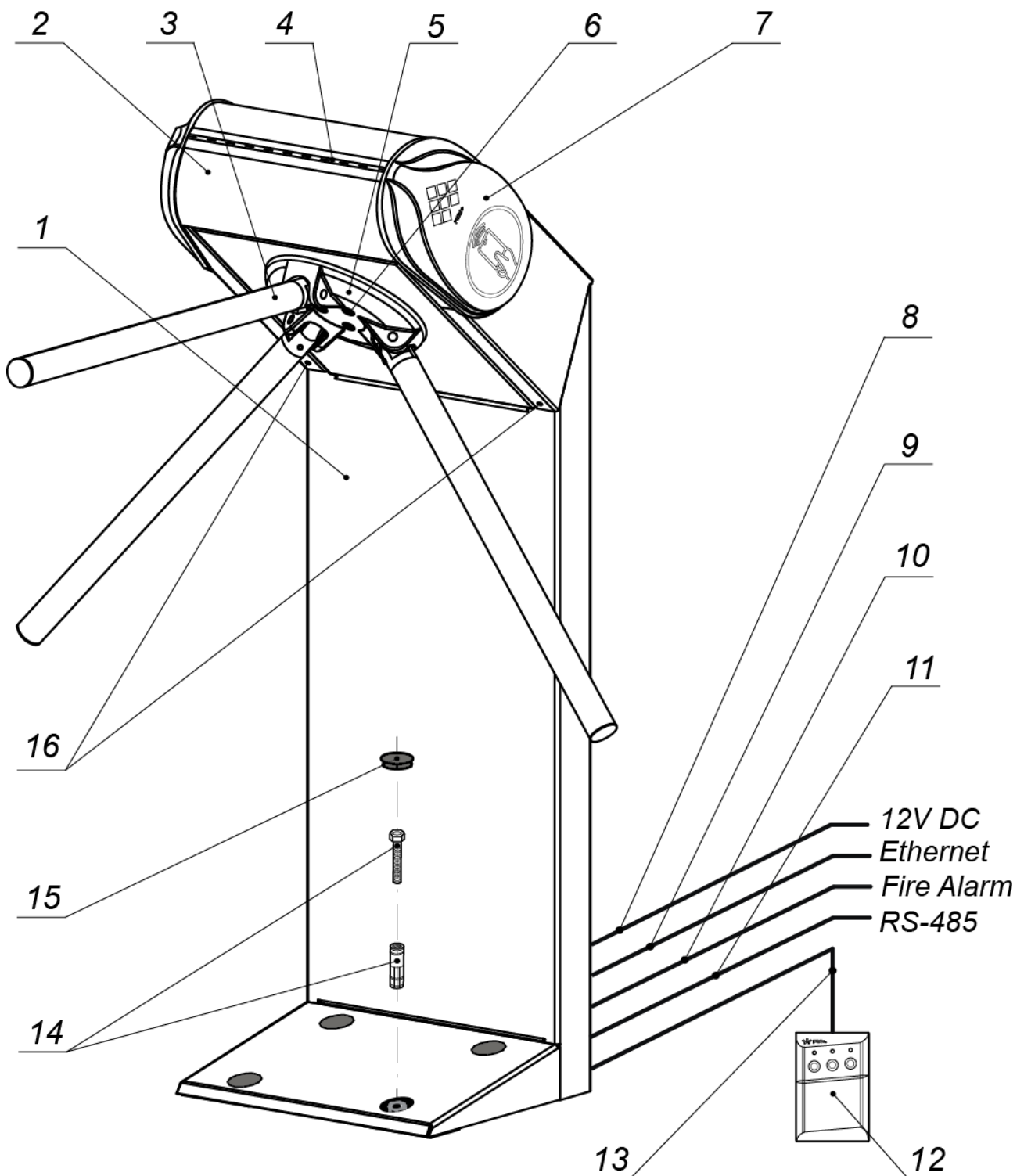
Power supply unit .....	1
Intrusion detector .....	1
Siren .....	1
Wireless remote control <sup>1</sup> .....	1
<b>AU-05</b> system time panel .....	1
<b>CL-201</b> lock controller .....	up to 8

#### Optional assembly equipment:

Anchor bolt <i>PFG IR 10-15</i> («SORMAT», Finland) .....	4
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<sup>1</sup> WRC kit consists of a receiver and transmitters (tags) with operation range up to 40 m.



**Figure 2. IP-Stile:**

1 – IP-Stile housing; 2 – top cover; 3 – barrier arm;  
 4 – LED indication «running line»; 5 – hub; 6 – hub fastening bolts;  
 7 – side cover with built-in reader and an indication module; 12 – RC-panel,  
 13 – RC-panel cable; 14 – anchor and bolt; 15 – plug;  
 16 – cover fixing screws

**Optional equipment:**

8 – power cable; 9 – ACS connection cable;  
 10 – emergency unlocking device (*Fire Alarm*) cable;  
 11 – cable to connect additional devices via RS-485



## 5 DESIGN AND OPERATION

### 5.1 Main features

IP-Stile is designed to operate as a part of ACS **PERCo**. Access control is managed with the proximity cards or from PC. Connection with ACS server and other PCs is performed via *Ethernet* (IEEE 802.3).

IP-Stile can operate either as a standalone unit from the RC-panel or WRC.

As an ACS IP-Stile provides:

- operation in ACM: «*Open*», «*Control*», «*Closed*»;
- saving the set ACM in the non-volatile memory for keeping the ACM from changes in case of power failure;
- local and global location monitoring, double-check access and verification, function support.

End faces of the IP-Stile housing have covers with mnemonic indicators of proximity card readers installed under them inside the housing. IP-Stile controller can operate with proximity cards of up to 64 bit code.

Emergency unlocking of the turnstile is performed by input of the “*Fire Alarm*” signal to the turnstile. At that the barrier arm automatically falls down ensuring free passage.

The turnstile has relay outputs for connection of an intrusion detector, the “*Fire Alarm*” and a siren.

**AU-05** system time panel and up to 8 **CL-201** lock controllers can be connected to the IP-Stile. Each **CL-201** controller has a built-in reader operating one electromechanical (electromagnetic) lock.

IP-Stile controller provides: connection through *Ethernet* interface, (support of the protocol stack TCP/IP (ARP, IP, ICMP, TCP, UDP, DHCP)).

IP-Stile is equipped with Web-interface aimed at making major settings.

Possibility of IP-Stile firmware update through *Ethernet*.

All the logged events are saved in the IP-Stile controller nonvolatile memory, so that they could be browsed in future.

A resetting mechanism ensures automatic reset of barrier arms to home position after each passage.

Smooth and quiet operation of the IP-Stile is ensured by a damper.

To ensure correct register of passages the resetting mechanism has built-in optic rotation sensors.

The IP-Stile uses safe voltage supply– maximum 14 V.

### 5.2 IP-Stile design

The design of the turnstile is shown on Fig. 2. Numbers in brackets correspond to Fig. 2 of this Manual.

The turnstile comprises a turnstile housing (1), hub (5) with three barrier arms (3), RC-panel (13), built-in IP-Stile controller, software (**PERCo-Web**, local software **SL-01**, **SL-02**) and additional equipment not included in the standard delivery set.

The housing (1) is designed as a welded stainless steel structure with the top cover (2). The plastic side covers feature readers and indication modules (7). The front end side of the cover features dynamic LED indication («running line») (4).

### 5.2.1 IP-Stile housing

Remove the cover (2) to access the internal elements of the IP-Stile housing. Top cover is fixed to the housing with the screws (16). Removing and mounting instruction is provided in Section. 6. During IP-Stile operation the top cover is to be installed. Remove the back cover plate (4, Fig. 12) and the controller protective top cover to access the IP-Stile controller.

Inside the IP-Stile there are:

- IP-Stile controller;
- two proximity card readers, installed in the plastic side covers;
- IP-Stile control mechanism, featuring:
  - barrier arms rotary group consisting of:
    - rotation mechanism, including a resetting mechanism (a pusher, stop springs, and a roller);
    - damper, which provides smooth and quiet operation of the turnstile;
    - locking device, which prevents intrusion;
  - electric motor unit;
  - optic sensors unit, ensuring correct fixation of each passage;
  - automatic “anti-panic” function electromagnetic mechanism;
  - commutation board.

### 5.2.2 Indication module

Indication modules are located on the plastic side covers (7) and feature the following elements (Fig. 3):

- “Green arrow” and “red cross” signs are combined in a single indication module. Indicators are aimed at informing the users about the current status of the passage directions through IP-Stile and the set ACM.
- “Hand with a card” indicator is aimed at informing users about the possibility of entering through IP-Stile by proximity cards in the set direction and at showing proximity card reader zone.

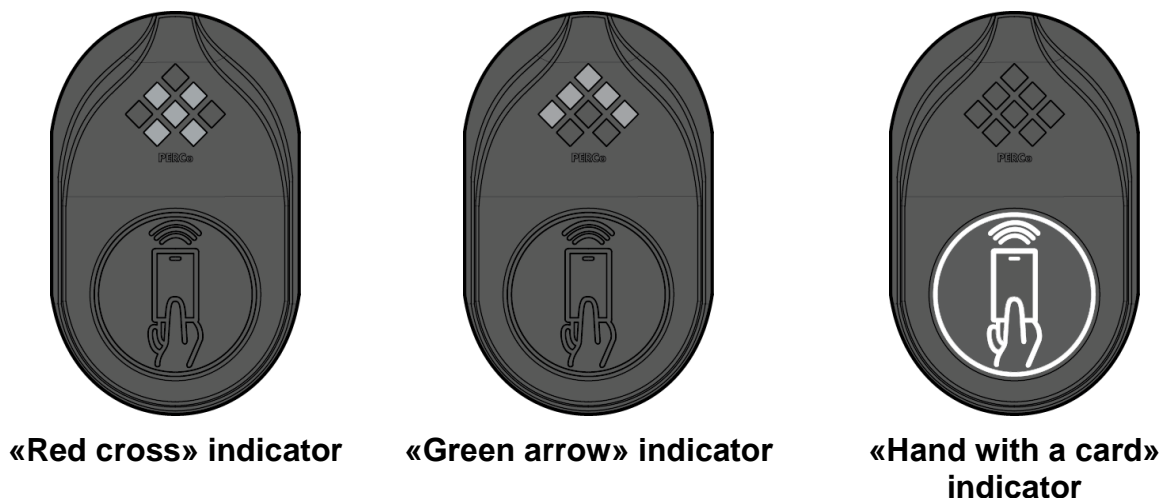


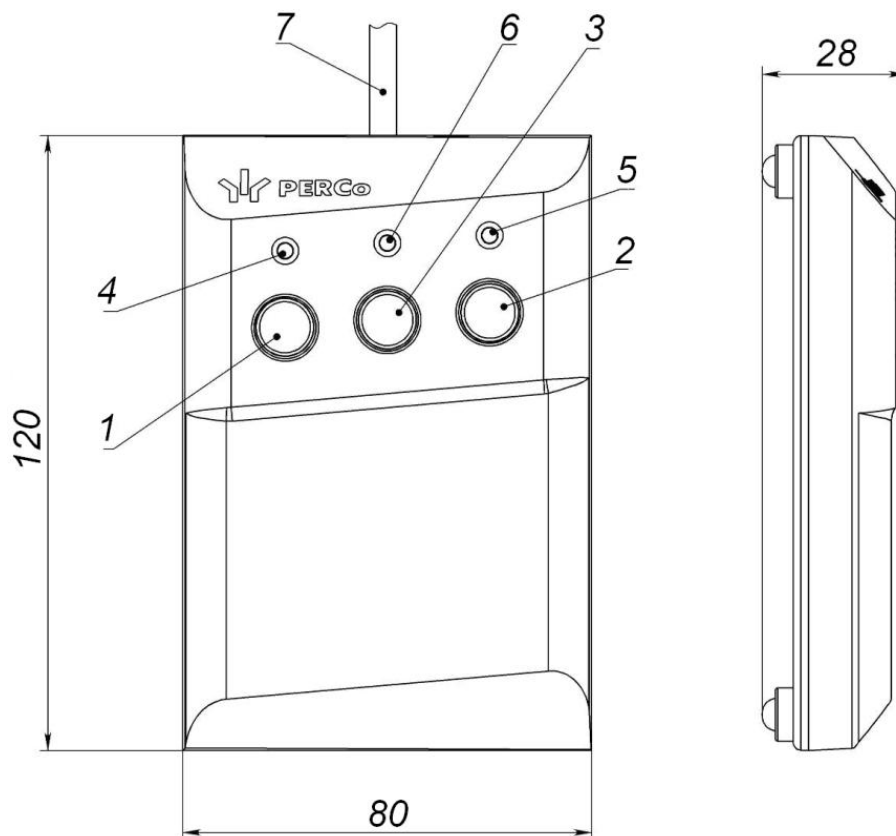
Figure 3. Indicators

IP-Stile is also equipped with «running line» indicator, located on the front end cover. Indicator is aimed at informing the user about passage denial or authorization through IP-Stile.

IP-Stile indication within manual operation from the RC-panel (WRC) is described in Table 7 and within the operation as a part of ACS in Table 8.

### 5.2.3 RC panel

RC-panel (12) is connected to the IP-Stile housing with an RC-panel cable. RC-panel design and overall dimensions are shown on Fig. 4.



**Figure 4. RC-panel design and overall dimensions**

- 1, 2, 3 – **LEFT, RIGHT, STOP** buttons mode setting;  
 4, 5 – «Left», «Right» green LED indicators;  
 6 – «Stop» red LED indicator; 7 – RC-panel cable

The RC-panel features 3 buttons to set operating modes of the IP-Stile. The button in the middle **STOP** serves for setting the “Always locked” operating mode, the **RIGHT** and **LEFT** buttons – for unlocking the IP-Stile in a chosen direction. Up above the buttons there is an LED indication of the set mode. IP-Stile manual operation modes and RC-panel indication are shown in Table 7.

### 5.2.4 IP-Stile controller

IP-Stile controller board features: a microcontroller, a nonvolatile memory, nonvolatile RTC-timer (real-time clock).

The following devices are connected to the controller with the cables: control mechanism, readers, *Fire Alarm*, *Ethernet* network. IP-Stile power supply is performed through the power cable. All connections are performed in accordance with the IP-Stile and optional equipment electric connection layout.

IP-Stile controller processes all the commands from RC-panel and the external devices, analyses proximity cards identifiers from the built-in readers against the list of the cards and authorization rights from the controller memory, forms control signals to the IP-Stile unit and to the external devices, manages the signals by the optical sensors of the barrier arms rotation angle, performs data exchange with the PC through *Ethernet* network.

All the connections are performed in accordance with the IP-Stile connection scheme (Fig. 13). Controller configuration is shown on Fig. 5.

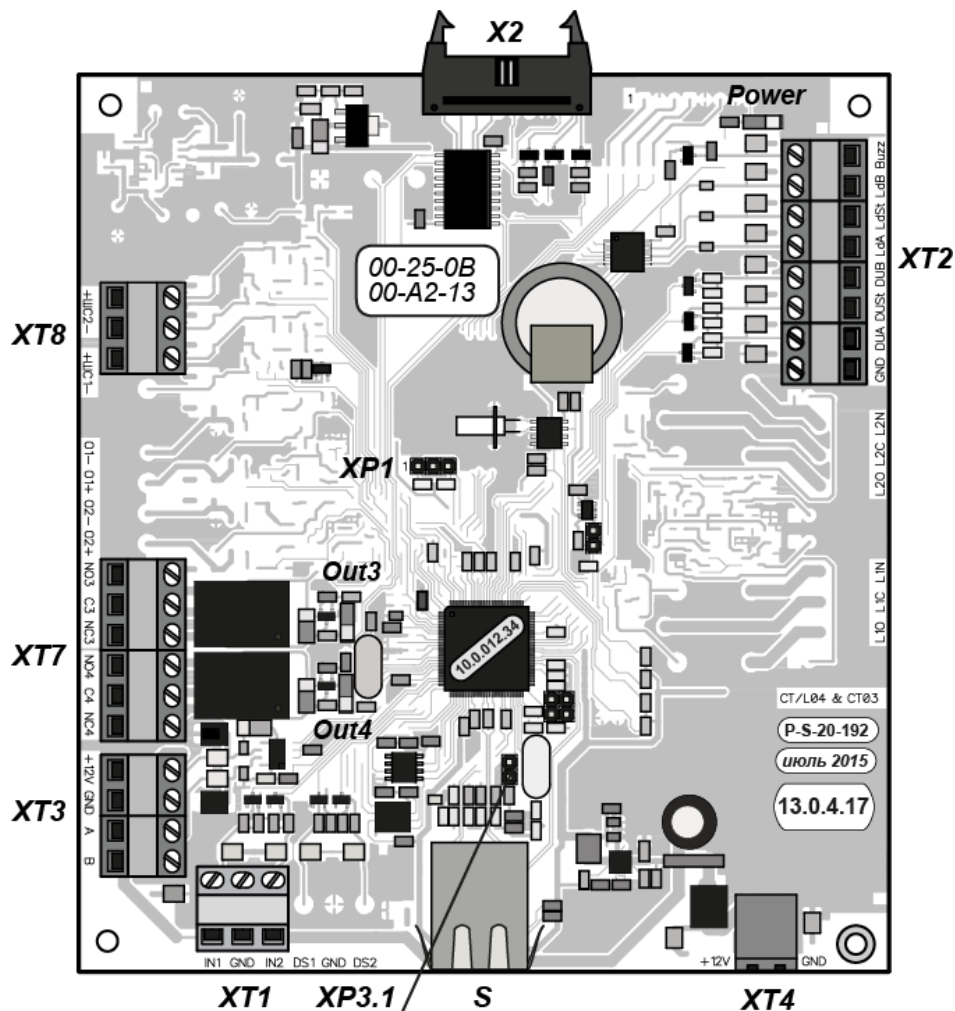


Figure 5. IP-Stile built-in controller configuration

The figure features:

- **X2** (Control) – terminal block to connect IP-Stile control mechanism;
- **XT1** (Inputs) – terminal block to connect additional equipment to the IP-Stile controller inputs. Configuration of the inputs can be performed only in **PERCo-Web** software (Section 5.4.1).
- **XT2** (RC panel) – terminal block to connect control devices: RC-panel / WRC (Section 6);
- **XT3** (RS-485) – terminal block to connect the built-in proximity card readers and other additional devices via RS-485 (Section 5.4.4).
- **XT4** (+12VDC) – terminal block to connect the IP-Stile power supply;
- **XT7** (relay outputs) – terminal block to connect the intrusion detector, the siren and other external devices to the additional relay outputs of the IP-Stile controller. Configuration of the outputs can be performed only in **PERCo-Web** software (Section 5.4.2).

- **XT8** (*Fire Alarm*) – terminal block to connect the device, sending *Fire Alarm* emergency passage unlocking command (Section 5.4.2).
- **S** (TCP/IP) – terminal block to connect the LAN over *Ethernet (IEEE 802.3)*;
- **XP1** – terminal block for jumper installation, defining means of getting an IP-address by the IP-Stile controller.
- **XP3.1** – terminal block for jumper installation, defining IP-Stile configuration variant.
- **Power** – control LED indicator of power supply to the IP-Stile controller board.
- **Out 3, Out 4** – control LED indicators of power supply to the corresponding output relay winding.

Terminal block contacts application is stated in Table 1.

**Table 1. Function of the built-in controller terminal block contacts**

No	Contact	Function
XT1 Connector		
1	In1	1 and 2 inputs to connect additional equipment (EVD or intrusion detector)
2	GND	
3	In2	
XT2 Connector		
1	GND	General
2	DUA	Input A of RC-panel
3	DUS <sub>t</sub>	Input STOP of RC-panel
4	DUB	Input B of RC-panel
5	Ld A	Indication output A of RC-panel
6	Ld St	Indication output STOP of RC-panel
7	Ld B	Indication output B of RC-panel
8	Buzz	RC-panel audio signal indication output
XT3 Connector		
1	+12V	+12V output
2	GND	
3	A	Line A powering through RS-485
4	B	Line B powering through RS-485
XT4 Connector		
1	+12V	+12V external OD connection
2	GND	
XT7 Connector		
1	NO3	<i>Out 3</i> relay output, normally-open contact
2	C3	<i>Out 3</i> relay output, central contact
3	NC3	<i>Out 3</i> relay output, normally-closed contact
4	NO4	<i>Out 4</i> relay output, normally-open contact
5	C4	<i>Out 4</i> relay output, central contact
6	NC4	<i>Out 4</i> relay output, normally-closed contact
XT8 Connector		
1	ШC2+	Not used for external connections
2	ШC2-	<i>Fire Alarm</i> device connection input
3	ШC1+	

### 5.2.5 Control mechanism operation

IP-Stile operation algorithm at receiving a command to a controller for a single passage in A/B direction:

1. If the access is granted, the IP-Stile controller sends a command for rotary group unlocking in the A/B direction to the control mechanism. The countdown of **Holding in unlocked state** begins.
2. The control mechanism unlocks the possibility of rotary group turn in A/B direction (Fig. 14). It becomes possible to perform the passage in the given direction.
3. The controller follows the status of the optic rotation sensors that are activated/deactivated in a certain sequence during rotation of the barrier arms and counts the time since pressing of the button responsible for passage authorization in the direction A(B).
4. When the barrier arms rotate  $67^\circ$ , the controller registers a passage in the corresponding direction. After the barrier arms rotate  $67^\circ$ , or the time since the moment of pressing of the A(B) direction button exceeds the passage waiting time, the controller generates a command for the control mechanism to close the passage in the A(B) direction (the upper (lower) end of the key holt is lowered). From this moment the controller is ready to execute the next command in this direction.
5. If the rotation of the barrier arms does not start, the rotary group gets locked after the end of the **Holding in unlocked state** countdown.
6. The IP-Stile is ready for the next passage.

## 5.3 IP-Stile operation from the RC-panel

### 5.3.1 RC-panel connection

RC-panel / WRC connection for IP-Stile standalone operation is performed to the following **XT2** terminal block contacts (RC-panel power supply is connected to the +12V **X1** terminal block contact in accordance with Fig. 13):

- *DUA, DUS<sub>t</sub>, DUB* – control inputs;
- *LdA, LdS<sub>t</sub>, LdB, Buzz* – RC-panel light and audio signal indication control output (indication on the RC-panel fob is not provided).

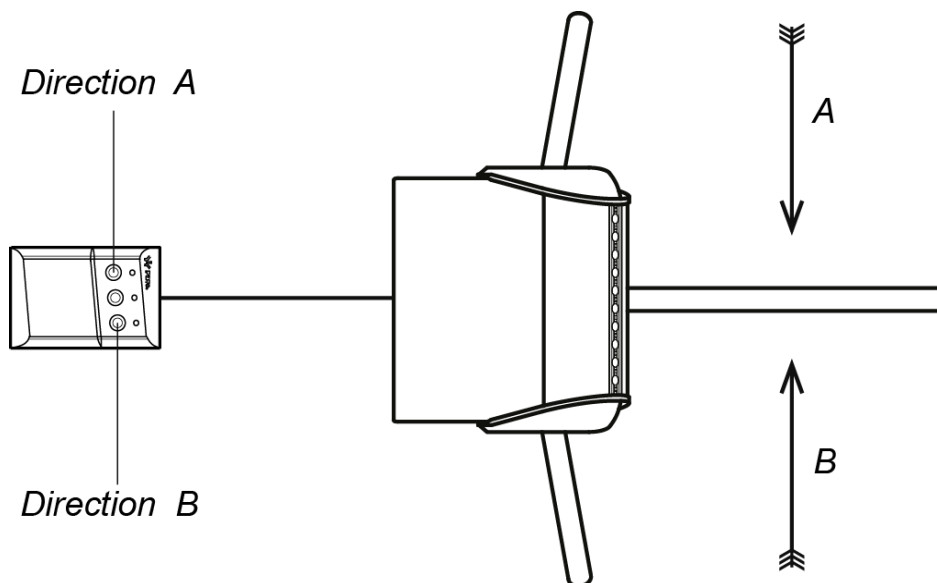


Figure 6. Standard RC-panel orientation regarding IP-Stile

Pressing the buttons on the RC-panel or on the WRC results in forming a control signal on the corresponding controller input. RC-panel and WRC can be connected to the IP-Stile separately or simultaneously. In case both devices are connected simultaneously, the incoming control signals can overlap each other, so the IP-Stile reaction will correspond to the one for control signal combination (Appendix 1).

Standard RC-panel orientation regarding IP-Stile post is shown at Figure 6. The RC-panel orientation can be reversed. In order to do that it is necessary to change the RC-panel cable connection points to the **XT2** connector block contacts (Table 2) when connecting the RC-panel according to the electric connection scheme (Fig. 13).

**Table 2. RC-cable connection to the XT2 connector block contacts for standard and reverse RC-panel orientation**

Contact	RC-panel orientation	
	Standard	Reverse
<i>GND</i>	black	black
<i>DU A</i>	white	green
<i>DU St</i>	blue	blue
<i>DU B</i>	green	white
<i>Ld A</i>	yellow	red
<i>Ld St</i>	orange	orange
<i>Ld B</i>	red	yellow
<i>Buzz</i>	brown	brown

### 5.3.2 Input signals at off-line control of the IP-Stile

IP-Stile operation is performed by sending a control signal to the *DUA*, *DUB* and *DUST* controller inputs. Input activation results in closing of the *DUA(B)* contact with the *GND* contact (i.e. generation at the *DUA(B)* contact of a low-level signal relative to the *GND* contact).

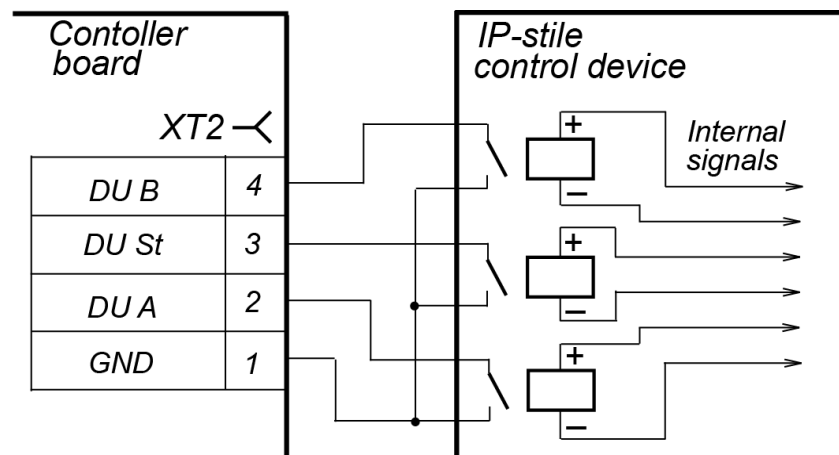
The minimum duration of an input signal for operating mode change is 100 ms. Control signal sending algorithms are described in the Appendix 1.



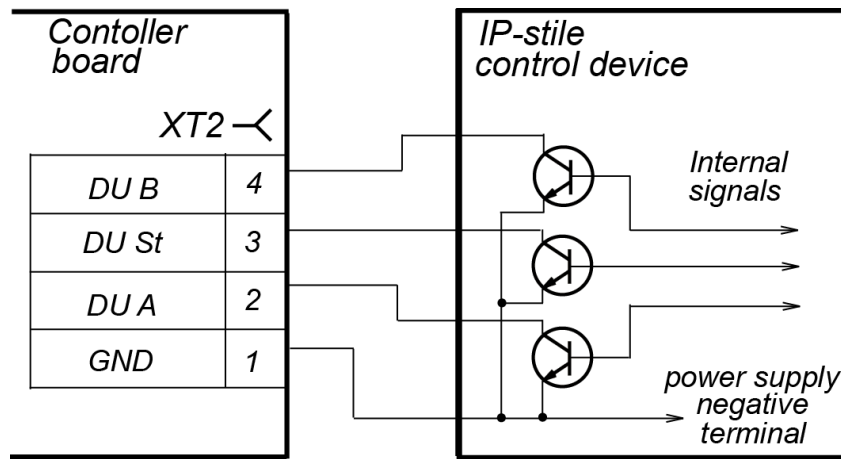
**Note:**

In case *DUA*, *DUB* and *DUST* inputs are not connected, the high level signal is to be generated. It can be generated with the help of resistors of 2 kOhm strength, connected to the +3.3 V voltage plane.

Normally-open relay contact or an open collector relay figure (Figure 7 and Figure 8) can serve as a control element.



**Figure 7. IP-Stile control elements: normally-open relay contact**



**Figure 8. IP-Stile control elements: open collector output**

The control element is to provide the following characteristics of the signals:

Control element – relay contact:

Minimal commutated current ..... max 1 mA

Resistance of a closed contact

(considering connection cable resistance) ..... max 300 Ohm

Control element – circuit with open-collector output:

Voltage at a closed contact (a low-level signal, at the controller input) ..... max 0.8V

## 5.4 IP-Stile optional equipment

### 5.4.1 Parameters of input signals In1, In2

*In1*, *In2* inputs can be used only when the IP-Stile operates as a part of **PERCo-Web** system. Connection to the inputs is performed through *GND*, *In1* and *In2* contacts and the IP-Stile **XT1** connector block.



**Note:**

All the unconnected inputs are pulled up to the power supply. To generate the high level signal on all the input contacts (*In1*, *In2*) use resistors of 2 kOhm strength, connected to the +3.3 V plane.

The inputs can be used for connection of:

- Intrusion detector;
- External verifying device;
- Other optional equipment.

Activation evidence of *In1*, *In2* signals depends on the description of their initial condition by the **Normal contact state parameter** in **PERCo-Web** software:

- If an input is assigned as “normally open” its activation is done by means of a low-level signal relative to *GND* sent to it. A normally open relay contact or a circuit with open-collector output can be used as a control element.
- If an input is assigned as “normally closed” its activation is done by withdrawing of a low-level signal relative to *GND* from it. A normally closed relay contact or a circuit with open-collector output can be used as a control element.

The control element - relay contact is to provide the following characteristics of the signals:

- Minimal commutated current ..... max 1mA
- Resistance of a closed contact  
(with connection cable resistance taken into account) ..... max 300 Ohm



Control element – circuit with open-collector output:

- Voltage at a closed contact (a low-level signal, at the input of the controller) ..... max 0.8V

### 5.4.2 Out3 and Out4 output signals

*Out3* and *Out4* outputs can be used only if the IP-Stile operates as a part of **PERCo-Web** system. Connection to the outputs is performed through the *NO3*, *C3*, *NC3*, *NO4*, *C4* and *NC4* contacts of the IP-Stile controller board **XT7** connector block.

Relay outputs *Out3* and *Out4* have complete group of contacts (normally-open *NO*, normally-closed *NC* and common output *C* contacts).

The outputs can be used for:

- light and sound signal control (siren),
- alarm signal transmission to the central monitoring RC-panel,
- additional equipment control.

The outputs have the following signal parameters:

Maximum commutated voltage, DC .....	no more than 30 V
Maximum commuted voltage, AC .....	no more than 42 V
Maximum commutated DC/AC for outputs .....	no more than 2 A
Closed contact resistance .....	no more than 0.15 ohm

### 5.4.3 Fire Alarm input

The input is designed for *Fire Alarm* device. Connection to this input is performed through *WC2-* (*In*) and *WC1+* (*GND*) contacts of the **XT8** IP-Stile controller terminal block. Input activation is effected by sending on it the upper level signal regarding *GND* contact. Signal input parameters are the same as stated in Section 5.4.1. In case *Fire Alarm* input is not used, there should be placed a jumper between the contacts. The jumper is delivered with the initial settings.

When the control signal is sent from *Fire Alarm* device, the barrier arm automatically falls down ensuring free passage. Green indication with momentary changing into red will be activated on the side LED indication and dynamic LED indication.

If the *Fire Alarm* signal is received while the hub with folding arms is rotating, the flashing of the indication will be activated, but the emergency unblocking function will be activated only after the rotation is finished. Automatic anti-panic function is also activated at a power supply loss, e.g. breakdown of connected power supply unit.

After restore of power supply or *Fire Alarm* signal removal the arm shall be manually set into operating position, after that the turnstile is ready for further standard operation.

### 5.4.4 Connection to RS-485

Up to 8 **CL-201** lock controllers and an **AU-05** system time display can be connected to the IP-Stile. The connection is performed through **XT3** connector block contacts.

Connecting several devices through RS-485 interface, each communication line is to be connected consequently to all devices. On the communication line ends there should be placed end-of-line resistors.

If the controller is installed on one of the communication line ends, it is necessary to install a resistor of 120 Ohm strength between A and B contacts of the **XT3** connector block.

## 5.5 IP-Stile configuration variants



### **Attention!**

Jumper installation and removal are to be carried out only when the equipment is turned off.

Configuration №1 «*IP-Stile*» is the initial configuration of the device. In order to change the configuration, install jumpers on **XP3.1** IP-Stile controller connector as per Table 3. Connector arrangement is stated in Table 4.

When the controller configuration is changed with the jumpers, the controller internal memory is automatically formatted. This procedure lasts for about 2 minutes. After that the IP-Stile configuration should be transmitted to the controller by the Soft or Web-interface.

**Table 3. Configuration**

№	IP-Stile configuration variant	XP3.1 jumper
1	IP-Stile	no
2	IP-Stile with 8 <b>CL-201</b> 2nd level controllers connected	yes

## 5.6 IP MODE and IP DEFAULT jumper



### **Attention!**

Jumper installation and removal are to be carried out only when the equipment is turned off.

The IP-address is set by jumper installation and removal at the **XP1** IP-Stile controller board connector. Connector location is shown at Table 4.

The IP-address can be set as follows:

#### 1. Jumper removed.

- If the IP-address (gateway, subnet mask) has not been changed by the user, the controller will operate with the initial settings: IP-address is stated in the IP-Stile certificate on the controller board; subnet mask 255.0.0.0; gateway IP-address 0.0.0.0.
- If the IP-address (gateway, subnet mask) has been changed, the controller starts to operate with the new settings immediately.



### **Note:**

Controller network settings change is possible only from the PC through the Web-interface or from the Software. At that the controller and the PC are to be in one subnet.

2. «*IP MODE*». 1–2 jumper position. This mode is aimed at operation in networks with IP-address dynamic allocation. At that the controller gets the IP-address (gateway, subnet mask) from DHCP-network server.
3. «*IP DEFAULT*». 2–3 jumper position.
  - The controller operates with initial settings. IP-address and MAC-address are stated in the IP-Stile certificate and on the controller board; subnet mask 255.0.0.0; gateway IP-address 0.0.0.0
  - Controller access password is cleared.
  - IP-address user settings (gateway, subnet mask) are saved (in case they were set). At the next powering, if the jumper is removed, the controller will be operating with these settings.

**Table 4. Variants of jumper installation on XP1 connector**

№	Jumper position on XP1	Mode
1		Jumper removed
2		<b>IP MODE</b>
3		<b>IP DEFAULT</b>

## 5.7 Firmware update

Use «*Firming*» program to update the firmware and to format the **PERCo-Web** system controller memory.

You can download the current version on our web-site [www.perco.ru](http://www.perco.ru).

## 6 MARKING AND PACKAGING

The IP-Stile has a marking label – inside, on the rear side of the housing and a sticker with connection layout on the internal side of the top cover. The marking contains the product name, the model abbreviation, the date of manufacture, the serial number and the technical characteristics.

Remove the top cover (2) to access the label in the following way:

1. Unscrew the fixing bolts of the cover (17) using the Allen key SW3.
2. Carefully lift up the cover and release it from fasteners by moving it in passage direction. Please be careful not to break the inner cables.
3. Separate the cable **S1** connector, connecting the cover with the turnstile housing.
4. Carefully take off the cover and lay it on a plain and steady ground.

The complete delivery set of the IP-Stile (Section 4.1) is packed in a transportation box, which keeps it undamaged during the transportation and storage.

Box overall dimensions (L×W×H) ..... 119×45×42 cm  
 Maximum gross weight of the boxed IP-Stile (standard delivery set)..... max 53 kg

## 7 SAFETY REQUIREMENTS

### 7.1 Installation safety

Proper installation is critical to performance and serviceability of the product. We strongly advise to thoroughly study this section before beginning the installation work as well as to observe general electrical and work safety rules during the installation.



#### **Attention!**

- All works should be carried out only when the power is off and power supply is disconnected from the mains.
- Use only serviceable tools.
- Be extra careful and cautious when mounting the housing before it is anchored to the floor; make sure the housing does not fall.
- Cables should be laid in accordance with electrical safety requirements.
- Check the installation and connections accuracy before the first power-up.

Power supply installation must be carried out according to safety requirements given in its documentation.

### 7.2 Safety during operation

Always observe general electrical safety rules when operating the product.



#### **Do not use!**

- When operation conditions do not conform to those given in the Section 2.
- When the supply voltage differs from that given in the Section 3.

The power supply operation should be carried out according to safety requirements in its documentation.

## 8 INSTALLATION INSTRUCTIONS

Follow the safety requirements during the installation (Section 7).

### 8.1 Installation details

Correct turnstile installation provides its functionality and lifetime. Please carefully study and follow the installation instructions.

**It is recommended:**

To mount the turnstile on steady and level concrete (grade 400 or higher), stone or similar foundations at least 150 mm thick.

To level the foundation so that the anchoring points of the turnstile lie in the same plane.

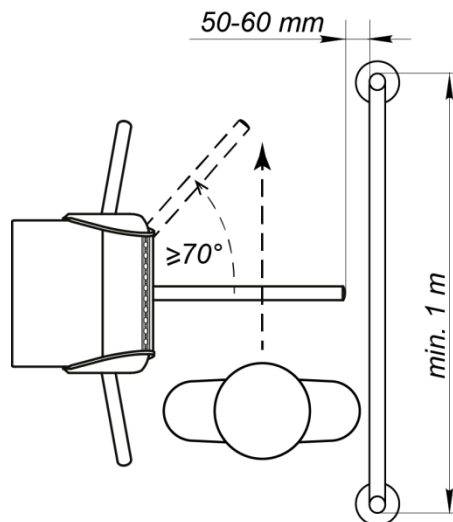
To apply reinforcing elements (400×400×300 mm) for installation on less steady foundation (frame foundation, for example).

**Passageway arrangement:**

To ensure accurate passage tracking, when the turnstile is operated from an ACS, it is recommended to create the passage area in such a way that the barrier arms should turn in the direction of movement at the angle no less than  $70^\circ$ .

The turnstile is equipped with the resetting device that operates as follows:

- when the barrier arm is turning at the angle of more than  $60^\circ \pm 5^\circ$  the reset is effected in the direction of movement and the turn of barrier arm to counter direction is not possible (blocking of reverse passage);
- when the barrier arm is turning at the angle less than  $60^\circ \pm 5^\circ$  the reset is effected in the counter to the movement direction (reset to home position).



**Figure 9. Passageway arrangement**

### 8.2 Installation tools



**Note:**

It is allowed to use other testing equipment and measuring tools provided the equipment in use ensures the required parameters and measurement accuracy

Use the following installation tools during the assembly:

- 1.2÷1.5 kW hammer drill;
- Ø16 mm hard-alloyed drill bits;

- Floor chaser for electric raceway;
- Flat slot screwdriver No.2;
- Cross-head screwdriver;
- Horn-type and socket wrenches: S17, S13 and S10;
- Allen key SW3;
- Set square 90°;
- Level;
- Measuring tape (2 m);
- Hard wire 1.5 m long for cable pulling;
- Slide caliper.

### 8.3 Cable lengths

Cables, applied at the installation are stated in Table 5.

**Table 5. Cables used during the installation**

No	Equipment connected to the IP-Stile controller	Maximum cable length, m	Cable type	Minimum cross-section, mm	Example of the cable
1	Ethernet (IEEE 802.3)	100	Four twisted pair cables Cat5	0.2	Belden 1868E 2×2×0.52 F/UTP2-Cat5e
2	<b>CL-201</b> lock controller. <b>AU-05</b> system time display.	1200 (total)	Twisted pair cable not less than Cat5		
3	Power supply	10	Twin wire	1.5	AWG 18; HO3VV-F 2×0.75 bi-colored
		30	Twin wire	2.5	AWG 16; HO5VV-F 2×1.5 bi-colored
4	- RC-button («Exit») - Door sensor (reed switch) - Fire Alarm - Additional equipment for controller inputs and outputs	30	Twin wire	0.2	RAMCRO SS22AF-T 2×0.22 CQR-2
5	RC-panel	40	8 triad cable	0.2	CQR CABS8 8×0.22c

Follow these instructions during cable laying:

- Communication line assembly is to correspond to the *EIA/TIA RS-422A/485* standard recommendations.
- Minimum cable laying distance from the EMI source is 50 cm.
- All cables can cross the power cable only at a right angle.
- Cable growth is to be performed with the reflow technique.
- All the IP-Stile controller cables are to be fixed with plastic cable ties to the adhesive platforms from the delivery set inside the IP-Stile housing.
- After laying the cables check their continuity and lack of short circuits.
- Grounding conductor shall not be laid together with the power cables, sensor, RC-panel and reader cables on the piece of land of more than 1 m.

**Note:**

The EMI is an undesirable effect of electromagnetic fields, interfering with the normal operation of the techniques or causing malfunction of the technical characteristics and the parameters of these techniques. The sources of electromagnetic interferences are:

- readers,
- AC line,
- electric generator,
- electric motor,
- AC relay;
- thyristor light regulator,
- PC displays,
- Computer and telephone signal communication lines.

## 8.4 Installation sequence

**Attention!**

The manufacturer will not accept liability for any damage resulting from improper installation and will dismiss any claims by the customer should the installation be not carried out in strict accordance with this Manual.

The terminal block position on the IP-Stile controller board is shown on Fig. 5, Terminal block layout is shown in Table 1. Types of cables are stated in Table 5. Follow this sequence during IP-Stile installation:

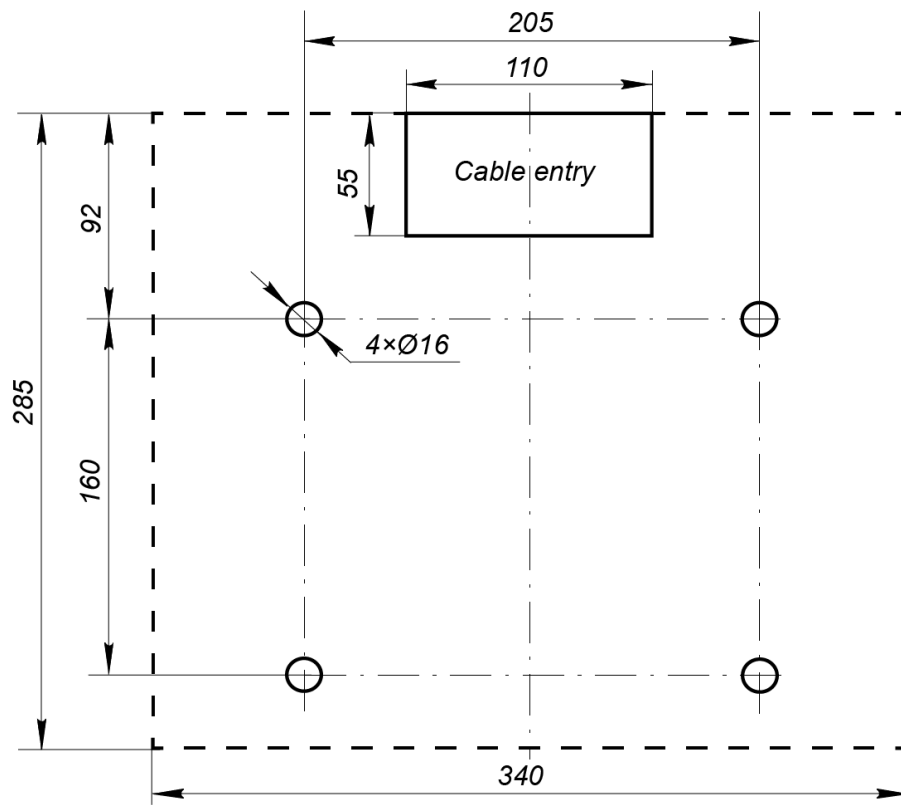
1. Unpack the box with equipment; check carefully the delivery set according to Section 4.
2. Mark and prepare mounting holes for anchor bolt sleeves on the installation surface according to Fig. 10.
3. Prepare the underfloor raceway matching the feed-through hole in the IP-Stile housing, in case it is needed (Fig. 10).
4. Insert the anchor bolt sleeves in the holes so that they do not project above the surface of the floor.
5. Mount the IP-Stile operational device on the surface designated for it according to its operational manual.
6. Remove the IP-Stile top cover (2). Top cover removal sequence is described in Section 6.
7. Remove the IP-Stile back cover (4, Fig. 12). In order to do so move it up along the turnstile housing until it is unengaged from the housing. The back panel is equipped with two pairs of engagement grips located on its upper and lower parts.
8. Remove the IP-Stile controller protective cover (1, Fig. 11), having unscrewed the 4 fixing bolts of the cover (3, Fig. 11).

**Attention!**

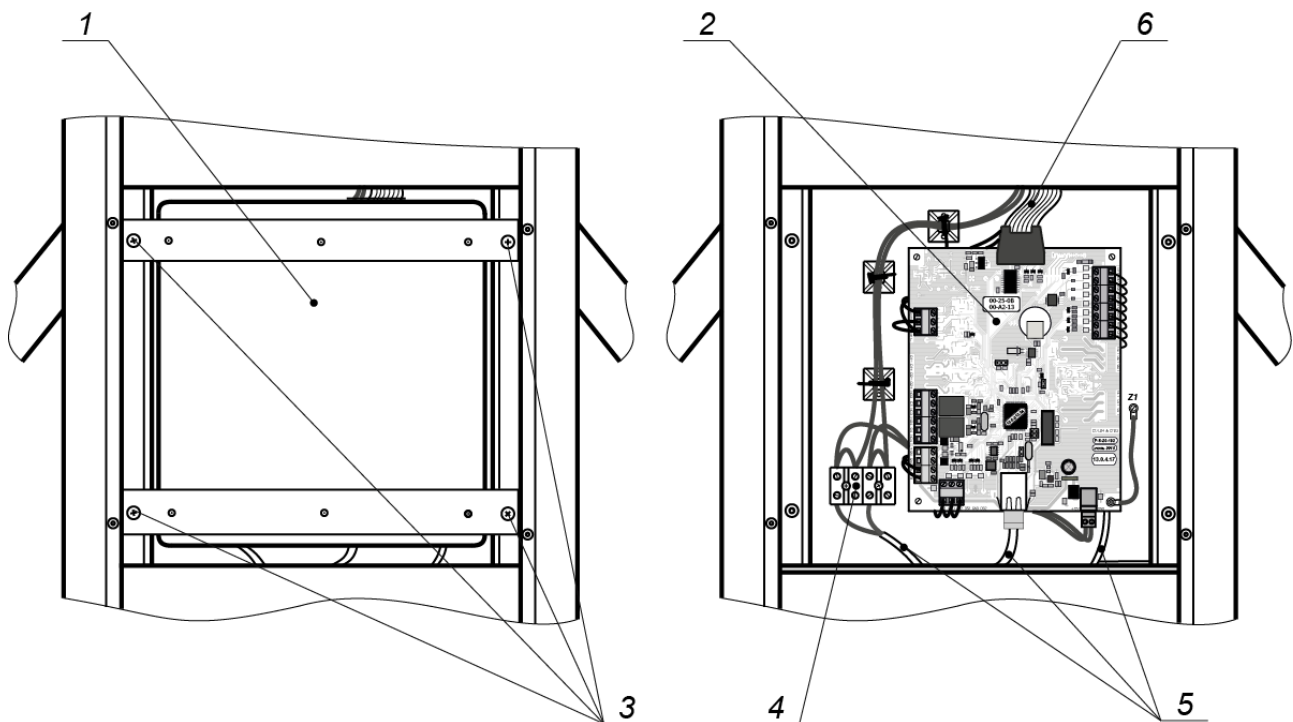
Fix the housing after laying the cables in the electric raceway and inside the turnstile housing. Be careful and prevent the turnstile from falling before it is fixed.

9. Lay the cables in the electric raceway and inside the IP-Stile housing.
10. Install the IP-Stile housing on anchor sleeves and fix it with M10 bolts using S17 socket wrench. Check the position of the housing with the level.
11. Install the plugs (16) from the delivery set.
12. According to the layout depicted on Fig. 13, make the following connections:
  - Power cable (8) to **X1** remote terminal block **X1** (4, Fig. 11), located by the IP-Stile controller board;
  - *Ethernet* cables (9)– to **S** terminal block of the IP-Stile controller;
  - RC panel cables (13) – to **XT2** terminal block of the IP-Stile controller;
  - Other cables from the supplementary devices to the according terminal blocks.





**Figure 10. Floor anchor position and cable entries for housing installation (turnstile housing is dotted).**

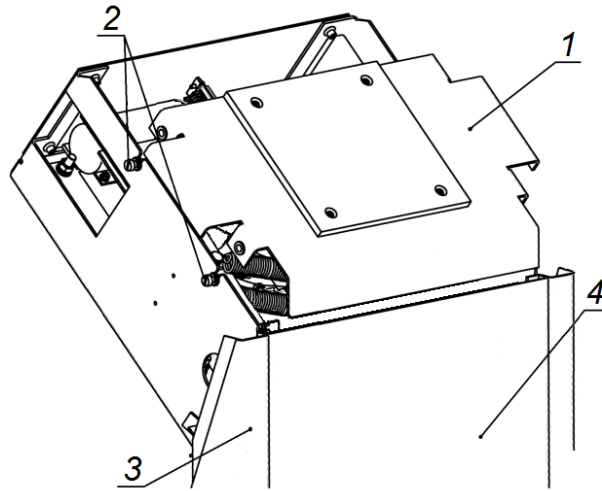


*Turnstile overview with the top cover removed*

**Figure 11. IP-Stile controller top cover removal**

- 1 – IP-Stile controller protective cover; 2 – IP-Stile controller;
- 3 – M3×8 DIN 7985 screws; 4 – **X1** remote terminal block;
- 5 – IP-Stile external connection cables;
- 6 – IP-Stile internal connection cables.

13. Perform the IP-Stile housing grounding. Ground contact Z3 is located on the housing base.
14. Choose the IP-Stile configuration variant. If required, install the jumper on the IP-Stile controller board according to Section 4.
15. Choose the IP-Stile representation. If required, install the jumper on the IP-Stile controller board according to Section 4.



**Figure 12. IP-Stile post with a removed top cover**

1 – reinforcement plate; 2 – fixing screws of reinforcement plate;  
3 – IP-Stile housing; 4 – IP-Stile back panel

16. Check serviceability and accuracy of all the electrical connections. Fasten all the cables in two points to the hole in the turnstile housing horizontal plane, using hook and loop cable ties.
17. Install the IP-Stile controller protective cover (1, Fig. 11) in a revert order.
18. Install the IP-Stile back cover in a revert order.
19. Install the IP-Stile cover with indication module in a revert order without applying much effort. Connect the **S1** cable output from IP-Stile cover to the housing output. Fix the top cover with the mounting bolts.
20. Install the hub (5) with the barrier arms (3) as follows:
  - Insert the hub into a corresponding mounting face on the IP-Stile mechanism shaft.
  - Fix the hub with hub fastening bolts (6), inserting a split washer under each bolt-head. Tightening provides solid hub fixation regarding the turnstile mechanism shaft (without gaps and mismatches).



**Attention!**

For proper hub installation before the final tightening of the bolts, barrier arm is to be shifted into a horizontal position and a 90° degree angle in the horizontal position between the barrier arm and the turnstile housing is to be set with a square.

Run a test switch of the turnstile as specified in Section 9.

## 8.5 IP-Stile and Additional Equipment Connection Layout

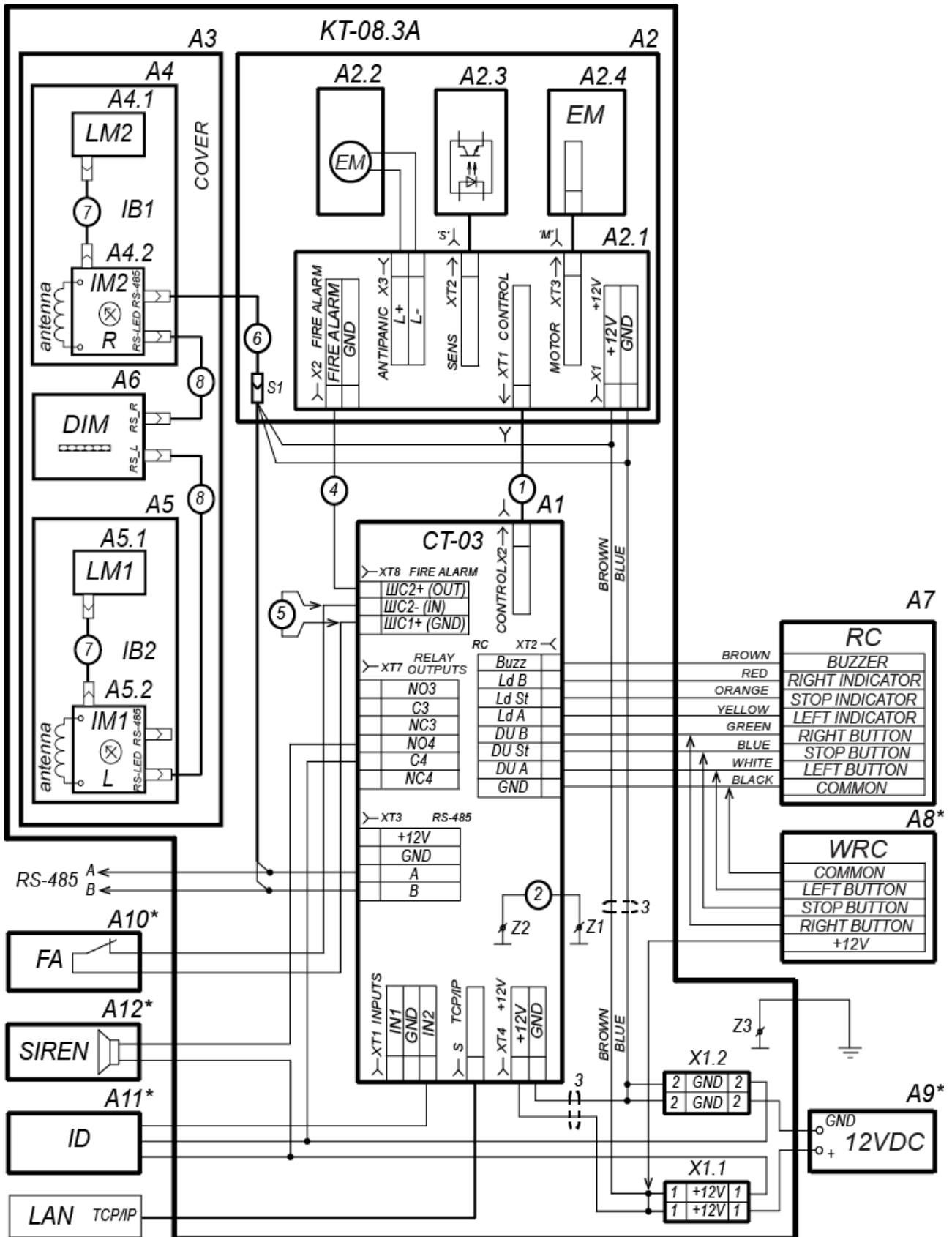


Figure 13. IP-Stile and additional equipment connection layout<sup>1</sup>

<sup>1</sup> Additional equipment is stated in Table 6. Equipment, marked with a star (\*), is not included in the IP-Stile standard delivery set.

**Table 6. The components list of the connection layout for IP-Stile and optional equipment**

Legend	Item	Qty
A1	<b>CT03</b> built-in controller of the IP-Stile	1
A2	IP-Stile control mechanism	1
A2.1	<b>PB.100.00</b> commutation board	1
A2.2	Electromagnetic mechanism of the automatic anti-panic function	1
A2.3	Turning angle sensor unit	1
A2.4	Electric motors module	1
A3	IP-Stile cover	1
A4, A5	Indication modules	2
A4.1, A5.1	Indication boards for passage denial \ grant (indication board)	2
A4.2, A5.2	“Hand with a card” indicators illumination boards (illumination boards)	2
A6	LED indication «running line» board	1
A7	RC panel	1
A8 <sup>1</sup>	Wireless remote control	1
A9 <sup>1</sup>	External power supply	1
A10 <sup>1</sup>	Emergency unblocking device ( <i>Fire Alarm</i> )	1
A11 <sup>1</sup>	Intrusion detector	1
A12 <sup>1</sup>	Siren	1
X1	«Klemsan» PSK1/12 (4 contacts) terminal block	1
Z1, Z3	IP-Stile housing grounding bolts	2
Z2	Controller grounding contact	1
1	«Controller – control mechanism» connection cable	1
2	IP-Stile controller grounding cable	1
3	Controller power cables and control mechanism cables	2
4	«Controller – <i>FireAlarm</i> mechanism» connecting cable	1
5	Wire jumper, installed in case the <i>Fire Alarm</i> (A10) is not connected. Installed upon delivery.	1
6	«S1 output – IP-Stile cover» connection cable	1
7	«Indication board – illumination board» connection cables	2
8	«Indication board – LED indication “running line” board» connection cables	2

<sup>1</sup> Is not included in standard delivery set.

## 9 OPERATION INSTRUCTIONS

Operating the device observe safety requirements described in Section 7.



### **Attention!**

- Do not move through the IP-Stile passage area any objects with dimensions exceeding the width of the passageway.
- Do not jerk and hit any elements of the IP-Stile in order to prevent their mechanical deformation.
- Do not dismantle or adjust mechanisms ensuring operation of the IP-Stile.
- Do not use substances that may cause mechanical damage or corrosion of the surfaces for cleaning the IP-Stile.

### 9.1 IP-Stile power-up

At IP-Stile power-up follow this sequence of actions:

1. Connect the power supply to the mains with electric parameters as per its documentation. Turn the power on.



### **Attention!**

When the controller configuration is changed with the jumpers, the controller internal memory is automatically formatted. This procedure lasts for about 2 minutes. After that the IP-Stile configuration should be transmitted to the controller by the Soft or Web-interface.

2. At first powering “Control” ACM is set for both directions. “Red cross” and “hand with a card” indicators lighten on the IP-Stile indication module, red «Stop» indicator on the RC-panel is ON. LED “running line” indication lightens with red. If the formatting has not been performed, the ACM and the indication, set for each passage direction before power failure, is saved.
3. Lift up the barrier arm. It will be fixed automatically.
4. The IP-Stile is ready for operation right after the power-up. The operator can send command for locking/unlocking of both passages from the RC-panel. In order to arrange passage with proximity cards the additional configuration is to be used (Section 8.2).

### 9.2 Configuration

The IP-Stile can be operated right after the installation performance and the power-up, without any additional configuration. At that the access control through IP-Stile is performed by the operator with the RC-panel, which is included in the standard delivery set, or with an optional WRC (Section 6).

In order to provide access with proximity cards, send the cards identifiers to the IP-Stile controller memory. This can be performed from the PC, connected to the IP-Stile or through the Ethernet.

To connect to the IP-Stile controller through the Ethernet network, make sure the PC is in one subnet with the controller.

At the production stage the controller is assigned a unique physical address (MAC-address) and IP-address (given in the label of the processor microchip), the subnet mask (255.0.0.0) and IP-address of the gateway (10.x.x.x). The IP-Stile controller is to be connected to the same network segment or to the network card slot of the PC.

Controller settings can be managed from the PC or through the Web-interface.



**Note:**

Software and Web-interface operation documentation is available on our web-site [www.perco.ru](http://www.perco.ru) at section **Support > Documentation**.

IP-Stile configuration, sending of proximity cards list and ACM change can be performed through controller Web-interface or using the following Software, previously installed on the PC:

- **SL-01 local software** (no license required);
- **SL-02 local software with verification**;
- **PERCo-Web networking software**;

At sending control commands simultaneously from several devices, they will be processed in the following order:

- Command from IP-Stile reader,
- Command from the Software or Web-interface,
- Operator command from the RC-panel or from the WRC.

### 9.3 IP-Stile control orders from the RC-panel



**Attention!**

Set the “Control” ACM to operate the IP-Stile from the RC-panel or the WRC.

The passage directions are independent of each other, i.e. setting an operating mode in one direction will not change an already set operating mode to another.

Operating modes setting by the RC-panel / WRC and the corresponding indication is given in Table 7. Please kindly note that:

- At first powering the «Control» ACM is set for both directions. Both passage directions are blocked.
- For «Single passage in the set direction» mode. IP-Stile locks automatically after passage completion in the set direction or in case the passage has not been completed within the **Holding in unlocked state time**. The initial setting of this timing is 4 seconds and it does not depend on the control impulse length. The time of holding in unlocked state is counted from the moment when the command from the RC-panel or the WRC is received.
- The «Single passage in the set direction» mode can be changed to «Free passage in the set direction» or «Always locked» mode.
- The «Free passage in the set direction» can be changed only to «Always locked» mode.
- For «Bidirectional single passage». After the passage completion in one direction the **Holding in unlocked state time** countdown for another direction begins.

**Table 7. IP-Stile control commands**

Command	Sequence of buttons to push	Indication		IP-Stile status
		RC panel	IP-Stile housing	
«Always locked»	Press the <b>STOP</b> button shortly	The red indicator is ON	«Red cross» and «hand with a card» indicators are ON for both directions. LED indication «running line» lightens with red.	IP-Stile is locked for both directions
«Single passage in the set direction»	Press shortly <b>LEFT</b> / <b>RIGHT</b> button for the set direction.	Green indicator of the set «Left»/«Right» direction is ON	«Green arrow» indicator is ON for the set direction, «red cross» indicator and «hand with a card» indicator is ON for the opposite direction. LED indication «running line» lightens in the authorized direction.	IP-Stile gets unlocked for the single passage in the set direction. After that the IP-Stile gets locked. The opposite direction remains locked.
«Bidirectional single passage»	Press both <b>LEFT</b> and <b>RIGHT</b> buttons simultaneously	Both green indicators «Left» and «Right» are ON	«Green arrow» indicators are ON for both directions. LED indication «running line» lightens in green. After the passage completion in both directions «red cross» and «hand with a card» lighten in the corresponding direction. After passage completion in both directions LED indication «running line» lightens in red.	IP-Stile gets unlocked for a single passage in both direction. After this the IP-Stile gets locked for each passage accordingly.
«Free passage in the set direction»	Press shortly <b>STOP</b> and <b>LEFT</b> / <b>RIGHT</b> button for the corresponding direction	Green «Left»/«Right» indicator of the set direction is ON	«Green arrow» indicator is ON for the set direction, «red cross» indicator and «hand with a card» indicator are ON for the opposite direction. LED indication «running line» lightens in green.	IP-Stile is unlocked for the free passage in one direction. The opposite direction remains locked.
«Free passage in the set direction and a single passage in the opposite direction»	Install «Free passage in the set direction» mode for one direction and «Single passage in the set direction» for another	Both green indicators are ON	«Green arrow» indicators are ON for both directions. LED indicator «running line» lightens in green. After the single passage completion in the set direction, indicators «red cross» and «hand with a card» are ON.	IP-Stile is unlocked for free passage in one of the directions. IP-Stile is unlocked for a single passage in another direction. After that the IP-Stile gets locked.
«Free passage in both directions»	Press shortly <b>LEFT</b> , <b>STOP</b> and <b>RIGHT</b> buttons.	Two green indicators «Left» and «Right» are ON simultaneously.	«Green arrow» indicator is ON for both directions. LED indication «running line» lightens in green.	IP-Stile is unlocked for free passage in both directions.

## 9.4 Operation as a part of an ACS

ACS is changed by command from Software or from the Web-interface for each passage direction. A more detailed description of ACS is stated in *Operation Manual* of the ACS subsystem. Controller, as an ACS element, provides the following ACM through the OD (ACM indication is stated in Table 8):

ACM «Open» – free passage mode:

- IP-Stile is unlocked until the ACM change.
- Pressing the RC-panel buttons (RC-button «Exit» for **CL-201** second level controllers) is ignored.

ACM «Control» – main operation mode as a part of ACS:

- IP-Stile is blocked.
- If the presented card matches the criteria of access granting, the IP-Stile is unlocked for **Holding in unlocked state time**.
- When presenting the card, in accordance with the admission rights, commissioning and verification procedures can get started.

ACM «Closed» – locked mode:

- IP-Stile is locked until the ACM change.
- RC-panel and remote control commands are ignored.
- Any card presentation is registered as the access violation.

ACM «Security» (for **CL-201** second level controllers only):

- IP-Stile is locked until the ACM change.
- RC-panel and remote control commands («Exit») are ignored
- Arming mode, including the turnstile (lock).
- Passage through the IP-Stile (forced entry) turns the protected zone into «Alarm» mode.

## 9.5 Access control mode, controller events and states indication

Possible indication variants are stated in Table 8. IP-Stile controller indication is displayed on the indication blocks.

**Table 8. IP Stile indication**

Card presentation	ACM	Indicators				
		Green arrow	Red cross	Running line	Hand with a card	Sound (sec.)
No configuration	No	2Hz (sequential)		2Hz	blinks	off
<i>FireAlarm</i> mode (emergency passage opening)	Any	on	off	green	off	off
No	«Open»	on	off	green	off	off
	«Control»	off	on	red	on	off
	«Closed»	off	on	red	off	off
Access denied	«Open»	on	off	green	off	0.2
	«Control»	off	on	red	off	0.5
Any card	«Closed»					
Access granted	«Open»	on	off	green	off	0.2
	«Control»					
Waiting for verification/ commissioning	«Control»	2Hz (sequential)		2Hz	off	off




**Note:**

- When reading the proximity card identifier in any ACM, the audio signal of 0.2 sec. is sent, «hand with a card» indicator changes its status for 0.2 sec. Other indicators do not change their status.
- Red and green blink in antiphase. When blinking, «the running» line color will correspond to the color of the indicator (arrow/cross).
- If the access with the proximity card is granted, the light indication is turned to **Holding in unlocked state time** or until the moment of the next passage. If the access is banned, the indication turns on for 1 second.

Possible variants of **CL-201** second level controller indication are stated in Table 9. Indication is displayed by light indicators, located on the housing front end.

**Table 9. CL-201 controller Indication**

Card presentation		ACM	Indicators			
			Green	Yellow	Red	Sound
No configuration		No	5 Hz	5 Hz	5 Hz	off
No		«Open»	on	off	off	off
		«Control»	off	on	off	off
		«Arming»	off	1 Hz	1Hz	off
		«Closed»	off	off	on	off
Access denied		«Open»	on	off	off	0.2 sec
		«Control»	off	off	on	0.5 sec
		«Arming»				
Any card		«Closed»				
Access granted		«Open»	on	off	off	0.2 sec
		«Control»				
		«Arming»	off	off	on	0.5 sec
Card has the arming / disarming right		«Open»	on	off	off	0.2 sec
		«Control»				
		«Arming» <sup>1</sup>				
Repeated card presentation with arming/disarming authorization	Arming (turn to «Security» ACM)	«Arming»	off	1 Hz	1Hz	0.2 sec
	Non-arming <sup>2</sup> (up to the return to initial ACM)	«Open»	off	off	1sec	1 sec
		«Control»				
Waiting for verification/ commissioning		Any	off	1 Hz	off	0.2 sec


**Note:**

- When reading the proximity card identifier in any ACM, the audio signal of 0.2 sec. is sent, yellow light indicator changes its status for 0.2 sec. Other indicators do not change their status.
- If the access with the proximity card is granted, light indication turns ON for **Holding in unlocked state time** or until the passage completion. If the access is banned, the indication turns on for 1 second.

<sup>1</sup> Presenting the card with disarming authorization in the «Security» ACM, the following operations happen: protected zone disarming and ACS-controller unlocking for the **Holding in unlocked state time**. After this period of time ACS-controller turns to the ACM, set before the protected zone arming («Open» or «Control»).

<sup>2</sup> Light and audio indication turns on for 1 sec.

## 10 EMERGENCY ACTIONS



### **Attention!**

For a fast safe escape from the facilities in case of fire, natural disaster or other emergencies, an emergency exit is often required. Such an exit can be arranged by means of the **BH-02** anti-panic hinged sections.

The additional emergency exit can be provided by the IP-Stile passage area. Construction of the IP-Stile enables immediate clear of passageway without use of any special keys or tools. By putting the *Fire Alarm* signal to turnstile logic board the barrier arm automatically falls down allowing the free exit. The arm also drops down automatically at a power supply loss.

## 11 TROUBLESHOOTING

Possible faults to be corrected by the customer themselves are given below. Contact the manufacturer if other fault or malfunction occurs. In order to perform the diagnostics, remove the IP-Stile top cover (3) in accordance with Section 5.

### 11.1 IP-Stile controller is not working

Testing of the relay outputs is assisted by test of the LEDs beside each of the relays. Activation / release of the relay is evident by the LEDs going on/ off.

Possible causes of the controller malfunction are as follows:

- Power supply malfunction – check the power supply.
- Loosen cable fixing in the connector blocks on the controller board – tighten the cable fixing bolt with a screwdriver.
- Faulty radio components on the controller board – the controller needs repair at the manufacturer's site.

Possible causes of malfunction of the equipment, connected to controller outputs:

- Loosen cable fixing in the connector blocks on the controller board – tighten the cable fixing bolt with a screwdriver.
- Faulty controller connection lines of other devices (readers, IP-Stile housing, remote control panel, WRC, siren, etc.) – make sure the connection lines are operable.
- Malfunction of the devices connected to the controller – make sure the connected devices are faultless.

### 11.2 IP-Stile controller is not recognized by the PC

Faults related to LAN equipment between the PC and the controller (the hub, the switch and other network apparatus including the communication cables) can be determined by running the command ping 10.x.x.x (where 10.x.x.x is IP-address of the controller), where 10.x.x.x is an IP-address of the IP-Stile controller (is given in the IP-Stile certificate and on the controller board). If this command fails, the fault must relate to either the network settings or the connecting LAN apparatus including the communication cables or to the controller.

Faults related to the controller (malfunction of the elements providing connection through the Ethernet interface (IEEE 802.3)). To determine this fault, observe operation of two indicators near LAN connection point (to do so, remove the IP-Stile cover): LINK – connection evidence (green indicator on – the controller recognizes LAN connection, green indicator is off – the controller does not recognize LAN connection); ACT– data exchange evidence (the red indicator blinking – the controller recognizes data exchange through LAN, the red indicator off – the controller does not recognize data exchange through LAN). If the controller does not recognize LAN connection, connect it to the cable of another controller or a PC. If the controller still does not recognize LAN connection, the controller is faulty and must be sent for repair.

## 12 MAINTENANCE

Normally, only yearly operational maintenance is required. In an unlikely event of malfunction, maintenance should be carried out upon fault elimination. Maintenance must be undertaken only by a qualified technician well acquainted with this Manual.

The IP-Stile maintenance works should be carried out in the following order:

1. Switch off the IP-Stile power supply. The barrier arm will automatically fall down at that.
2. Unscrew 3 M8 screws to remove the hub with the barrier arms.
3. Lubricate the friction units of the barrier arm drop mechanism (automatic folding of barrier arm “anti-panic”) and barrier arms hinged connections to the hub with the machine oil.
4. Remove the cover (3) with LED indication block from the IP-Stile housing (the order is given in Chapter 5) and place it on an even surface.
5. Remove the reinforcement plate (1, Fig. 12). In order to do this, loosen 4 screws, which are fixing the plate (2, Fig. 12).
6. Check the resetting mechanism (pusher, springs and roller), optical sensors of the barrier arms rotation sensors and the damping device (Fig. 14).



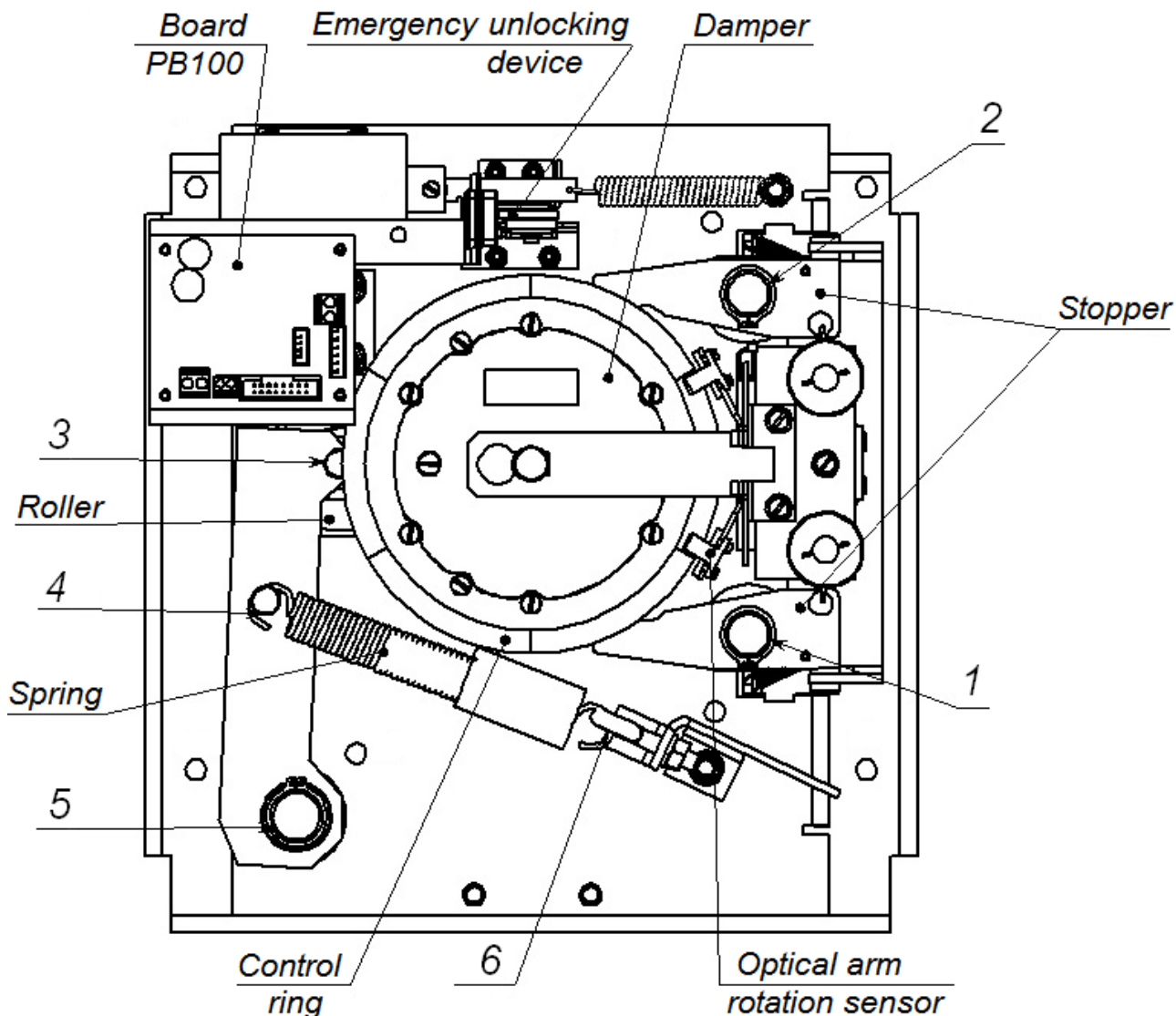
### **Attention!**

Avoid the ingress of lubricant on the arm rotation sensor disc and the roller surfaces.

7. Remove dust from the arm rotation sensor disc, located in the spacing of the arm rotation optical sensors, with alcohol-gasoline blend applied with a cloth. Avoid the ingress of dust on the operational spacing of both arm rotation optical sensors.
8. Lubricate friction joints of the IP-Stile mechanism in the following points:
  - with **Chain and Rope Lube Spray - WEICON** lubricate the rotation axis of the pusher arm (5, Fig. 14) roller and stoppers (1, 2, 3, 5, Fig. 14);
  - with **Chain and Rope Lube Spray- WEICON** lubricate passageway emergency unlocking mechanism details and the IP-Stile housing plugs lock cylinders (from the keyhole side);
  - with **Energrease L21 M** or similar lubricant treat the resetting mechanism springs fixing points (6, 4, Fig. 14),
9. Remove the IP-Stile back plate. In order to do this, move it up along the housing until it jumps out of mesh with the housing. The back plate features two pairs of meshes, located in its upper and lower parts.
10. Unscrew 4 screws fixing the IP-Stile housing cover and remove the IP-Stile controller protective cover.
11. Check the reliability of the cable connections to the **X1** external terminal block and to the IP-Stile controller terminal blocks. If necessary, tighten the cable fixing screws.
12. Turn the barrier arms (4) fixing element in the hub hinged joints and if needed, tighten the fastening screws.
13. Check the tightening of 4 anchor bolts, fixing IP-Stile housing to the floor and, in case needed, tighten them.

14. Install the following components in reverse order: controller protective cover, housing back panel, reinforcing and IP-Stile cover.
15. Install the hub with barrier arms in the reverse order.
16. Power-up the IP-Stile as per Section 9.
17. Check the IP-Stile operability as per Table 7.

After completion of maintenance work and testing, IP-Stile is available for further use.



**Figure 14. Arrangement of the components inside the IP-Stile housing**

If during the operational maintenance some IP-Stile components are found defective, or after the expiration of the warranty period (ref. IP-Stile Certificate), we recommend to contact PERCo for advice and closer inspection of IP-Stile components.

## **13 TRANSPORTATION AND STORAGE**

IP-Stile in the original package should be transported in closed freight containers or other closed type cargo transport units.

During storage and transportation the boxes can be stacked no more than 3 layers high.

The storage of the product is allowed indoors at ambient temperature from  $-20^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  and relative air humidity up to 80% at  $+25^{\circ}\text{C}$ .

After transportation or storage at temperatures below zero or in high air humidity, prior to the installation the product must be kept unpacked for no less than 24 hours indoors in the climate conditions as per given in section 2.

## APPENDIX. Algorithm of control signals generation



### Note:

The command is the active front of the signal at any of the contacts, while the corresponding signal levels are present at the other contacts. Active front of the signal is a switch of a high-level signal to a low-level signal.

For RC-panel: active front is pushing of a corresponding button on the RC-panel, low level is pushing and holding the corresponding button on the RC-panel; high level is generated when the corresponding button on the RC-panel is not pushed.

During standalone control of signal generation at the corresponding contact of **XT2** (*DUA*, *DUS<sub>t</sub>* and *DUB*) terminal block by the low level signal regarding *GND* contact, the following IP-Stile control commands can be formed:

«*Always locked*» (IP-Stile is locked in both directions) – active front on *DUS<sub>t</sub>* contact at high level on *DUA* and *DUB* contacts. This command closes both directions.

«*Single passage in A direction*» (IP-Stile is open for passage of one person in A direction) – active front on *DUA* contact at high level on *DUS<sub>t</sub>*, *DUB* contacts. This command opens the A direction either for the passage waiting time, or until the passage in this direction is completed, or until the «*Always locked*» command is given, while the direction B mode remains unchanged. The command is ignored if at the moment of its receipt the direction A is in the «*Free passage*» mode.

«*Single passage in B direction*» (IP-Stile is open for passage of one person in B direction) – active front on *DUB* contact at high level on *DUS<sub>t</sub>*, *DUA* contacts. This command opens B direction either for the passage waiting time, or until the passage in this direction is completed, or until the «*Always locked*» command is given, while the direction A mode remains unchanged. The command is ignored if at the moment of its receipt the direction B is in the «*Free passage*» mode.

«*Bidirectional single passage*» (IP-Stile is open for one passage in each direction) – active front on *DUA* contact at low level on *DUB* contact and high level at *DUS<sub>t</sub>* contact. This command opens both directions, each for the passage waiting time or until the passage in this direction is completed, or until the «*Always locked*» command is given. The command is ignored for the direction which at the moment of its receipt is the «*Free passage*» mode.

«*Free passage in A direction*» (IP-Stile is open for free passage in A direction) – active front on *DUA* contact with the low signal level on *DUS<sub>t</sub>* contact and a high level on *DUB* contact, or an active front on *DUS<sub>t</sub>* contact at low level on *DUA* contact and a high level on *DUB* contact. This command opens A direction until the «*Always locked*» command, while the direction B remains unchanged.

«*Free passage in B direction*» (IP-Stile is open for free passage in B direction) – active front on *DUB* contact at low level on *DUS<sub>t</sub>* contact and a high level on *DUA* contact or an active front on *DUS<sub>t</sub>* contact at low level on *DUB* contact and a high level on *DUA* contact. This command opens the B direction until the command «*Always locked*» is given while the direction A remains unchanged.

«*Free passage*» (IP-Stile is open for free passage in both directions) – active front on *DUA* contact at low level on *DUB*, *DUS<sub>t</sub>* contacts and active front on *DUB* contact at low level on *DUA*, *DUS<sub>t</sub>* contacts or active front on *DUS<sub>t</sub>* contact at low level on *DUA*, *DUB* contacts. This command opens both directions until the command «*Always locked*» is given.





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