IP-Stile

KT-02.9

OPERATION MANUAL

$C\epsilon$ EAC

KT-02.9

IP-Stile

Assembly & Operation Manual

CONTENTS

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.

This **KT-02.9 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 to this Manual.

Abbreviations adopted in the Manual:

AL – alarm line;
ACM – access control mode;
ACS – access control system;
EVD – external verifying device;
ID – intrusion detector;
IM – indication module;
LAN – local area network;
PC – personal computer;
PS – power supply;
RC-panel – remote control panel;
WRC – wireless remote control.

1 APPLICATION

KT-02.9 IP-Stile (hereinafter – *the 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** access control system (hereinafter – ACS). Access control through IP-Stile is performed by an operator with RC-panel, which is included in standard delivery set, or with the use of the following as employees (visitors) identifiers:

• Proximity cards or transponders of the HID / EM-Marin standards with an operating frequency of 125 kHz (with reading a unique UID);
• Proximity cards or transponders (ISO/IEC 14443 A) of the MIFARE standard (ID, Classic, Plus, Ultralight, DESFire) reading:
  – Unique identifier (UID) from a card or transponder, default settings;
  – Crypto-protected data from the internal memory of the card or transponder (for higher security level, herewith additional programming of the readers and user cards is required).
• Android smartphones with NFC function with a unique identifier (IMSI) reader, attached to phone's SIM-card (installation and launch of free "**PERCo. Access**" application is required), default settings;
• Apple smartphones with NFC function with a unique identifier (Token) reader, attached to a credit card if several credit cards are attached, the Token of the currently active card is scanned), default settings.

All the 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.

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

IP-Stile, with regard to resistance to environmental exposure, conforms to category NF4 (operation in premises with climate control) according to GOST 15150-69.

IP-Stile operation is allowed at ambient temperature from +1°C to +50°C and relative air humidity up to 80% at +25°C.

3   TECHNICAL SPECIFICATIONS

Operating voltage .... 12±1.2 V
Consumption current .... max. 0.8 A[1]
Maximum power consumption .... max. 10 W
Throughput capacity in single passage mode .... 30 persons / min
Throughput capacity in free passage mode .... 60 persons / min
Passageway width .... 500 mm
Maximum barrier arm rotation force .... max. 3.5 kgf
Number of readers 2
Type of access cards used .... *HID, EM-MARIN, MIFARE*
Supported *MIFARE* access cards standards:

  MIFARE Ultralight (48 byte),   *MIFARE Ultralight EV1* (48 byte, 128 byte),
  MIFARE Ultralight C (144 byte),   *MIFARE ID* (64 byte),   *MIFARE Classic 1K*,
  MIFARE Classic 4K,   *MIFARE Plus* (*X*, *S*, *SE*),   *MIFARE DESFire Ev1*

Ability to read IMSI from smartphone with Android OS with NFC function .... yes[2]
Ability to read Token from Apple smartphone with NFC function .... yes[3]
Interface with built-in readers RS-485
Minimum card reading distance at the nominal operating voltage:

  HID, EMM cards .... 5 – 7 cm
  MIFARE cards, smartphones with *NFC* function .... 2 - 6 cm[4]

Number of users (access cards) .... from 10,000 up to 50,000
Event memory capacity.. from 230,000 up to 870,000

> ### Note:
> Possible options for allocating memory (see Appendix 4, Clause 3.4):
> - 50,000 cards and 230,000 events – set by default,
> - 40,000 cards and 390,000 events,
> - 30,000 cards and 550,000 events,
> - 20,000 cards and 710,000 events,
> - 10,000 cards and 870,000 events.

Number of commissioning cards[5] .... limited by the number of users
Number of built-in controller additional inputs.. 5
Number of built-in controller additional outputs.. 4
Communication interface standard .... *Ethernet (IEEE 802.3)*
Remote control panel cable length .... min. 14 m[6]
Ingress Protection Rating...IP41 (EN 60529)
Electric shock protection class .... III (IEC 61140)
Mean time to failure .... 4,000,000 passages
Mean lifetime .... 8 years
Web-interface .... there's
Overall dimensions with barrier arms (L×W×H) .... 640×683×1040 mm
Maximum net weight .... max 35 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*.

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[1] It is recommended to use 12 VDC power supply with linear stabilization of voltage and pulsation amplitude at output not exceeding 50 mV.
[2] Requires installation and launch "**PERCo. Access** " application on the smartphone (free).
[3] Token is read from the bank card which is currently active on the smartphone.
[4] Depends on card type (smartphone type).
[5] Using **PERCo-Web** software.
[6] Maximum allowable length of RC-panel cable is 40 m.

4 DELIVERY SET

4.1 Standard delivery set

Basic equipment:

IP-Stile housing with the **CT-03.2** controller board installed 1

Barrier arm 3

ℹ️ *Note:*

> The barrier arms are itemized separately in the price list, type chosen by the Customer at the time of order. There are two types of barrier arms: «Standard» – **AS-01**; «Anti-panic» – **AA-01**.

Key to housing top cover lock 2

Mechanical release key 2

Remote control panel with cable 1

Jumper 1

Mounting hardware:

Self-adhesive cable tie mount 3

Hook and loop cable tie 100 mm 6

Insulation bushing 2

Plug Ø 30 mm 5

Spare parts:

Plug Ø 30 mm 1

Operational documentation:

Certificate 1

Assembly & Operation Manual 1

User Guide 1

Package:

Transportation box 1

4.2 Optional software, devices and mounting hardware

Software:

Software **PERCo** (DVD) 1

Optional devices[1]:

Power supply unit 1

PoE-splitter[2] 1

Intrusion detector.. 1

Siren 1

Wireless remote control [3] 1

AU-05 system time panel.. 1

Optional mounting hardware:

PFG IR 10-15 anchor bolts (by SORMAT, Finland) 4

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

[2] *PoE-splitter* – allows energizing the IP-Stile via *Ethernet* network. Splitter may be used along with network commutators that support the technology of energizing via PoE twisted pair and compatible with *IEEE 802.3af* standard.

[3] WRC kit consists of a receiver and transmitters (tags) with operation range up to 40 m.
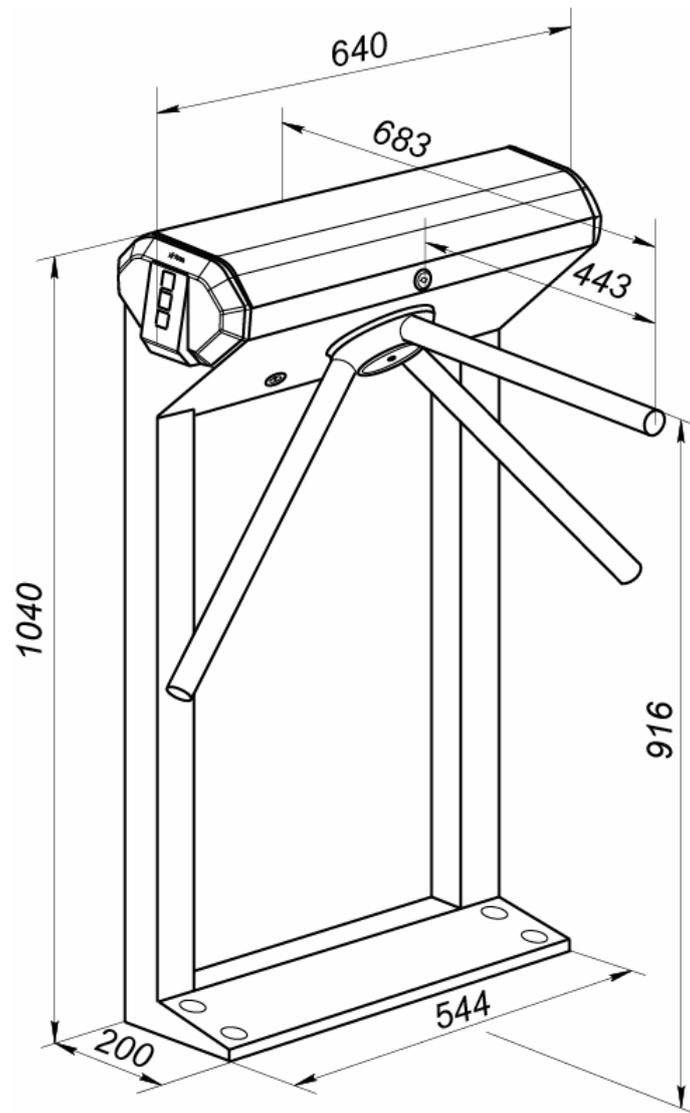
Figure 1. IP-Stile overall dimensions

5 DESIGN AND OPERATION

5.1 Main features

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

- IP-Stile can operate as a part of **PERCo-Web** system. In this case the access control is performed with the *HID*, *EM-Marin* and *MIFARE* proximity cards or smartphones with NFC-technology.

- In order to reduce the chance of unauthorized access using the standard identification method, scanning a unique identifier from a *MIFARE* card, it is stipulated a crypto-protected identification information (ID) from the internal memory of the card after appropriate programming of the IP-Stile readers (using a master card) and user cards. The programming of the master card and user cards is performed with the help of control reader in the software systems **PERCo-Web** and is listed in the descriptions of the corresponding software modules.

- IP-Stile provides:
    o operation in ACM: *«Open»*, *«Control»*, *«Closed»*;
    o saving the set ACM in the nonvolatile memory for keeping the ACM from changes in case of power failure;
    o 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.

- IP-Stile has a connection option of extra equipment: emergency unlocking device (*Fire Alarm*), EVD, ID, siren, etc., and by *RS-485* interface the **AU-05** system time panel.

- 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.

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

- The IP-Stile has low power consumption, not exceeding 10 W.

- 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 built-in mechanical release lock ensures safe emergency unlocking with a key providing free rotation of the barrier arms.

- Installed in a line several IP-Stiles form a secured passageway without installation of extra guide barriers.

5.2 IP-Stile design

The IP-Stile design is given in Figure 2, the numbers of the parts in the Manual being designated accordingly. The overall dimensions are given in Figure 1. IP-Stile consists of housing with an built-in controller and two readers, three barrier arms and a RC-panel (ref. Figure 2, parts 1-3, 5 and 9).
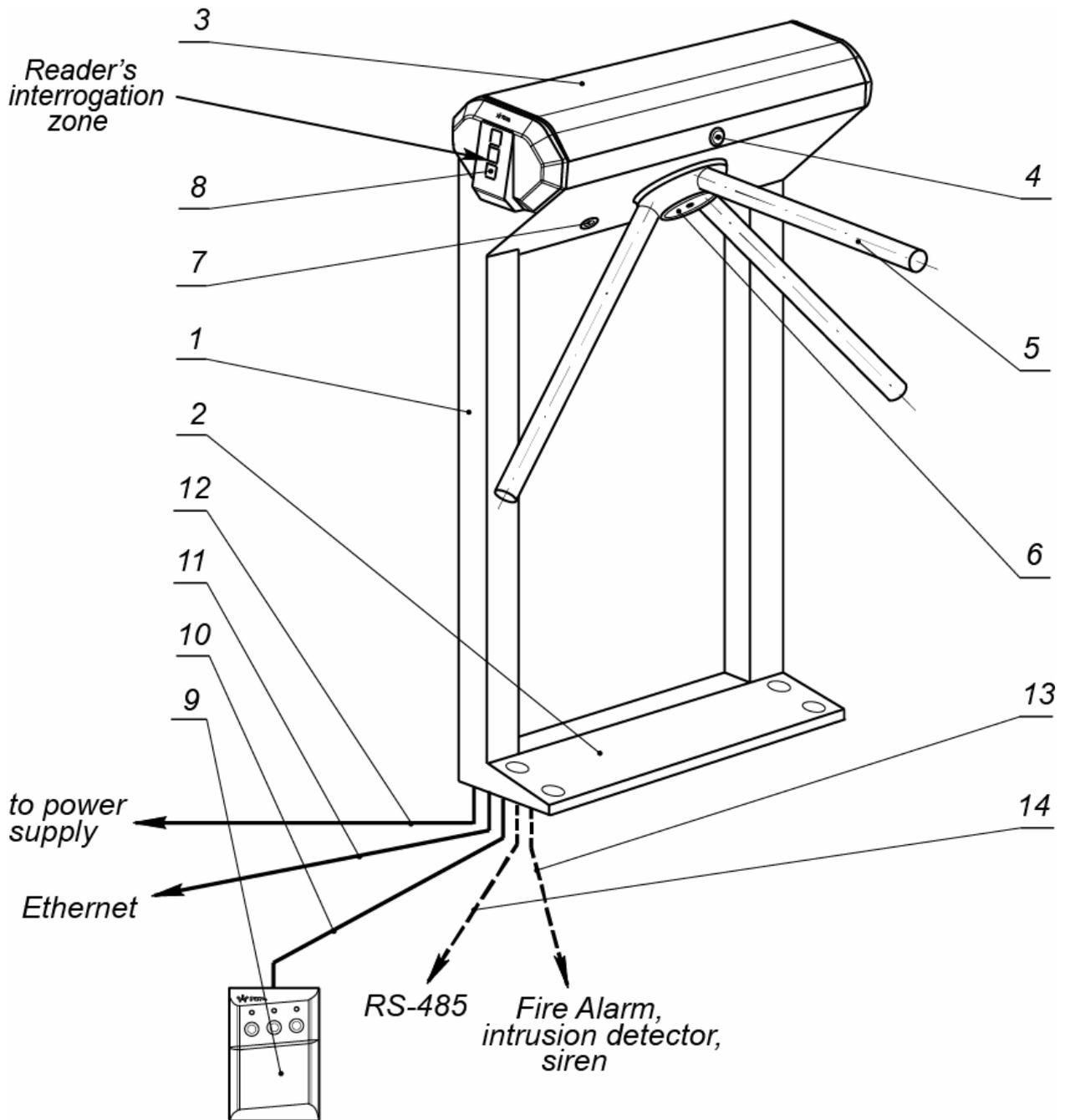
5.2.1 IP-Stile housing

The housing is fixed to the floor with four anchor bolts through the holes in the base (2). Internal elements of the housing are accessed through a removable top cover (3) which should be locked at normal operation with a top cover lock (4).

Inside the IP-Stile there are:
- IP-Stile controller.
- Two proximity card readers. The readers are located under the front 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;
  - commutation board.

The point of attachment of the barrier arms to the rotating mechanism is hidden with a cover (6).
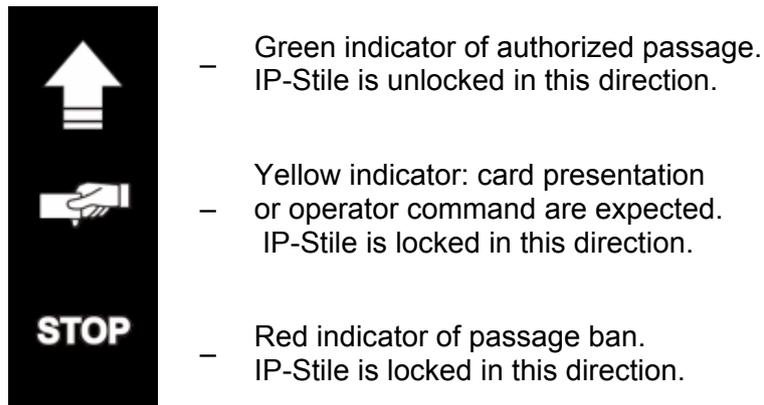
Figure 2. IP-Stile design

Standard delivery set:
1 – frame; 2 – base; 3 – top cover; parts 1-3 make housing; 4 – top cover lock;
5 – barrier arm, 6 – cap to cover barrier arms adjusting points;
7 – mechanical release lock; 8 – indication module; 9 – RC-panel; 10 – RC-panel cable
Not included in standard delivery set:
11 – LAN connection cable; 12 – power cable;
13 – cable to devices emergency unblocking (*Fire Alarm*), intrusion detector and siren;
14 – data cable to additional devices via RS-485

5.2.2 Indication module

Indication modules (8) are located in the IP-Stile housing side covers. They inform about the current status of the IP-Stile. The indication module has 3 mnemonic indicators (Figure 3):

– Green indicator of authorized passage. IP-Stile is unlocked in this direction.

– Yellow indicator: card presentation or operator command are expected. IP-Stile is locked in this direction.

– Red indicator of passage ban. IP-Stile is locked in this direction.

Figure 3. Mnemonic indicators of the indication module

On the reader board on the back of the side cover are located (see. Fig. 4):
–   *XP2* connector for a jumper that determines the reading of cards in *HID* and *EM-Marin* formats: if a jumper is installed (default) – read *HID* and *EM-Marin* cards is on; if there is no jumper – it is off and only *MIFARE* cards can be read.
–   three wire jumpers:
  •   *XP3.1* and *XP3.2* "reader number" jumpers (red and blue).
  •   *XP1* jumper "disconnect the end resistor" (black). The presence of a jumper (by default) - an end resistor for matching the RS-485 line is connected, when removing a jumper - an end resistor is disabled.

Notes:

1. Both readers are connected to the IP-Stile controller via RS-485 interface. One of the readers, installed on the right side of the IP-Stile (if you look at the front of the product), is assigned addresses "1" (*MIFARE*) and "3" (*HID, EM-M*), default. The addresses "2" (*MIFARE*) and "4" (*HID, EM-M*) are assigned to the other reader installed on the left side of the IP-Stile. The *XP3.1* "reader number" jumper is red on it.
2. If necessary, set other numbers to readers, you need to change the status of the "reader number" jumpers in accordance with Table 5.
3. Reader numbers are assigned to the directions of passage through the IP-Stile Web-interface.

XP3.1 (red)   XP3.2 (blue)   XP2 (jumper)   XP1 (black)
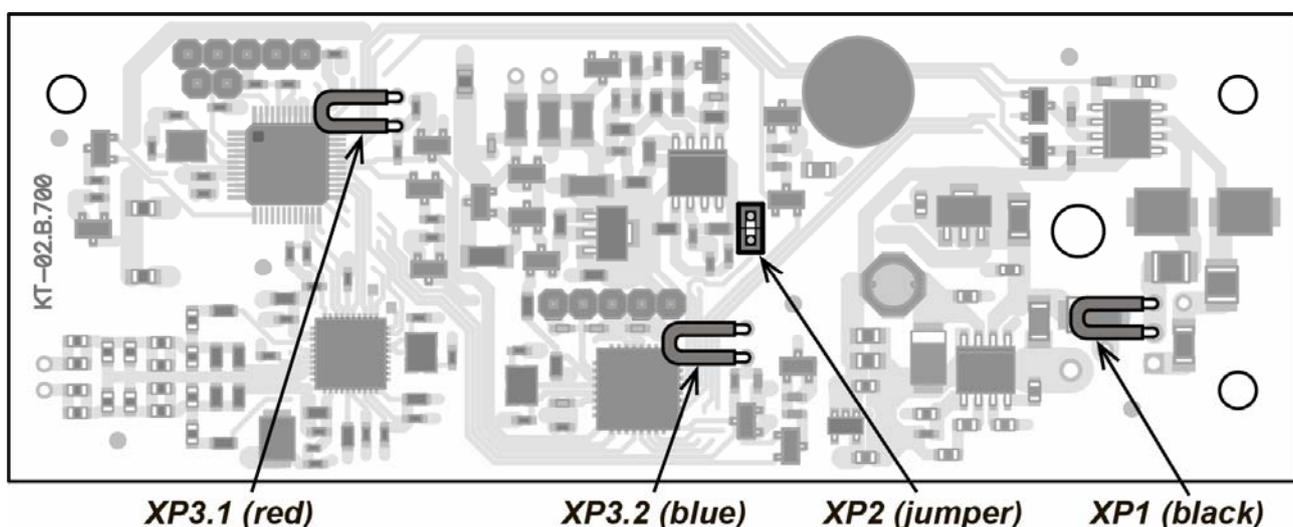
Figure 4. Location of "reader number" jumpers (*XP3.1* and *XP3.2*), of "*HID / EMM*" (*XP2*) jumper and "disconnection of the end resistor" jumper (*XP1*) on the reader board

5.2.3 RC-panel

RC-panel (9) is connected to the IP-Stile housing with an RC-panel cable. RC-panel design and overall dimensions are shown in Figure 5.

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 6.
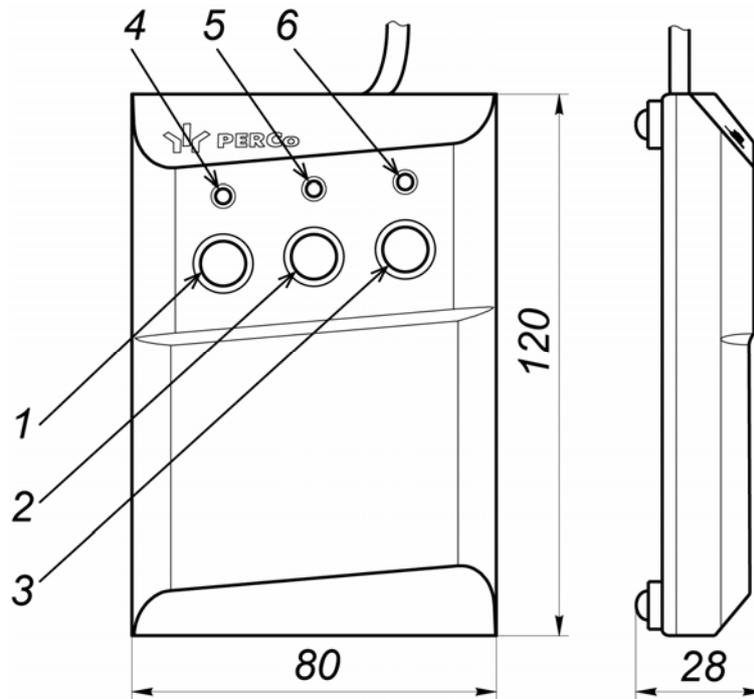
Figure 5. RC-panel design and overall dimensions

1, 2, 3 – **LEFT**, **STOP**, **RIGHT** buttons mode setting;
4, 6 – *«Left»*, *«Right»* green light indicators; 5 –*«Stop»* red light indicator

5.2.4 IP-Stile controller

CT-03.2 IP-Stile controller (hereinafter –*controller*) is installed inside the IP-Stile housing. The upper board of the controller contains: a microcontroller, a nonvolatile memory, nonvolatile RTC-timer (real-time clock). The lower board of the controller contains connector blocks for connecting the nodes and mechanisms of the turnstile and external equipment.

IP-Stile controller:
- processes the signals coming on control inputs;
- receives the identifiers of presented access cards from in-built readers and compares them with the identifiers list, stored in nonvolatile memory of the controller;
- regulates access authorization / denial based on the access rights;
- controls the signals from optical rotation sensors of barrier arms;
- generates actuating signals on control mechanism of IP-Stile rotating unit;
- supports data exchange via Ethernet network with ACS;
- controls indication on IP-Stile indication units and on RC-panel.

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 (12). All connections are performed in accordance with the IP-Stile and optional equipment electric connection layout shown at Figure 13.

Controller configuration is shown on Figure 6. The Figure features connectors and connector blocks for IP-Stile configuration and external communication connection.

On the upper controller board are located:

10

- **XP1** – connector for the jumper, which identifies the way how IP-address is set by IP-stile controller (ref. section 5.5).
- **XS1 – XS3** – connectors for lower board.
- **S1** – connector block *8P8C (RJ45)* to connect LAN over *Ethernet (IEEE 802.3)*.

On the lower controller board are located:

- **XT1** (**IN**) – connector block (inputs *IN3* and *IN4*) to connect external equipment outputs. Inputs configuration can be made through Web-interface or with the help of **PERCo-Web** system (ref. section 5.4.1).
- **XT2** (**RC**) – connector block to connect the RC-panel / the WRC (ref. section 5.3), and an emergency unlocking device (ref. section 5.4.2).
- **XT3** (**OK**) – connector block to connect external equipment (outputs of "open collector" type). Outputs configuration can be made through Web-interface or with the help of **PERCo-Web** system (ref. section 5.4.4).
- **XT4** (**12VDC**) – connector block to connect power supply.
- **XT5** (**RS-485**) – connector block to connect to *RS-485* interface of the controller. By default, there are in-built proximity card readers connected to the contacts. **AU-05** system time panel can also be connected (ref. section 5.4.5).
- **XT8, XT9** (**OUT3, OUT4**) – connector blocks to connect to extra relay outputs of the controller. Outputs configuration can be made through Web-interface or with the help of **PERCo-Web** system (ref. section 5.4.3).
- **XT10** (**AL**) – connector block to connect external equipment (inputs *ШС1-* and *ШС2-*). Inputs configuration can be made through Web-interface or with the help of **PERCo-Web** system (ref. section 5.4.1).
- **X1** (**Control**) – connector for control mechanism.
- **XP1 – XP3** – connectors for upper board.
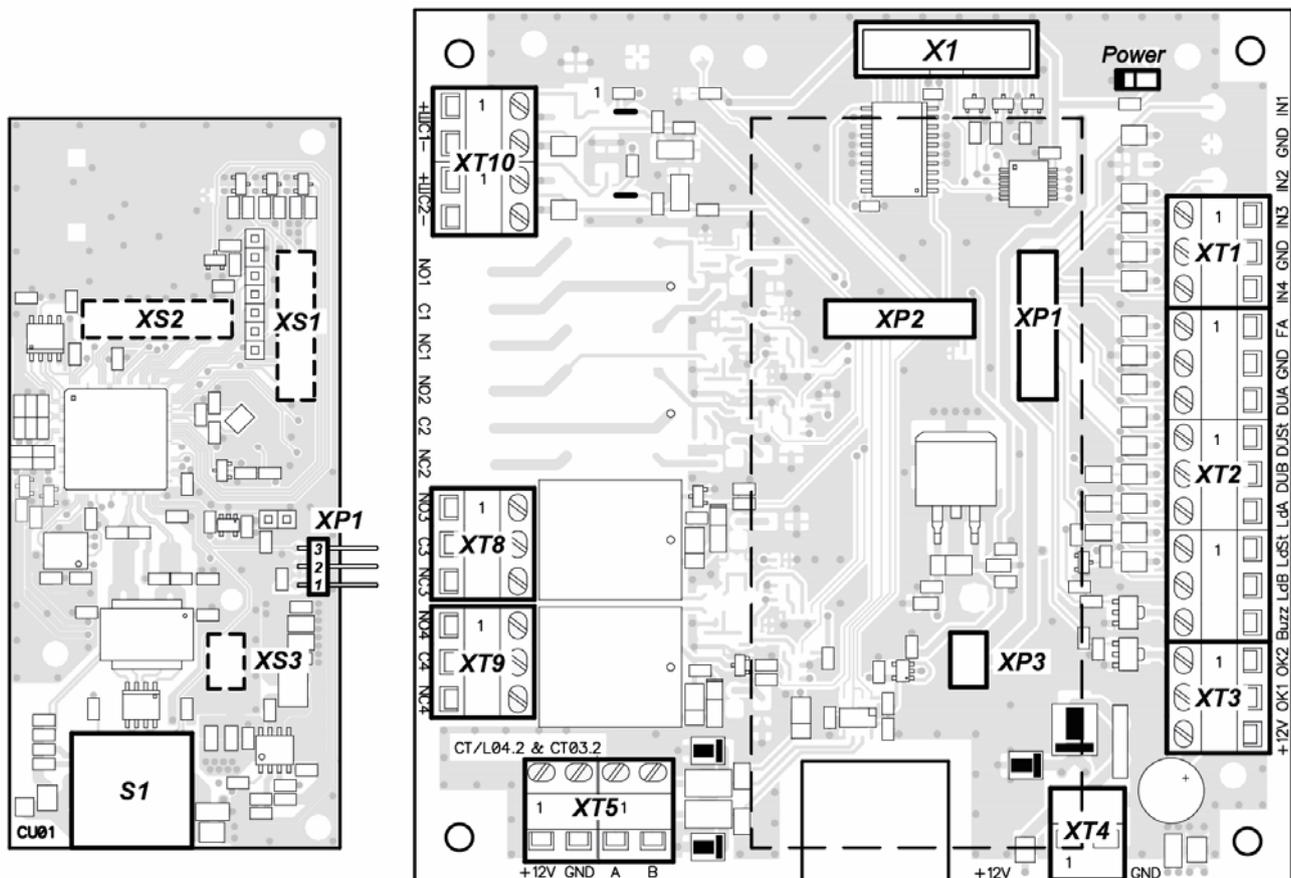- **Power** – red LED indicator of power supply to the controller board.

Figure 6. *CT-03.2* **controller circuit boards (upper and lower)**

Terminal block contacts application is stated in Table 1.

Table 1. Function of connector block contacts

Contact	Function
	XT1 (IN) **Connector**
In3	Additional input #3 (to connect additional devices)
GND	General
In4	Additional input #4 (to connect additional devices)
	XT2 (RC) **Connector**
FA	Input *Fire Alarm*
GND	General
DUA	Input A of RC-panel
DUSt	Input STOP of RC-panel
DUB	Input B of RC-panel
Ld A	Indication output A of RC-panel
Ld St	Indication output STOP of RC-panel
Ld B	Indication output B of RC-panel
Buzz	RC-panel audio signal indication output
	XT3 (OK) **Connector**
OK2	Additional open collector output #6
OK1	Additional open collector output #5
+12V	+ 12VDC for operation open collector outputs
	XT4 (12VDC) **Connector**
+12V	12V external power supply connection
GND	
	XT5 (RS-485) **Connector**
+12V	+ 12VDC for operation readers
GND	
A	RS-485 Line A
B	RS-485 Line B
	XT8 (OUT3) **Connector**
NO3	*Out* #3 relay output, normally-open contact
C3	*Out* #3 relay output, central contact
NC3	*Out* #3 relay output, normally-closed contact
	XT9 (OUT4) **Connector**
NO4	*Out* #4 relay output, normally-open contact
C4	*Out* #4 relay output, central contact
NC4	*Out* #4 relay output, normally-closed contact
	XT10 (AL) **Connector**
ШС1+	Not used
ШС1-	Additional input #5 (to connect additional devices)
ШС2+	Not used
ШС2-	Additional input #6 (to connect additional devices)

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. 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°, the controller registers a passage in the corresponding direction. After the barrier arms rotate 67°, 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** connector block contacts (WRC power supply is connected to the *+12V* **XT4** connector block contact):

- *DUA*, *DUSt*, *DUB* – control inputs;
- *LdA*, *LdSt*, *LdB, Buzz* – RC-panel light and audio signal indication control output (indication on the WRC fob is not provided).
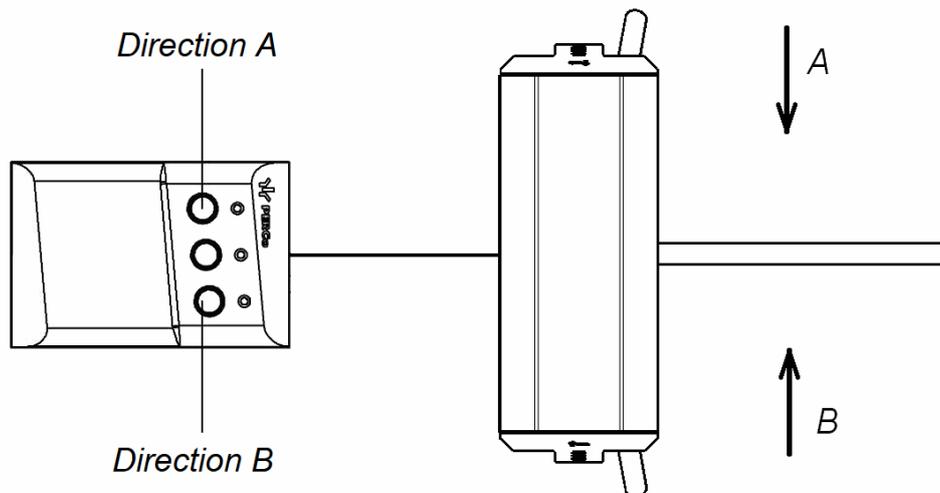
Figure 7. Standard RC-panel orientation regarding IP-Stile

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.

Standard RC-panel orientation regarding IP-Stile post is shown at Figure 7. 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 when connecting the RC-panel according to the electric connection scheme (Figure 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**
1	*GND*	black	black
2	*DU A*	white	green
3	*DU St*	blue	blue
4	*DU B*	green	white
5	*Ld A*	yellow	red
6	*Ld St*	orange	orange
7	*Ld B*	red	yellow
8	*Buzz*	brown	brown

5.3.2 Input signals for offline IP-Stile control

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. IP-Stile operation (as a standalone unit) modes and indication are shown in Table 6.

> **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 8 and Figure 9) can serve as a control element.

The control element is to provide the following characteristics of the signals:
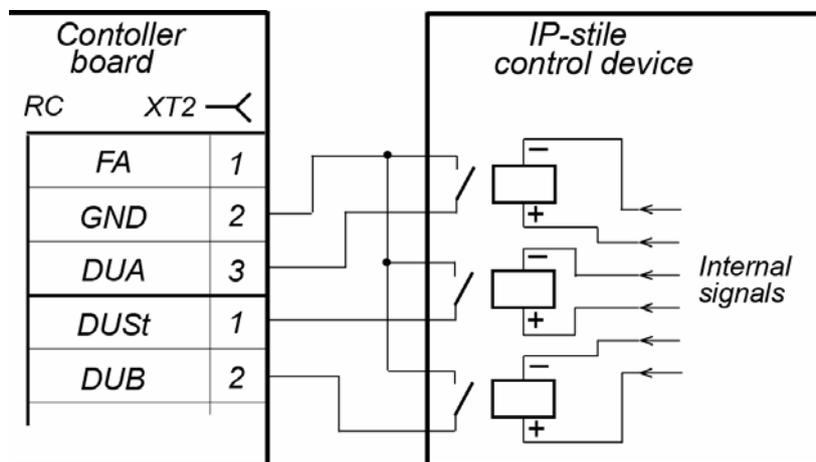Control element – relay contact:
Minimal commutated current .... ≤1 mA
Resistance of a closed contact
(with connection cable resistance taken into account) .... ≤300 Ohm
Control element – circuit with open-collector output:
Voltage at a closed contact (a low-level signal, at the input of the controller) .... ≤0.8 V

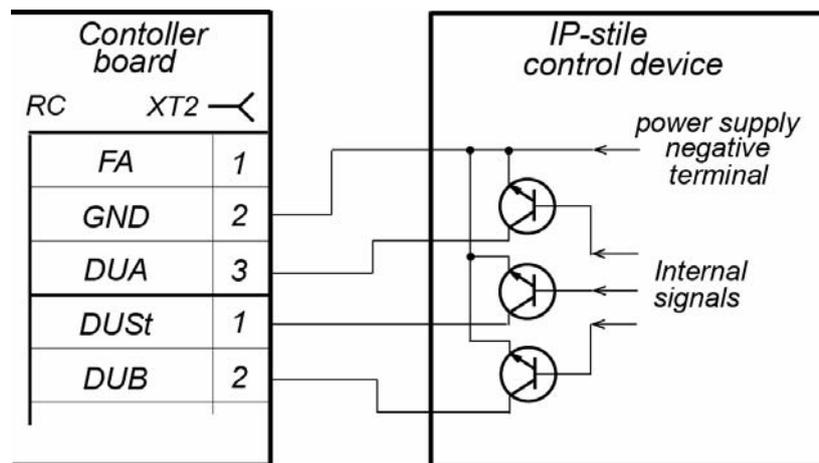**Figure 8. IP-Stile control elements: normally-open relay contact**

Figure 9. IP-Stile control elements: open collector output

5.4   IP-Stile optional equipment

The following equipment can be connected to the IP-Stile:
- ID and a siren;
- *Fire Alarm* device;
- EVD (card reader, breathalyzer, scales, etc.);
- **AU-05** system time display.

Connector block positioning on the IP-Stile board is shown on Figure 6. The use of connector block contacts is described in. Table 1. The connection scheme is provided at Figure 13. The used cables are stated in Table 4.

5.4.1   Parameters of input signals *In3, In4, ШС1, ШС2*

In3, *In4, ШС1* and *ШС2* inputs can be used only when the IP-Stile operates as a part of **PERCo-Web** system. Connection to the inputs is performed through *In3, In4* and *GND* contacts of the **XT1** connector*,* and *ШС1-, ШС2-* and *GND* contacts of the **XT10** connector of the lower controller board.

The controller provides status control of inputs controlled by dry contacts or OC («open-collector»). The inputs can be used for connection of ID, EVD (card reader, breathalyzer, scales, etc.) or other optional equipment.

> ⚠️ *Attention!*
>
>   The ID can be mounted directly on the IP-Stile rack only at the factory.

Activation evidence of *In3*, *In4, ШС1* and *ШС2* signals depends on the description of their initial condition by the **Normal contact state** parameter in 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.

> ℹ️ *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 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 *Fire Alarm* input

It is possible to control the IP-Stile from the emergency unlocking device *Fire Alarm.* The connection of the *Fire Alarm* device is carried out through the *FA* and *GND* contacts of the **XT2** connector block of the lower board of the controller.

> **Note:**
>
> The *FA* input is uniquely configured as «normally closed».

To switch the IP-Stile in *Fire Alarm* mode the control signal is to be sent from the *Fire Alarm* device to the IP-Stile controller additional input *FA*. IP-Stile gets unlocked for passage in both directions. All control commands are ignored.

To exit the *Fire Alarm* mode, remove the control signal from the input *FA*.

5.4.3 *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* and *NC3* and *NO4*, *C4* and *NC4* contacts of the IP-Stile **XT8** and **XT9** connector blocks of the lower board of the controller.

Relay outputs *Out3* and *Out4*, having 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 console,
- 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 current for outputs .... no more than 2 A
Closed contact resistance .... no more than 0.15 ohm

5.4.4 *OK1* and *OK2* output signals

*OK1*and *OK2* outputs can be used only if the IP-Stile operates as a part of **PERCo-Web** system (in the *Out5* and *Out6* configurations respectively). Connection to the outputs is performed through the *OK1* and *OK2* contacts of the IP-Stile **XT3** connector block of the lower board of the controller.

The outputs can be used for:
- light and sound signal control (siren),
- alarm signal transmission to the central monitoring console,
- additional equipment control.

The outputs have the following signal parameters:
Maximum commutated voltage, DC .... no more than 30 V
Maximum commutated DC current for outputs .... no more than 2 A

5.4.5 Connection to RS-485 interface

AU-05 system time display can be connected to the IP-Stile. The connection is performed through **XT5** 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 **XT5** connector block.

5.5 IP MODE and IP DEFAULT jumpers

The IP-address is set by jumper installation and removal at the **XP1** connector of the upper board of the IP-Stile controller.

Attention!

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

The IP-address can be set as followed (Table 3):

1. User mode. 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 and MAC-address are 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.

Note:

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 3. Variants of jumper installation on *XP1* connector

№	Jumper position on XP1	Mode
1	XP1	User mode
2	XP1	«IP MODE»
3	XP1	«IP DEFAULT»
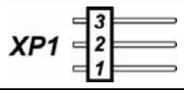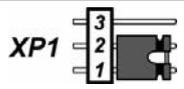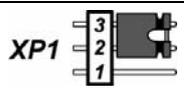
5.6 Firmware update

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.com.

You can also update the firmware and format the memory through the Web-interface of the IP-Stile controller in **Diagnostics** section.

Upon completion of the formatting it is necessary to send the IP-stile configuration to the controller either through the used software or Web-interface. Synchronized blinking with a frequency of 2 Hz on all three indicators of the IP-Stile indicates the lack of setting parameters.

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.

When it is necessary to access the label, remove the top cover (3) taking the following steps:
1. Turn IP-Stile power off.
2. Insert the key into the top cover lock (4), turn it clockwise until stop and open the lock (the lock internal mechanism will move out together with the latch.
3. Holding the back edge of the cover with one hand, lift the front edge gently by another – the cover must turn relative to the inside hooks. Remove the cover carefully making sure not to damage the controller underneath and lay on an even steady surface.

Make sure the cover is returned in its operative position observing all the mentioned precautions. When the cover is on, close the cover lock pressing on the internal mechanism and recessing it into the housing until it clicks. Turn the power on for IP-Stile to continue operation.

IP-Stile standard delivery set is packed in a transportation box for protection against damage during transportation and storage.

Box overall dimensions (L×W×H) .... 112×75×35 cm
Maximum gross weight of the boxed IP-Stile (standard delivery set) .... 56 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 observe general electrical and work safety rules during the installation.

Attention!
- All work 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 in-line documentation.

7.2   Safety during operation

Always observe general electrical safety rules when operating the product.

DON'T use!
- When operation conditions don't 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 in-line documentation.

8   INSTALLATION INSTRUCTIONS

Follow the safety requirements during the installation (see Clause 7.1).

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°.

The turnstile is equipped with the resetting device that operates as follows:
- o when the barrier arm is turning at the angle of more than 60°±5° 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);
- o when the barrier arm is turning at the angle less than 60°±5° the reset is effected in the counter to the movement direction (reset to home position).
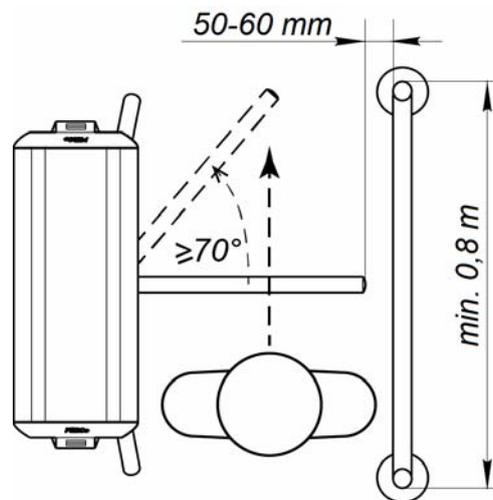
Figure 10. Recommended passageway arrangements

When planning the passage area, it is necessary to arrange additional emergency exit. For example, it can be the automatic rotary section **BH-02** (Clause 10).

8.2   Tools and equipment required for installation

- 1.2÷1.5 kW hammer drill;
- Ø16 mm carbide drill bits for anchoring;
- Floor chaser to make cable-channels;
- Phillips head screwdriver №2;
- Straight-slot screwdriver №5, 150 mm long;
- S=17, S=13, S=10, S=8, S=7 horn and hex-nut wrenches;
- Plumb-line and level;
- Measuring tape 2 m.

> *Note:*
>
> Similar tools with the same characteristics can be used as long as proper installation work can be carried out.

8.3   Cable lengths

Cables, applied at the installation are stated in Table 4. During cable laying follow these instructions:
- 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 cable laying check the cable 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.

Table 4. Cables used during the installation

№	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	4×2×0.52 F/UTP2-Cat5e
2	*AU-05* system time display.	1200 (total)	Twisted pair cable not less than Cat5		
3	Power supply	10	Twin wire	0.75	AWG 18; HO3VV-F 2×0.75 bi-coloured
		30	Twin wire	1.5	AWG 16; HO5VV-F 2×1.5 bi-coloured
4	- RC-button (*«Exit»*) - Door sensor (reed switch) - ID - Siren - *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

> ### *Note:*
> The EMI is an undesirable effect of electromagnetic fields, interfering with the normal operation of the techniques or causing the 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 or otherwise loss resulting of improper installation, and will dismiss any claims by the customer should the installation be not carried out in strict accordance with this Manual.

The connector block position on the IP-Stile controller board is shown on Figure 6. Connector block layout is shown in Table 1. Connection layout is shown Figure 13. Types of cables are stated in Table 4. Follow this sequence during IP-Stile installation:

1. Choose the place for IP-Stile installation and prepare the installation surface according to Section 8.1.
2. Unpack the box with equipment; check carefully the delivery set according to Certificate.
3. Mount the IP-Stile power supply according to instructions in its operation documentation.

4. Mark and prepare mounting holes for anchor bolt sleeves on the installation surface according to Figure 12.

5. Insert the anchor bolt sleeves in the holes so that they do not project above the surface of the floor.

6. Prepare the underfloor raceway matching the feed-through hole in the IP-Stile housing, in case it is needed. Lay the cables (RC-panel, power, grounding, *Ethernet* cables) in the electrical conduit and pull the cables and perform cable lead-in in the IP-Stile housing through the required holes in the IP-Stile foundation.

7. Set up the housing on anchor bolt sleeves and fix it with the M10 bolts.

8. Open the housing top cover (3) with the key (4). The sequence of top cover opening is described in Section 6.

9. Pull the cables inside the housing. Recommended cable layout inside the post is shown on Figure 11.

10. Connect the power cable (12) to the *XT4* connector block on the controller board.

11. Connect the RC-panel cable (10) to the *XT2* connector block as per Figure 13.

12. If necessary, connect cables of other devices to the corresponding connector blocks.

13. Perform the IP-Stile housing grounding. Ground contact *Z3* is under the top cover (3) to the left of the controller board. In order to fix the grounding cable on the contact use M4 screw (Figure 11).

14. Connect *Ethernet* cable to *S1* connector on IP-Stile controller board.

> ### Note:
> Connection scheme for the power supply of the controller and the turnstile when connected via PoE-splitter is shown in Appendix 2.

15. Choose the way of IP-address setting by applying a jumper according to Section 5.5.

16. If necessary, change the addresses of the built-in readers:
   - unscrew two screws and remove the transparent plates blocking access to the reader boards;
   - cut necessary jumpers *XP3.1* or *XP3.2* (see. Fig. 4) in accordance with Table 5:
   - reinsert the transparent plates and fasten them with screws;

**Table 5. Procedure for setting reader numbers**

Jumper status *XP3.1* and *XP3.2*	MIFARE Card Reader Number	HID / EMM Card Reader Number
none cut	1	3
only *XP3.1* (red) is cut	2	4
only *XP3.2* (blue) is cut	5	7
XP3.1 and *XP3.2* (red and blue) are cut	6	8

17. If only *MIFARE* cards will be used during the operation of the IP-Stile, disable the *HID / EM-Marin* readers by removing the *XP2* jumper from both boards. This will increase the reading range of cards and the efficiency of IP-Stile. Access to jumpers on reader boards is described above in paragraph 16.

18. Fix all the cables inside IP-Stile housing with plastic cable ties to the adhesive platforms from the delivery set. Insert back the top cover (3) in reverse order (Section 6). Cover 4 plate bolt holes in the housing (2) and a secondary port to draw cables in the lower part of the housing (1) (if it's not being used) with Ø30 mm plugs from the delivery set.

19. For installation of the barrier arms into operational position, first unscrew the M4×25 bolt and take the cover (6) off the rotation mechanism. Unscrew the M8×30 bolts on the barrier arms (5). Install the barrier arm into the corresponding slots and fix it using the bolts with spring washers. Make sure the bolts are tightened enough to provide secure fixing of the barrier arm. Repeat this sequence to install other barrier arms.

20. Carry out a test power-up of the IP-Stile according to the Section 9.1.

When the installation is completed, the IP-Stile is ready for operation.
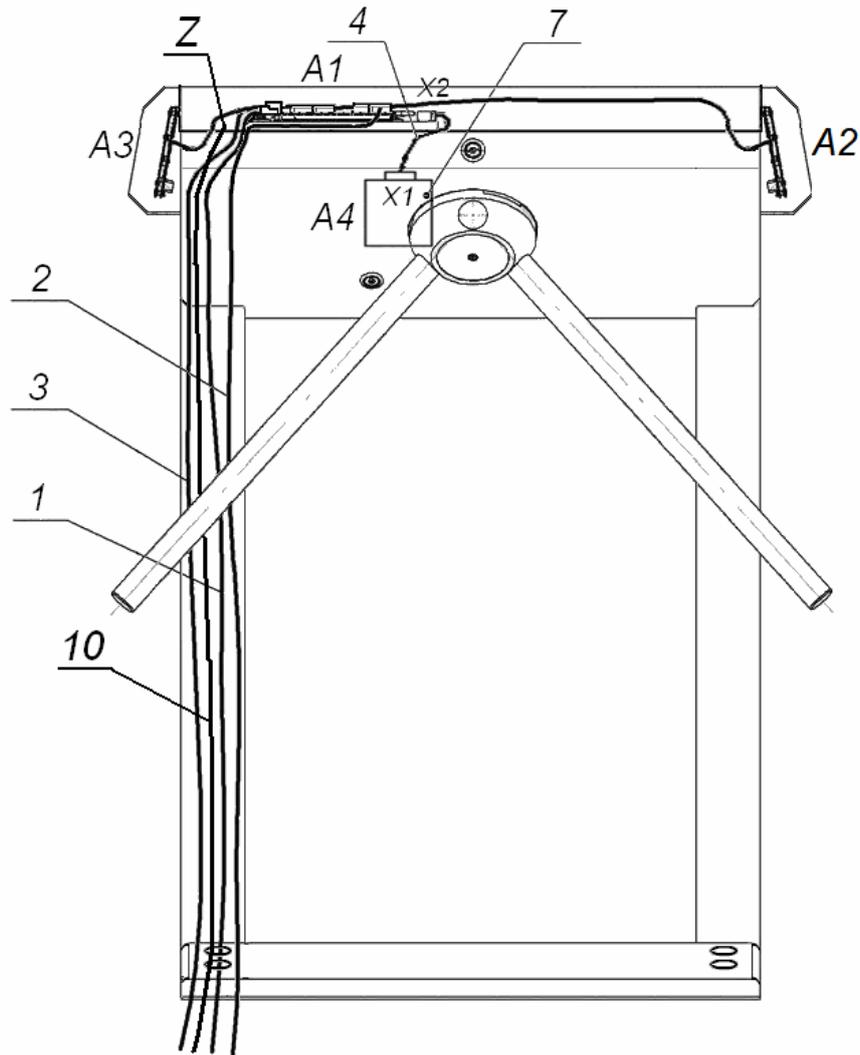
Turnstile housing without cover
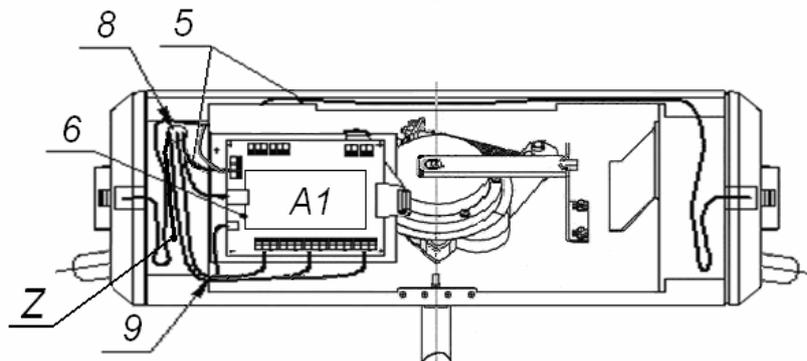
Figure 11. Cable layout inside the housing

1 – power cable; 2 – RC-panel cable;
3 – LAN cable (through *Ethernet* IEEE 802.3);
4 – turnstile cable; 5 – readers connecting cables;
6 – **CT-03.2** boards; 7 – operating mechanism;
8, 9 – opening for running the cables (during installation of IP-Stile, the openings 8 and 9 are sealed with the insulation bushings); 10 – grounding cable; Z – ground contact
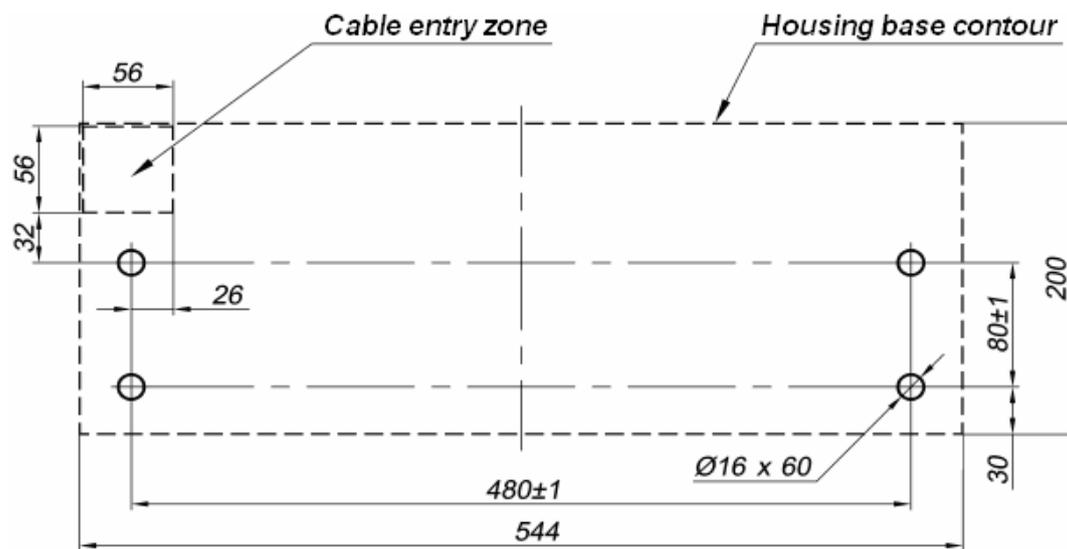
Figure 12. Hole pattern for mounting of the housing

8.5 Connection layout for IP-stile and optional equipment

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

Legend	Item	Qty
A1	**CT03.2** built-in controller of the IP-Stile.	1
A2	Reader #1	1
A3	Reader #2	1
A4	IP-Stile control mechanism.	1
A5	RC-panel	1
A6[1]	WRC	1
A7[1]	Power supply	1
A8[1]	Intrusion detector	1
A9[1]	Emergency unlocking device *Fire Alarm*	1
A10[1]	Siren	1
Z1	IP-Stile housing grounding bolts	1
1	Turnstile control mechanism cable	1
2	Wire jumper, installed in case the *Fire Alarm* (A9) is not connected. Installed upon delivery.	1

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[1] Is not included in standard delivery set.
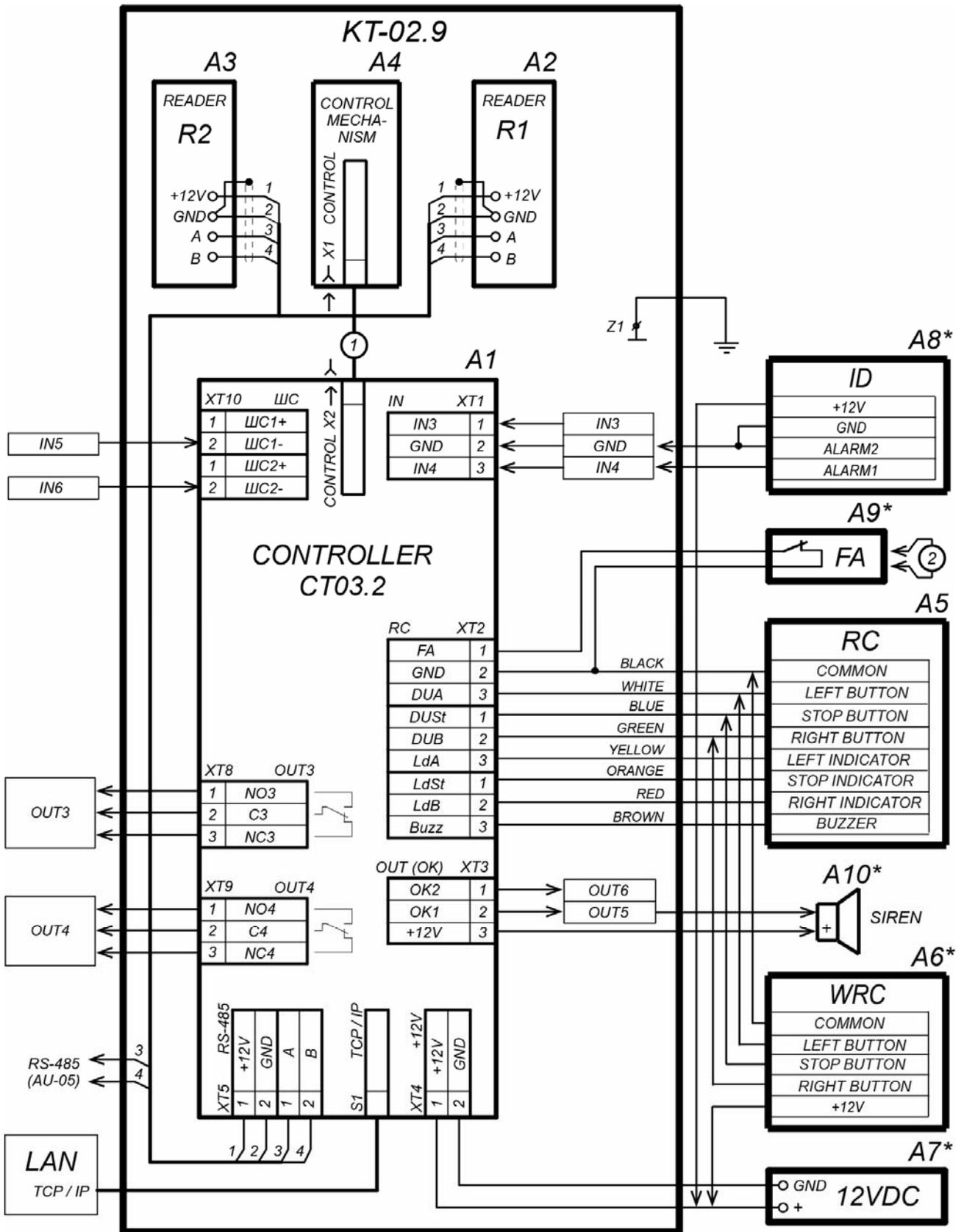
Figure 13. Connection layout for KT-02.9 and optional equipment[1]

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[1] The components list of the connection layout for KT-02.9 and optional equipment see Table 6.

9   OPERATION

Operating the device observe safety requirements described in Section 7.2.

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 so as 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   Power-up

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

1. Make sure all connections are correct (as per Section 8.4).

2. Make sure the barrier arms are in the home position (the passageway is blocked with a barrier arm).

3. Make sure the mechanical release lock is closed (the IP-Stile is mechanically locked, ref. Section 10.2).

4. Connect the power supply to the mains with electric parameters as per its documentation.

5. Turn the power on. The IP-Stile is ready for operation right after the power-up. If not previously performed controller memory formatting (ref. Section 5.6), the ACM and the indication, set for each passage direction before power failure, is saved. All indicators on indication units of the IP-Stile will blink at the same time with a frequency of 2 Hz if formatting was done but new configuration wasn't uploaded to the controller.

Note:

At the first powering the «Control» ACM is set for both directions. Yellow indicators (middle ones) of the indication modules are on and the red "Stop" indicator above the middle button on the RC-panel is on. Both passage directions are blocked.

6. 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 by the Web-interface or *PERCo-Web* (ref. Section 9.2).

7. In case ID and the siren are installed, check their operation. In order to do that wait until the test indicator inside ID fades (10–50 sec. after IP-Stile power-up). Bring your hand to the ID. In case it gets activated, there goes a constant audio signal. The signal will be off in 5 sec. It can also be deactivated by pressing any button on the RC-panel.

9.2   Controller 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.

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. Network settings of the

controller can be changed after connection to those which are recommended by system administrator through the software or Web-interface.

> **_Note:_**
> Operational documentation for the software and Web-interface is available in a soft version on *PERCo* website (www.perco.com) in **Support > Downloads** section*.*

IP-Stile configuration, access cards transfer to the controller and a change of an ACM can be done:

1. through controller's Web-interface (see Appendix 3);

2. through Web-browser in **PERCo-Web** system;

3. by using the following local software, installed on the computer:
   - **«Local software» SL01** (license is not required);
   - **«Local software with verification» SL02**;

When operation commands are simultaneously sent from several devices, they will be executed in the following order:
- IP-Stile reader command,
- PC or Web-interface command,
- RC-panel or WRC command.

9.3   IP-Stile in-built readers configuration

Readers provide (default settings) the reading of a unique identifier UID from a card or transponder ISO/IEC 14443 A/MIFARE; as well as reading of unique identifiers from smartphones with NFC function.

In addition, in order to increase the security level of the access system it is stipulated to use an additional identification information ID from the internal memory of the card or transponder ISO/IEC 14443 A/MIFARE, as well as the extra programming (further - configuration) of the reader with a master card is required.

The reading of the code is executed when the ID is presented to the reader. In this case, the identifier might be in a pocket, in a wallet or in any other magnetically transparent container (case).

Features of smartphones with NFC function:

In order to use a smartphone as an access card, it is necessary to turn on the NFC function (usually in the settings of the smartphone).

Smartphones with Android OS use the unique identifier IMSI as an identifier - an individual phone number associated with the SIM-card of the smartphone. Preliminary you will have to install the "**PERCo. Access**" free application in "Google Play" market.

In Apple smartphones (OS "iOS"), the unique Token is used as an identifier attached to one of the credit cards (is not a credit card number) emulated on the smartphone (i.e. it will be necessary to activate this particular credit card before launching ACS), installation of the additional application is not needed.

To make your smartphone with the NFC function work as an access card, you will have to do the following:

1. In PERCo ACS software, section "MIFARE cards settings", find and enable on the function of the smartphone (enabled by default on readers and in the PERCo software).

2. Create a master card with this configuration and reconfigure with it all MIFARE readers used in the system (by default, all readers are configured to work with smartphones with NFC).

3. Fill in the identifier from the smartphone into the database as a regular access card:
   - manually, receiving the identifier number in the smartphone through "**PERCo. Access**" application (only for Android OS smartphones);
   - automatically using a control reader **MR08**, connected to a PC with installed **PERCo-Web**.

Features of master cards:

1. Master cards are used for the transfer of readers configuration file from PC to the power-autonomous memory of the reader and are programmed by MR08 control reader.

    ⚠️ **Attention!**

    Only the MIFARE DESFire Ev1 card can be programmed as a master card (available in the **MR08** kit).

2. Each reader configuration has its sequence number (hereinafter - configuration level), which automatically increases by 1 every time it changes (only the current configuration level is always stored on the PC).

3. During the record of the readers' configuration to the master card, the current configuration level is recorded as well.

4. The reader with the default settings will detect as a master card only the primary master card (with the first configuration level).

5. The reader with a personalized user configuration will detect as a master card only that master card which level is higher than the current configuration level.

6. After successful configuration of the reader, the used master card will no longer be recognized as a master card for it, because for now the written configuration level won't be higher than the recorded one in the readers memory.

    ℹ️ **Note:**

    The programming procedure of the master card (both primary and all the following ones) is performed within PERCo-Web software and is described in the administrator's manual.

The configuration algorithm of in-built readers using master cards:

⚠️ **Attention!**

The configuration of in-built readers is executed together with all readers within the ACS.

ℹ️ **Note:**

Reader configuration is a completely independent process, during which the reader totally ignores any commands from the controller.

1. Program the master card in the software.

2. Present the master card to the reader. If the master card is correct for this reader and its configuration level is higher than the recorded one in the reader, the reader will detect it as a master card and change the status to "Waiting for configuration" (simultaneous blinking with all three indicators followed by intermittent acoustic indication, section 9.6).

3. Before the expiration of 10 seconds after the first presentation, present the same master card to the reader again. The reader will receive new configuration data from it, save it to power-autonomous memory and will switch for 1 second to the status "Configuration changed" (simultaneous lighting of all three indicators, followed by acoustic indication). After that the reader will get to work with new settings received from new configuration.

    If within 10 seconds there is no second presentation of the master card, the reader won't change its configuration, still this master card will remain valid for it. The reader will change the status from "Waiting configuration" to the previous one.

4. Master card password is one of its security options. Password recommendations of master cards are given in the operating manual of MR08 control reader. While the configuration of the reader with primary master card, configured by the manufacturer at the factory, the password for the master card is changed to the new one, set in the software. During the next configuration, the reader will detect the master card with this password as a master card.

    Whenever it is necessary to change the master card password (for example, in case of its possible discredit), program the master card with the information on switching to the new

password in the software and reconfigure all readers with it, including also those that are temporarily switched off.

ℹ️ *Note:*

If any reader (with a non-zero configuration level) was not reconfigured by the master card with a new password, and the password was changed again, this reader will need to be configured twice — at first with the master card with previous password, and then with the master card with a new password. If there is no master card with a previous password (lost, overwritten, etc.), then this reader should be sent to the factory to be reset to default settings, after that it can be configured by creating a primary master card with the transition to the last password. The same procedure must be repeated when adding new readers with default settings.

9.4 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.

Setting of the operating modes by the RC-panel / WRC and the corresponding indication is given in Table 6. 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** timing**.** 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 the *«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** timing countdown for another direction begins.

Table 7. IP-Stile operating modes

№	Operating mode	Sequence of buttons to push	RC-panel indication	Turnstile indication	IP-Stile status
1	**"Always locked"** (IP-Stile is closed for both entrance and exit)	Press the "Stop" button shortly	The red indicator is on	The amber indicators for both directions are on	The barrier arms are locked in the home position. The passageway is blocked by the barrier arm.
2	**"Single passage" in the set direction** (IP-Stile is open for a single passage by one person in the set direction and closed for passage in another direction)	Press shortly the "Go" button responsible for the authorized direction	The green indicator above the "Go" button responsible for the authorized direction is on	The green indicator for the authorized direction and the amber indicator for another direction are on	The barrier arms are unlocked for a single turn in the authorized direction. After the turn the arms are locked.

№	Operating mode	Sequence of buttons to push	RC-panel indication	Turnstile indication	IP-Stile status
3	**"Bidirectional single passage"** (IP-Stile is open for a single passage in each direction)	Press both "Go" buttons together shortly	Both green indicators are on	The green indicators for both directions are on	The barrier arms are unlocked for consecutive single turns in each authorized direction. After each turn the arms are locked in the corresponding direction.
4	**"Free passage in the set direction"** (IP-Stile is open for free passage in the authorized direction and closed in another	Press shortly the "Stop" button together with the "Go" button responsible for the authorized direction	The green indicator above the "Go" button responsible for the authorized direction is on	The green indicator for the authorized direction and the amber indicator for another direction are on	The barrier arms are unlocked indefinitely for multiple turns in the authorized direction
5	**"Free passage in the set direction and a single passage in the opposite direction"** (IP-Stile is open for free passage in the authorized direction and a single passage in another)	Press shortly the "Stop" button together with the "Go" button responsible for the free passage direction; then press the other "Go" button shortly	Both green indicators are on		The barrier arms are unlocked indefinitely for multiple turns in the free passage direction and a single turn in the single passage direction
6	**«Free passage in both directions»** (IP-Stile is open for free passage in both directions)	Press shortly the three buttons together	Both green indicators are on	The green indicators for both directions are on	The barrier arms are unlocked indefinitely for multiple turns in both directions

9.5 Operation as a part of an ACS

ACM change is performed at the command from the PC or Web-interface independently for each passage direction. The controller, as an element of the ACS, provides ACM through the turnstile (ACM indication is stated in Table 8):

ACM *«Open»* – free passage mode:
- The turnstile is unlocked until the ACM change.
- Pressing the RC-panel buttons (WRC buttons) is ignored.

ACM *«Control»* – main operation mode as a part of ACS:
- The turnstile is blocked.
- If the presented card matches the criteria of access granting, the turnstile is unlocked for **Holding in unlocked state time**.
- Double-check and verification processes can activate by presenting a card depending on the access settings of this card.

ACM *«Closed»* – locked mode:
- The turnstile is locked until the ACM change.
- Pressing the RC-panel and WRC button is ignored.
- Any card presentation is registered as the access violation.

9.6   Indication of ACM, IP-Stile events and states

Table 8. Types of indication of IP-Stile

IP-Stile events and states	ACM	Indicators			
		Green	**Yellow**	**Red**	**Sound (sec.)**
No configuration	No	5 Hz	5 Hz	5 Hz	off
Activating the *Fire Alarm* Input	Any	1.3/0.2[1]	off	off	off
Without presentation a card	*«Open»*	on	off	off	off
	«Control»	off	on	off	off
	«Closed»	off	off	on	off
Card representation with access authorization	*«Open»*	on	off	off	0.2
	«Control»	off	off	on	0.5
Representation of any card	*«Closed»*				
Card representation with denial of access	*«Open»*	on	off	off	0.2
	«Control»				
Card representation with access authorization	*«Open»*	on	off	off	0.2
	«Control»				
Waiting for verification/ double-check access	Any	off	2 Hz	off	0.2

IP-Stile indication is displayed on the indication blocks (Section 5.2.2).

> ***Note:***
> - When reading the proximity card identifier in any ACM, the audio signal of 0.2 sec. is sent, the yellow light indicator changes its status for 0.2 sec. Other identifiers don't change their status.
> - 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 is turned on for 1 second.

10   EMERGENCY ACTIONS

In emergency cases (i.e. operation unit breakdown) passage zone of operation unit can be used as an extra emergency exit by unblocking the rotation of barrier arms in advance or by using "Anti-panic" barrier arms.

> ⚠️ ***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.

10.1   Emergency exit by use of anti-panic barrier arms

An additional emergency exit can be arranged by means of anti-panic barrier arms. The design of the barrier arms enables arranging of a free escape passage without any special means or tools.

To make the passageway free, just pull the horizontal barrier arm along its axis outwards the hub until released, then fold the arm down (ref. Figure 14).

---

[1]   Flashing – 1.3 sec on and 0.2 sec off.
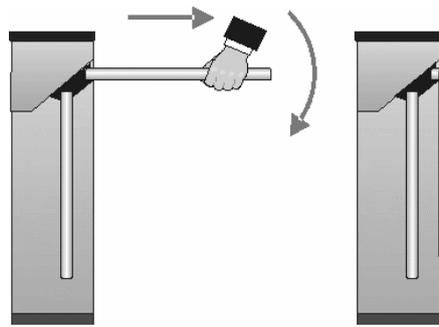
Figure 14. Anti-panic barrier arms operation

10.2 Mechanical unlocking

The mechanical unlocking feature is designed for unlocking the barrier arms in case of emergency, e.g. the power supply is down.

Proceed as follows to mechanically unlock the IP-Stile:
1. Insert the key into the mechanical release lock (7) and turn the key clockwise until it stops.
2. Make sure the IP-Stile is unlocked by rotating the barrier arms a few turns in each direction.

To lock the IP-Stile mechanically:
1. Set the barrier arms in home position;
2. Press the internal lock mechanism recessing it into the housing until it clicks;
3. Make sure the IP-Stile is locked and the barrier arms cannot be rotated in either direction.

10.3 IP-Stile automatic unlocking

Operating as a part of *PERCo-Web,* in case the fire breaks out or in any other emergency situation, the IP-Stile can be turned to *Fire Alarm* mode by the emergency unlocking device. In this mode the IP-Stile unlocks for passage in both directions. Other commands at this mode are ignored (Sect. 5.4.1).

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 6.

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.
*   Loose 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.
*   Loose 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, the 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). 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 the LAN connection point (to do so remove the cover off the IP-Stile):

LINK – connection evidence (the green indicator on – the controller recognizes the LAN connection; the green indicator is off – the controller does not recognize the LAN connection);

ACT– data exchange evidence (the red indicator blinking – the controller recognizes data exchange through the LAN, the red indicator off – the controller does not recognize data exchange through the LAN).

If the controller does not recognize the LAN connection, connect it to the cable of another controller or a PC. If the controller still does not recognize the 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 operational maintenance sequence is as follows:

1. turn off the power;

2. remove the cover (3) as described in section 6;

3. Lay the cover on an even steady surface;

4. inspect the resetting device (the pusher, the springs and the roller), the optical rotation sensors for the barrier arms and the damper (ref. Figure 15);

5. using a clean rag soaked with alcohol gasoline blend, remove dirt and stains, when necessary, from the arm rotation sensor disc; make sure the dirt does not get into the operating clearances of the optical;

6. lubricate the following parts with machine oil:
   - four bushes of the resetting device (two on the rotation axis of the pusher and two on the fastening axis of the spring), as well as the holes in the fastening parts of the springs: two-three oil drops into each lubrication point (the lubrication points are shown in Fig. 15);

   ⚠️ *Attention!*

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

   - the internal mechanisms of the mechanical release lock's (7) and top cover's (4) through the keyholes;

7. check the reliability of the cable connections to the connector blocks of the ***CT-03.2*** controller board, tighten the fixing bolts when necessary;

8. make sure the barrier arms (5) are secure in place, proceeding as follows:
   - unscrew the M4×25 bolt fixing the cover (6) and remove it;
   - if necessary, tighten the M8×30 bolts fixing the barrier arms with S13 wrench;
   - return the cover in the operational position and fix it with the bolt;

9. Cap the four anchor openings in the housing base (2) and if the auxiliary opening for cable connection in the case (1) lower part (if not used) with the Ø30 mm plugs included in the delivery set. Remove the plugs from the anchor openings in the housing base, check the anchor bolts tightening them if necessary with S17 wrench; return the plugs back on the anchor openings;

10. return the top cover (3) in its operational position (ref. section 6), do not apply much force in doing this; the top cover lock is closed by pressing the lock internal mechanism without turning the key;

11. test IP-Stile operation according to section 9 of this Manual.

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

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.
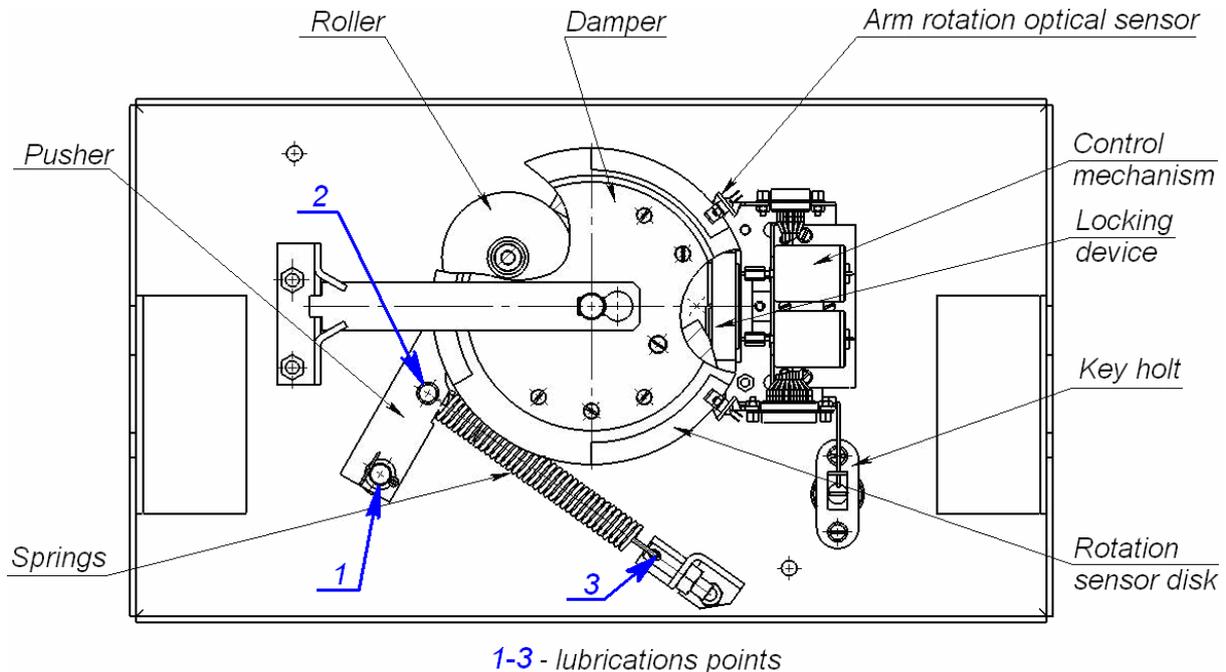
Figure 15. Arrangement of the components inside the IP-Stile housing

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 6 layers high.

The storage of the product is allowed indoors at ambient temperature from –25°C to +50°C and relative air humidity up to 80% at +25°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.

APPENDICES

Appendix 1.   Algorithm of control signals generation during standalone operation

Note - for the RC-panel:

- the falling edge — the moment the corresponding RC-panel button is pressed;
- the low signal level— the corresponding RC-panel button is pressed.
- the high signal level— the corresponding RC-panel button is not pressed.

Input of a low-level signal relative to the *GND* contact at the contacts *DUA*, *DUSt* and *DUB* of the connector block *XT2* can generate the following commands:

Always locked (IP-Stile is locked for both entry and exit) *-* the falling edge at the contact *DUSt* with the high signal level at the contacts *DUA* and *DUB*. This command closes both directions

Single passage in the direction A (IP-Stile is open for passage of one person in the direction A) *-* the falling edge at the contact *DUA* with the high signal level at the contacts *DUSt*, *DUB*. This command opens the direction A 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 the direction B (IP-Stile is open for passage by one person in the direction B) *-* the falling edge at the contact *DUB* with the high signal level at the contacts *DUSt*, *DUA*. This command opens the direction B 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) *-* the falling edge at the contact *DUA* with the low signal level at the contact *DUB* and high level at the contact *DUSt* or the falling edge at the contact *DUB* with the low signal level at the contact *DUA* and high level at the contact *DUSt*. 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 the direction A (IP-Stile is open for free passage in the direction A) *-* the falling edge at the contact *DUA* with the low signal level at the contact *DUSt* and high level at the contact *DUB* or the falling edge at the contact *DUSt* with the low signal level at the contact *DUA* and high level at the contact *DUB*. This command opens the direction A until the command **«Always locked»** is given, while the direction B remains unchanged.

Free passage in the direction B (IP-Stile is open for free passage in the direction B) *-* the falling edge at the contact *DUB* with the low signal level at the contact *DUSt* and the high signal level *DUA* or the falling edge at the contact *DUSt* with the low signal level at the contact *DUB* and high level at the contact *DUA*. This command opens the direction B 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) *-* the falling edge at the contact *DUA* with the low signal level at the contacts *DUB*, *DUSt*, or the falling edge at the contact *DUB* with the low signal level at the contacts *DUA*, *DUSt*, or the falling edge at the contact *DUSt* with the low signal level at the contacts *DUA*, *DUB*. This command opens both directions until the command «**Always locked»** is given.

Appendix 2.   Connection through PoE-splitter

Attention!

- The given instructions are given for the splitters, included in the optional delivery set.
- Overall power consumption of the IP-Stile and all the equipment powered by it should not exceed 12 W. Leave excess powers of minimum 10%.

Description of splitter

PoE-splitter (hereinafter – splitter) is designed for powering of devices connected to *Ethernet* network. Splitter works with any network switches (hereinafter – Switch*)*, supporting the powering by PoE twisted pair and compatible with *IEEE 802.3af* standard.

Splitter features electronics module in a plastic case, it is equipped with following connectors:
> ***Con 1*** – connector for *Ethernet* cable from *Switch*.
> ***Con 2*** – connector for *Ethernet* cable from the device;
> ***Con 3*** – connector for power cable.

Requirements for connected devices

Power consumption characteristics of controller when connected through splitter shall correspond with the following requirements:

Allowable voltage of DC power .... 12±1.2 V
Minimum joint current of consumption .... min. 120 mA
Maximum joint current of consumption (@ 12V) .... max. 1 A
Maximum joint power consumption .... max. 12 W

In order to prevent excess of joint power consumption it is not recommended to power additional equipment (siren, passage sensors etc.) by controller.

Connection of IP-Stiles

Follow this order while connecting IP-Stile through the splitter:

1. Choose the mounting place. It is recommended to mount splitter inside the case of controller (The distance between controller and splitter shall not exceed 2 m).
2. Connect *Ethernet* cable from the controller to **Con2** connector.
3. Connect power supply circuit of controller and operating device, controlled by it, to **Con3** connector of splitter. Connection schemes are given on Figure 16. IP-Stile controller connection scheme. (connection plug is included into delivery set of splitter).
4. Connect *Ethernet* cable from Switch to **Con1** connector of splitter.
5. The connected device will be powered after the verification between Switch and splitter.

If you need to turn the power of controller off, disconnect *Ethernet* cable that goes from Switch, from **Con1** connector.
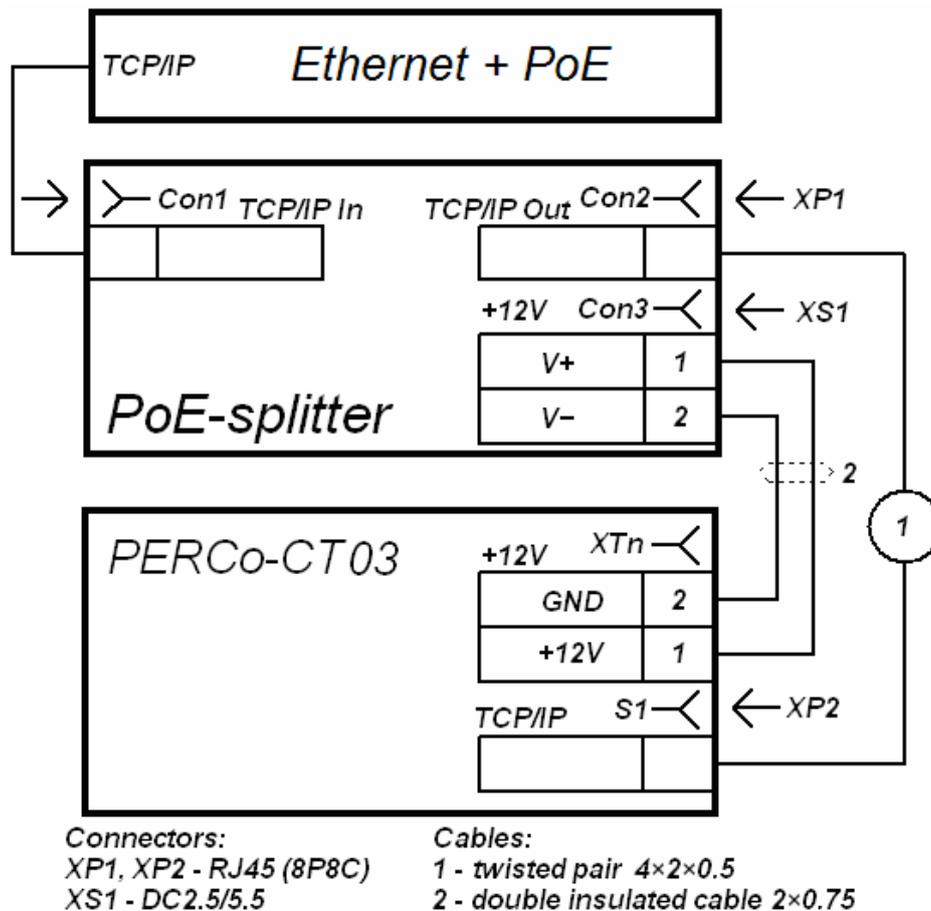
Figure 16. IP-Stile controller connection scheme

Appendix 3. *KT-02.9* **Controller Web-interface.**
User Manual

CONTENTS

1. WEB-INTERFACE OPPORTUNITIES

Using Web-interface without installation of additional software allows performing following steps for the controller and connected devices:

- Change configurations, access password and time of built-in clocks of the controller.

- Configure Settings of operational device, readers and other equipment's of the controller.

- Set ACM for IP-Stile and operation devices.

- Record the access card numbers in the controller memory, assign them the rights for arming or disarming.

- Monitor event log of the controller and save them as a file.

- Control the status of the controller and connected devices, monitor the event log.

- Troubleshoot the controller, format the memory and update the embedded software.

> ⚠️ **Attention!**
>
> It is possible only with the Web-interface:
>
> - Select controller configuration and Settings of built-in memory (access cards/events).
>
> - Add and delete optional readers in configuration.

> ℹ️ **Note:**
>
> Change of configurations via Web-interface of the controller is not available if the controller is under control of network or local software of **PERCo** systems (you can only monitor the configuration; operations are forbidden). The access to Web-interface is allowed if the software is configured to **Allow Web-interface**. It is possible after stopping the operation of the software and stopping the server of **PERCo** system.

2. CONNECTION TO WEB-INTERFACE OF THE CONTROLLER

Connection between the controller and the computer is performed via *Ethernet* interface (IEEE 802.3). Make sure that the computer and the controller are on the same subnet *Ethernet*. It may become necessary to change network settings of the computer, browser settings and to check operation of the network. IP-address of the controller is specified in the certificate and the controller board.

To connect the controller to Web-interface:

1. Open Web-browser (e.g. *Internet Explorer*).

> ℹ️ **Note:**
>
> Web-interface was tested with the Web-browsers: *Microsoft IE* version 10 or higher, *Google Chrome* version 32 or higher, *Mozilla Firefox* version 32 or higher, *Opera* version 30 or higher, *Microsoft Edge* and for *MacOS Apple Safari 9* or higher. If you use other browsers and outdated versions, malfunctions of the Web-interface can appear.

2. Enter in the address bar IP-address of the controller and press the button **Enter** on the keyboard. If necessary, enter the access password to the controller. By default, there is no password. When entering the password, the content of the field **User name** doesn't matter.

3. After that the main Web-page of the controller interface is opened. At the home page are displayed the model, configuration, network settings of the controller and the version of embedded software. Every time when you open the main page, current data read from the controller are displayed there.

On the page, you can select following:
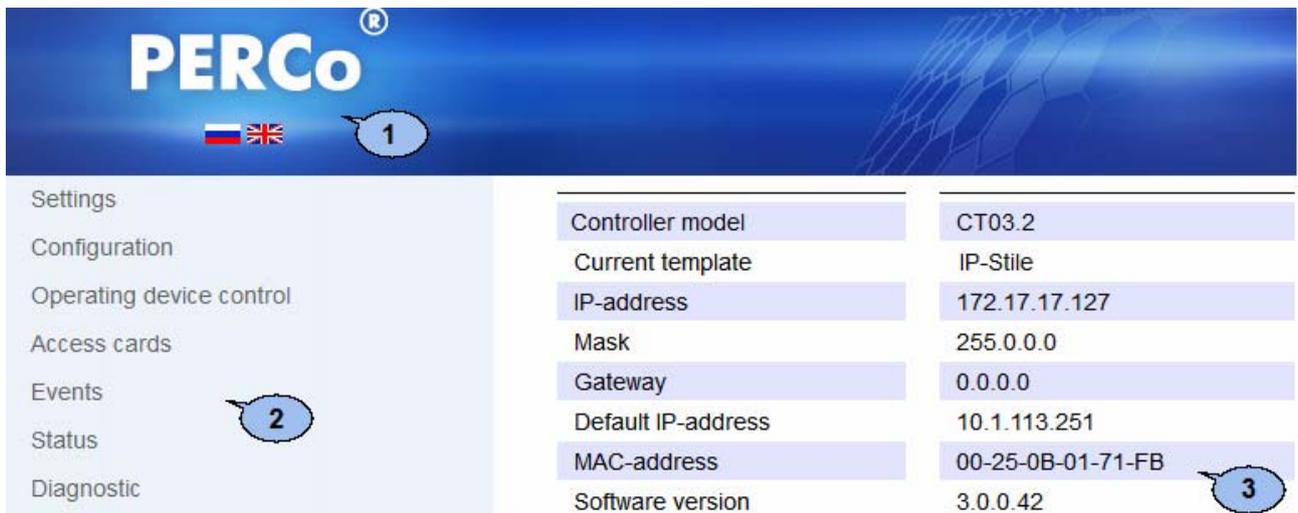
1. The title bar if he page contains **PERCo** trademark and buttons to select the language of Web-interface. By clicking on the **PERCo** company logo you navigate to the main page from other sections of Web-interface.

2. Sidebar of the Web-interface navigation. The panel has the following structure:

"Settings"	"Network"	
	"Password"	
	"Time"	
	"Memory usage"	
"Configuration"	"Template"	
	"Edit"	"Operation devices"
		"Physical contacts"
		"Readers"
		"Card format"
		"Internal responses"
"Operating device control"		
"Access cards"	"Input"	
	"List"	
	"Load from file"	
"Events"		
"Status"		
"Diagnostic"		

3. Working area of the page.

3. SETTING

3.1 Change of network setting of the controller

The controller has following configurations by default (they are specified in the certificate of the device and on the labels on the controller):

- MAC-address `00-25-0B-xx-xx-xx`, where `xx` – is a number from `00` to `FE`;
- IP-address `10.x.x.x`, where `x` – – is a number from 0 to 254;
- Subnet mask `255.0.0.0`.

To change network settings of the controller (only in user mode, Sect. 5.5 of Operation manual):

1. Click consistently in the Web-interface menu: **Settings** → **Network**. The page with working area will be opened:

2. In the input fields **IP-address:**, **Mask:**, **Gateway:** the new values of network Settings of the controller.

3. Click **Save** button. New network settings will be saved in the controller.

3.2 Setting of the access password of the controller

By default, access password of the controller is not specified. To change or set the new password:

1. Click in the Web-interface menu: **Settings → Password**. The page with working area will be opened:

2. In the **New password:** field enter the new password of the controller, in the **Confirm password:** field enter the password again to confirm the correct input.

3. Click the **Save** button. The new password will be saved in the controller.

3.3 Change the system time of the controller

To change the time:

1. Click in the Web-interface menu: **Settings → Time.** The page with working area will be opened:

2. In the input fields **Change Date:**, **Change Time:** change the set values.

3. If necessary, put tick **Synchronize with PC:** to synchronize the time and date of the controller with the computer connected to the Web-interface.

4. Click the **Save** button.

3.4 Choice of Settings of memory allocation

By default, the controller memory is allocated to store data up to 50,000 access cards and up to 230,000 events. The user is able to change the memory allocation of the controller in accordance with the controller configuration. Other options of memory allocation:

- 10,000 cards and 870,000 events,
- 20,000 cards and 710,000 events,
- 30,000 cards and 550,000 events,
- 40,000 cards and 390,000 events.

> **ⓘ** *Note:*
>
> In software **PERCo-Web** are supported all these options, but their choice is only available in the Web interface.

To change Settings on the memory allocation of the controller:

1. Click in the Web-interface menu: **Settings → Memory usage**. The page with working area will be opened:

Memory resizing: 50000 cards and 230000 events ▾

Save

2. In dropdown list **Memory resizing:** select one of the variants of the memory allocation:

3. Click the **Save** button.

4. CONFIGURATION

4.1 The choice of the controller configuration

The following configuration templates are available for the **CT-03.2** controller:

1. Controller for IP-Stile control (basic – without a card capture reader and an antipanic device).
2. Controller for IP-Stile control with a built-in card capture reader.
3. Controller for IP-Stile control with built-in antipanic device.
4. Controller for IP-Stile control with a built-in card capture reader and built-in antipanic device.

> **⚠** *Attention!*
>
> If you change the configuration, the previous configuration and at the internal responses of all resources of the controller will be deleted. In the new template for the resources of the controller is installed default configuration. The list of downloaded access cards, related user information, rights and parameters of access remain the same.
>
> **When delivered, the controller is configured according to the template corresponding to the type of this IP-Stile (for *KT-02.9* – «Controller for IP-Stile control – Basic»). If necessary, return to the initial configuration of the controller during the operation, use only this template.**

To change the configuration of the controller:

1. Click in the Web-interface menu: **Settings → Template**. The page with working area will be opened:

Operating controller for IP-Stile...
    Basic
    with built-in card reader
    with built-in antipanic
    with built-in card capture reader and antipanic
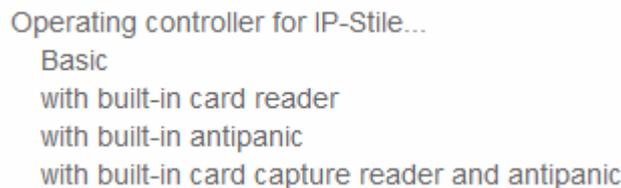
2. Select the template that corresponds to the type of IP-Stile (for **KT-02.9 –** «Controller for IP-Stile control – Basic»). The window **Configuration template** shall be opened where selected configuration is specified.

Configuration template   ✖

IP-Stile

Continue   **Cancel**
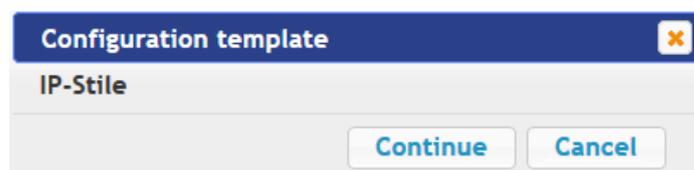
3. In the opened window click **Continue.** The controller configuration will be changed. Change the configuration template can take 30 seconds.

4.2   Configuration of the Settings of the controller resources

4.2.1   Operating devices

To configure Settings of the controller resources to control OD:

1. Click consistently in the Web-interface menu: **Configuration → Edit → Operating devices**. The page with working area will be opened:

2. To change Settings of the OD, click in the working area of the page on a line with his name:

3. In the opened window on the tabs **General**, **Alarm generator**, **Reader (number)**, **Operating device** make the necessary changes of the Settings for corresponding resources.

> ### Note:
> For the resource **Reader (number)**, the parameter **Card rights number:** indicates the number of the set of card rights used for passing with this reader. Individually for each card can be configured 12 different sets of rights.

4. Click the **Save** button. The window will be closed, changed Settings will be passed to the controller.

5. To exit the window with the name of the OD without saving the changes, click the **Cancel** button or the **Close** button ⊠.

4.2.2   Physical contacts (inputs and outputs)

To configure the Settings of the controller inputs and outputs:

1. Click consistently in the Web-interface menu: **Configuration → Edit → Physical contacts**. The page with working area will be opened:

Contact	Function	Operating device	Direction	Normal
Input 1	Pass input	1	2	Closed
Input 2	Pass input	1	1	Closed
Input 3	Not specified			Cut
Input 4	Not specified			Cut
Input 5 (loop)	Not specified			Cut
Input 6 (loop)	Not specified			Cut
Input 7	Remote control	1	1	Cut
Input 8	Remote control	1	3	Cut
Input 9	Remote control	1	2	Cut
Input 10	Fire alarm input			Closed
Output 1	Operating device control output	1	1	Not energized
Output 2	Operating device control output	1	2	Not energized
Output 3	Not specified			Not energized
Output 4	Not specified			Not energized
Output 5	Not specified			Not energized
Output 6	Not specified			Not energized
Output 7	Remote control indication output	1	1	Energized
Output 8	Remote control indication output	1	3	Energized
Output 9	Remote control indication output	1	2	Energized

The page lists all the controller inputs and outputs.

When you select the template (Clause 4.1) the inputs and outputs that are involved in the control of the OD of this template, corresponding functions are stated (for inputs – PASS / RC, for outputs – control of OD / indication of the RC-panel) and specify the number and direction of the OD which the physical contact is attached. Inputs and outputs that are not selected in the template, the value is **Not specified**. These inputs and outputs are available for the task (and changes in the future) of its functions.

⚠️ *Attention!*

To avoid incorrect operation of the product, do not change the parameters of the inputs and outputs used in the control of the IP-Stile!

The correct configuration of physical contacts for *KT-02.9* IP-Stile see above in the screenshot. You can also return to the factory default settings by rebooting the configuration template (see Clause 4.1).

Inputs and outputs that are not involved in the selected template are defaulted to **Not specified**. These outputs and inputs are available for specifying (and changing later) their functions.

2. Click in the working area of the page on the line with the name of the input (output). The window with the physical contact will be opened:

Physical contact Input 4	❌
Normal state:	Closed ⌄
	Save Cancel

3. In the opened window make necessary changes of the Settings:
   - selector Normal state: defines the normal state of the contact – it is opened or closed for inputs or Energized and Not energized for outputs;
   - selector Function: sets the function of the contact.
4. Click the **Save** button. The window with the physical contact name will be closed, the changed Settings of inputs (outputs) will be passed to the controller.

5. To exit from the window of physical contact without saving changes, click the button **Cancel**. Also, it is possible to close the window using the **Close** button ⊠.

4.2.3 Readers

In the controller configuration template, there are two readers built-in the IP-Stile. Optionally, it is possible to add in the configuration optional readers for the directions of passage through IP-Stile. For one direction can be installed one, two or three readers working in parallel to the built-in reader. It can be useful, for example, when connecting the card capture reader. Totally, to the controller can be connected up to 8 readers.

Note:

When you add optional readers, they have the configuration similar to the card capture readers attached to the same directions of the IP-Stile. In this regard, added readers are not appeared in network and local software of **PERCo-Web** system.

To configure the Settings of the reader:

1. Click consistently in the Web-interface menu: **Configuration** → **Edit** → **Readers**. The page with working area will be opened:

Add		
Number	**Operating device**	**Direction**
Reader 1	1	1
Reader 2	1	2

2. Click in the working area of the page on the line with the name of necessary reader, to add the reader in the list click the **Add** button. The window **Reader** (**number**) will be opened:

Reader 1	⊠
Operating device:	1 ⌄
Direction:	1 ⌄
Delete	Save Cancel

3. In the opened window make the necessary changes of the Settings:

- selector Number: specifies the number of added reader.
- selector Operating device: specifies the number of the OD to which the reader is attached (for IP-Stile it is always OD #1).
- selector Direction: sets the direction of the OD to which the reader is attached.

Attention!

To avoid incorrect operation of the product, do not change the parameters of the built-in readers #1 and #2 involved in the control of the IP-Stile!

If necessary, you can also return to the factory default settings by rebooting the configuration template (see Clause 4.1).

4. Click the **Save** button. The window **Reader (number)** will be closed, changed Settings will be passed to the controller, added reader with assigned number will be added in the list.

5. To remove the reader from the configuration, click the **Delete** button. Window **Reader (number)** will be closed, the reader will be removed from the list.

6. To exit from the window **Reader (number)** without saving changes, click the button **Cancel**. Also, it is possible to close the window using the **Close** button ⊠.

4.2.4   The reading format of the card identifiers

⚠️ *Attention!*

- Change of this parameter when you have already entered the access control cards, results in the passage on these cards will be impossible.
- When connecting to the controller working under software of *PERCo* systems, the current formant may not be shown (nothing is selected from the formats). In this case to change the reading format of card identifiers is **PROHIBITED**.

To select the reading format of card identifiers:
1. Click consistently in the Web-interface menu: **Configuration** → **Edit** → **Card format**. The page with working area will be opened:

Card reader operating mode:	Wiegand 26 ▾

Save

2. Using the drop-down list **Card reader operating mode:** select one of offered formats and click the **Save** button.

4.2.5   Internal responses

To set internal responses of the controller:
1. Click consistently in the Web-interface menu: **Configuration** → **Edit** → **Internal responses**. The page with working area will be opened:

Add

Number	Source			Receiver		
	Type	Number	Direction	Type	Number	Direction
1	Unblock device	1	1	Block reader	1	1
2	Unblock device	1	1	Normalize output	5	1

2. To add the new response, click the **Add** button, to change the Settings of internal response or delete it, click in the working area of the page on the line with the response name. The window **Internal response (number)** will be opened:

Internal response 1

Number:	1
Source type:	Unblock device
Source number:	1
Source direction:	1
Receiver type:	Block reader
Receiver number:	1
Receiver direction:	1
Response time:	Unlimited
Response characteristic:	Absolute time
Reset of the guard zone output in «ALARM» mode:	No

Save   Cancel

3. In the opened window make the necessary changes of the Settings:
   - Selector **Number:** sets the number of response (from 1 to 40).
   - Selector **Source type:** specifies the launch condition of the controller response.
   - Selector **Source number:** (**Receiver number:**) and **Source direction:** (**Receiver direction:**) determine numbers and directions of corresponding resources of the controller which are sources (receivers) of the response.
   - Selector **Receiver type:** specifies the controller response under condition of the responses launch.
   - Selector **Response time:** and **Response characteristics:** set corresponding Settings of the response.

4. Click the **Save** button. The window **Internal response (number)** will be closed, the changed Settings will be passed to the controller.

5. To remove the response from the list, click the **Delete** button. The window **Internal response (number)** will be closed, the internal response will be deleted.

6. To exit the window Internal response (number) without saving changes, click the **Cancel** button. Also, it is possible to close the window using the **Close** button [×].

5. CONTROL OF OPERATING DEVICE

To control the operating device and change the operation mode in the direction with associated reader, make following:

1. Click in the Web-interface menu: **Operating device** c**ontrol**. The page with working area will be opened:

Number	Algorithm
1	Turnstile

2. Click in the working area of the page on the line with OD, to which it is necessary to issue the control command. The control window with selected OD will be opened:
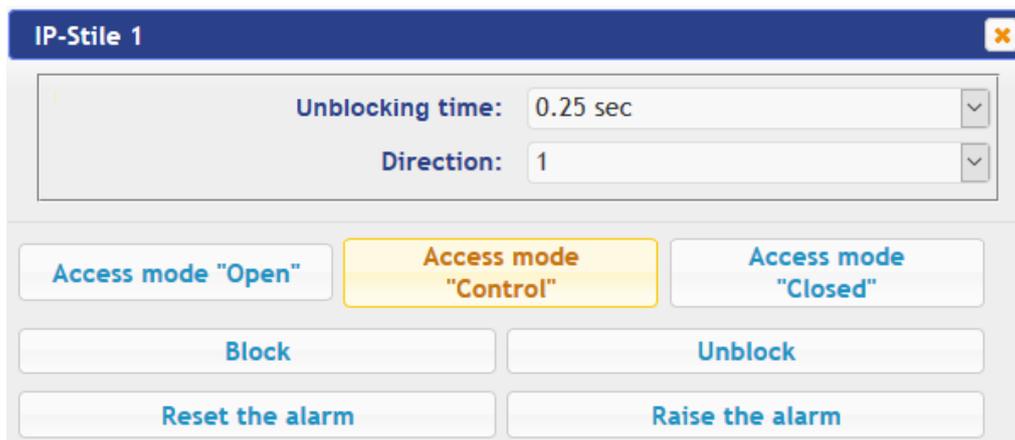
3. Using the buttons at the bottom part of the window, give the necessary command. The control window will be closed; the command will be passed to the controller. To close the window without submitting command is possible with the **Close** button [×].

   Note:

   When you unlock the OD will be unlocked for the time chosen in the drop-down list **Unlock time**.

6. ACCESS CARDS

6.1 Entering of the cards identifiers

To enter the card identifiers:

1. Click consistently in the Web-interface menu: **Access cards** → **Enter**. The page with working area will be opened:

2. If necessary, use the dropdown list in the heading of the **Number type** column, select the format to display the cards identifiers.

 Note:

The display format is not the format of reading of the card identifiers (set in the **Configuration** section, Clause 4.2.4), when you change the display format, the format of reading does not change.

3. Entering of the card identifiers from the reader:
   - In the working area of the page click the **Switch on card reader input** button.
   - Present your card to one of the readers included in the controller configuration. The card identifier will appear in the working area of the page. Also, you will see the buttons **Save** and **Load to emergency list.**
   - If necessary, similarly add other cards.

   - In the working area of the page click the **Switch off card reader input** button.

4. Entering of the card identifiers manually:
   - In the working area of the page click the M**anual input** button. The window C**ard input** will be opened:

   - In the **Card number:** field enter the card identifier. Click the **Save** button. The window C**ard input** is closed; the card identifier appears in the working area of the page.
   - If necessary, similarly, add the other cards.

5. To transfer the entered card identifiers to the controller, click the **Save** button in the working area of the page. The identifiers will be transferred to the main list of the cards in section **List**.

⚠️ ***Attention!***
When you enter the card identifiers in the list of the controller, by default they are granted rights of access over all ODs connected to the controller (all 12 sets of rights for each card have the status **Unblocked**), Clause 6.2.

6.2 The list of stored cards

To work with the list of the cards stored previously in the controller's memory:

1. Click consistently in the Web-interface menu: **Access cards → List**. The page with working area will be opened:

Number Wiegand 26 ⌄	Valid till	Type	Full name
1,19	18-07-2017 18:00:59	Temporary	Kravtschuk Sergey
56,15714	24-07-2019	Permanent	Savitskiy A.P.
63,45357	25-07-2019	Permanent	Radek Y. G.
68,17161	24-07-2019	Permanent	Mullermann Ernst
190,50942	25-07-2019	Permanent	Gritovt Peter
243,50788	18-07-2017 18:00:59	Temporary	Visitor #1
2,42291	18-07-2017 18:00:59	Temporary	Visitor #2
37,46820	31-12-2099	Permanent	Gagarin A.
48,22984	31-12-2099	Permanent	Traspodnic Hans
139,46934	31-12-2099	Permanent	Qualthu Muhamet Oridy

Save file   Clear log

2. If necessary, use the dropdown list in the heading of the **Number** column, select the format to display the cards identifiers.

ℹ️ ***Note:***
The display format is not the format of reading of the card identifiers (set in the **Configuration** section, Clause 4.2.4), when you change the display format, the format of reading does not change.

3. To save the cards to a file, click the **Save file** button. The cards will be saved in the file cards.bin, which can be used as a backup card list.

4. To remove all the cards from the controller memory, click the **Clear log** button.

5. To change the Settings, select one of the cards in the working area of the page. The window of the identifier of the selected card opens:

6. If necessary, in the opened window on the **Essential** tab change the card Settings.

7. Go to the **Access rights** tab. It is possible to set access rights for this card. To do this, select the number of the set using the drop-down list **Card rights number** and configure the Settings:

⚠️ *Attention!*

Each card has 12 sets of access rights which in the section Configuration are assigned to the readers of the ODs (Clause 4.2.1). When you enter the cards in the controller list, by default they are granted the access rights over all connected ODs to the controller (all 12 sets for each card have the status **Unblocked**). To set the card only specific sets of access rights is necessary in these sets of rights to keep the status **Unblocked**, but in the other sets to put the status **Blocked**.

8. To delete the card, click the **Delete** button at the bottom part of the window.

9. To save changed Settings of the card, click the **Save** button. The window will be closed, changed Settings will be passed to the controller.

The Settings of the set of access rights correspond to similar Settings in network software of **PERCo** systems.

⚠️ ***Attention!***
Setting of Settings of time access criteria via the controller is possible only in network software of **PERCo** systems. In the Web-interface is only possible to change the time criterion (time zone, weekly schedule, flexible daily schedule, flexible weekly schedule) and transition from one set of time Settings to another set by changing his number. The number of time criterion corresponds to order number of the set of Settings of time criterion in the network software.

6.3 Loading the identifiers from a file

⚠️ ***Attention!***
When loading the list of cards from the file to the controller, previously loaded cards are deleted automatically from the controller memory.

The list of the cards can be loaded only from the file `cards.bin`, created via Web-interface of the controller earlier. To download the numbers of the card from a text file:

1. Click consistently in the Web-interface menu: **Access cards → Load from file.** The page with working area will be opened:

| Browse... | File not selected. | Load |

2. Click the **Browse…** button. In the opened window of the Explorer specify location and name of the file with the card list and click the **Open** button. The explorer window will be closed; the file name will be indicated in the field near the **Browse…** button.

3. Click the **Load** button. The window **Progress** will be opened containing information about the boot process.

| Progress	
Date	**Message**
10-11-2017 13:41:17	Card load
10-11-2017 13:41:17	Completed

7. EVENTS

To view the event log of the registration of the controller:

1. Click in the Web-interface menu: **Events**. The page with working area will be opened:

	Filter

Date	Event
07/11/17 09:36:22	Recovery of internal power supply +5V
07/11/17 09:36:22	FireAlarm entrance normalization
07/11/17 09:36:22	Switch on the controller
03/11/17 16:45:14	Switch off the controller

| Save | Clear | | << First | < Earlier | Later > | Last >> |

2. By default, all events stored in the controller memory are displayed, by 20 events on the page. To move through the pages of the event, use the buttons located in the lower part of the working area. The events in the working area of the page are displayed in reverse chronological order.

3. There is possibility of selection in the report of events by categories and time. To do this, click the **Filter** button, the window **Filter** will be opened:
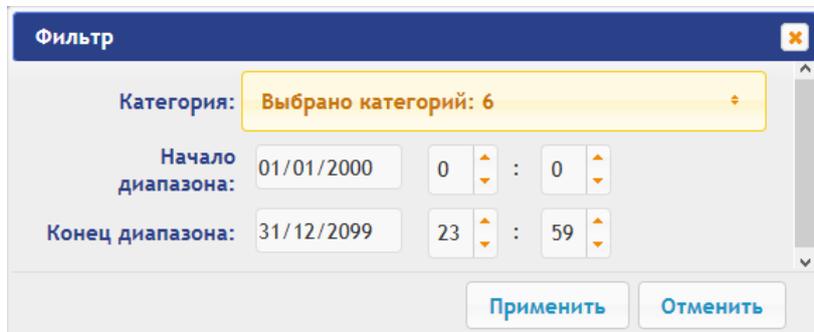
4. In the dropdown list **Selected categories: [number]** put ticks the event categories which should be reported. Following categories of events are available:
    - **ID Card access**
    - **Guard zone status change**
    - **Guard zone resource state change**
    - **Change input/output state change**
    - **Access without ID Card**
    - **Functioning**

5. Use the fields **Range beginning point** and **Range end point** to set the period of the report.

6. Click the **Apply** button to apply the filter, click the **Cancel** button to cancel any made changes. The window **Filter** closes, the report will display the events in accordance with the filter settings.

7. To save the events to a file, click the **Save** button at the bottom part of working area of the page. The events will be saved in the file `events.txt`.

8. To delete all events from the controller memory, click the **Clear** button at the bottom part of working area of the page.

8. STATUS

To view the controller status and status of all his resources click in the Web-interface menu **Status.** The page with working area will be opened:

9. DIAGNOSTICS

For diagnostics and maintenance of the controller:

1. Click in the Web-interface menu: **Diagnostic.** The page with working area will be opened:

2. To start testing the status of the controller hardware click the **Start** button in the line **Diagnostics (50 min):**. In the confirmation window click **OK**.

Attention!

When testing the controller, the event log is automatically cleared.

3. For diagnostic purposes of the controller with the previous formatting, click the **Start** button in the line **Diagnostics formatting (15 min):**.

4. To start formatting the internal memory of the controller, click the **Start** button in the line **Format (2 min):** In the confirmation window click **OK**.

Attention!

When formatting the controller memory, the information about configuration, access cards, time and area zones, controller password and events in the event log is automatically cleared.

5. To update the controller software (firmware), indicate the location of the software file using the **Browse** button and click the **Update** button.

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