ST-02 Speed gate

PERCo

+50
+1
temperature range

24V
operating voltage

W
204 W
power consumption

2
passage directions

M
motor drive

60
persons/min

Application

The ST-02 Speed gate with sliding panels is designed for indoor operation. It is a perfect solution for checkpoints with enhanced aesthetic and comfort requirements.

ST-02 is available in two versions: with a standard passageway width of 600 mm (ST-02.600 version) or an extended width of 900 mm (ST-02.900). The extended version provides convenient access for people with reduced mobility and an additional emergency exit. As a user passes through the turnstile, the panels slide open.

To increase the number of passage zones, STD-02 double-sided sections can be installed. Each double-sided section adds one extra passage zone. STD-02 is available in two main versions: STD-02.600 and STD-02.900 for arranging passage zones with a width of 600 mm and 900 mm respectively.

ST-02.600/900 can be supplied upon request for organizing passage zones with different widths (600 and 900 mm) at a checkpoint. For the same purpose, the STD-02.900 double-sided section features a possibility of reducing the sliding panel's outreach to 600 mm.

RC panel

The tracking system is equipped with two levels of infrared detectors, which guarantees both passage safety and high throughput, while preventing tailgating at the same time.

Operation modes

The speed gate supports two main operation modes: normally closed and normally open, as well as an additional mode, *Automatic opening in the selected direction* (only in the normally closed mode). The product ensures independent control of passage in two directions.

Control commands:

- passage denial
- authorized single passage in the set direction
- authorized free passage in the set direction
- authorized free passage in both directions

When the power is off, the turnstile's sliding panels are unlocked and can be moved apart manually.

ST-02 Speed gate

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Main features

- operation of the speed gate via its RC panel, WRC, or ACS
- built-in electronic boards
- safe operating voltage of 24 V
- power consumption of max. 204 W per speed gate
- upper and lower levels of infrared intrusion detectors, with 30 items on each level
- possibility for several users to perform authorized single passages one by one in the same direction while the sliding panels remain open, which increases the speed gate's throughput rate
- the sliding panels block the passage zone, and additional glass panels block the space above the sections at the height of up to 148 cm
- if needed, the number of passage zones can be increased by installing the STD-02 double-sided sections
- proximity access card readers can be installed inside the sections under the glass top covers (with the overall reader dimensions not exceeding 230x72x32 mm and the reading range amounting to min. 40 mm)
- there is a place for mounting an ACS controller inside the section (with the maximum overall dimensions of 160x140x40 mm)
- passage permission / denial indicators on the glass top covers of the sections
- reader operation zones are indicated with backlit pictograms
- backlit front indication of the passage direction
- the Fire Alarm input serves for connecting an emergency passage unblocking device; when it sends a command, the sliding panels open automatically, allowing passage in both directions
- outputs for connecting remote indication blocks of passage permission / denial, as well as sound indication (a siren)
- two control modes: pulse and potential; the device can operate both as a standalone unit controlled by the operator using the RC panel and as a part of ACS

Turnstile status indication

Passage direction indication

Design

Sections – stainless steel; filler panels and sliding panels – 8 mm tempered glass; section top covers – 10 mm tempered glass.

Operating conditions

In terms of resistance to environmental exposure, the speed gate complies with GOST 15150-69, category NF4 (operation in rooms with climate control).

Its operation is allowed at an ambient air temperature from +1°C to +50°C and relative air humidity of up to 80% at +25°C.

The speed gate is serially produced and has a TR CU Certificate of Conformity (EAC).

Delivery set

ST-02	
Master section with a mounting kit	1
Slave section with a mounting kit	1
Glass top cover	4
Filling glass	2
Glass sliding panel	2
Side panel	4

Central insert	2
RC panel with a cable	1
Documentation set: Certificate and Operation Manual	1
STD-02	
Section with a top cover and mounting kit	1
Glass top cover	2
Filling glass	1
Glass sliding panel	2
Side panel	2
Central insert	1
RC panel with a cable	1
Certificate	1

Technical specifications

Operating voltage		24 V
Consumption current		8.5 A
Power consumption		204 W
Throughput rate in the single passage mode		60 persons/min
Passageway width	ST-02.600	600 mm
	ST-02.900	900 mm
Mean time to failure		2 000 000 passages
Mean lifetime		8 years
Weight of ST-02.600 (two sections with sliding and filler panels)		424 kg
Weight of ST-02.900 (two sections with sliding and filler panels)		488 kg
Weight of STD-02.600 (one section with sliding and filler panels)		251 kg
Weight of STD-02.900 (one section with sliding and filler panels)		263 kg
Overall dimensions of the speed gate*	ST-02.600	1923x1364x1482 mm
	ST-02.900	1923x1964x1482 mm

* When organizing several passage zones, the total width of the speed gate with double-sided sections is calculated using the formula: Ltotal = 600N + 382n + 900M + 532m (mm), where:
N – number of 600 mm wide passage zones,
n – number of ST-02.600/M(S) and STD-02.600 sections,
M – number of 900 mm wide passage zones,
m – number of ST-02.900/M(S) and STD-02.900 sections.

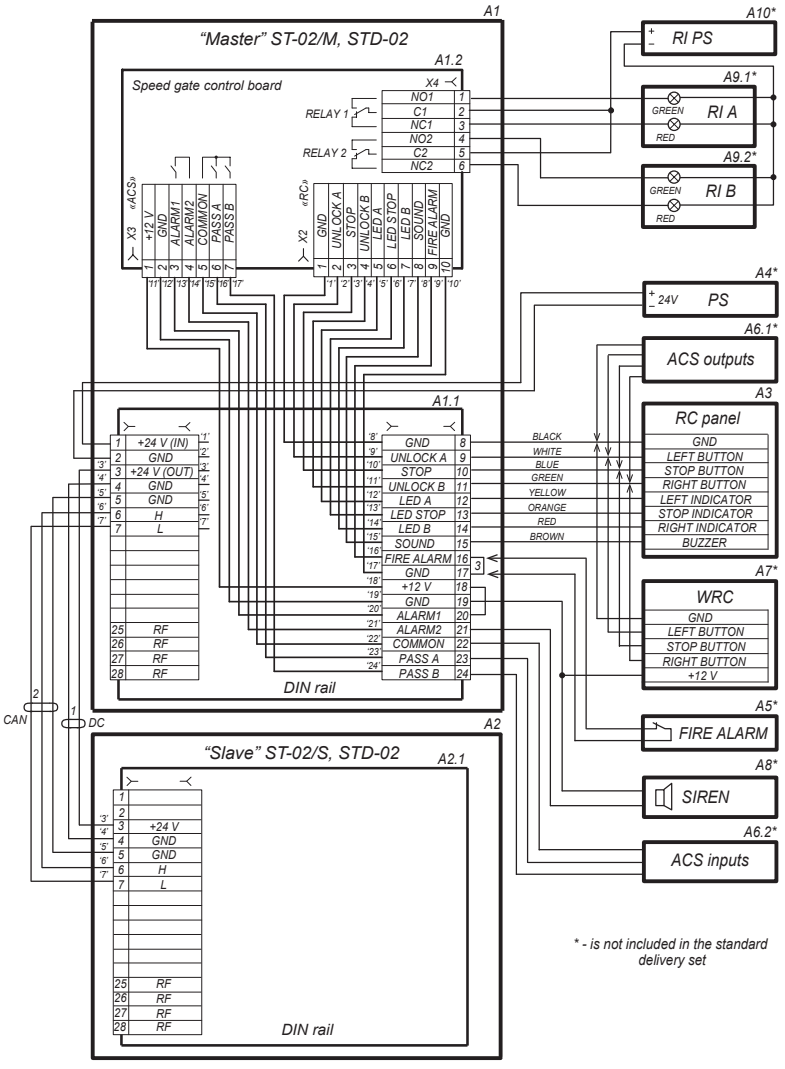
Connection

The product's sections are equipped with integrated electronic boards. The Master and Slave sections (sides of the double-sided section) of the same passage zone are connected with standard CAN and DC cables. For external connections and connection between sections, each section (side of the double-sided section) has a remote terminal block (DIN rail) at the bottom under the inner side panel. The Master section (side of the double-sided section) is equipped with a control board (located inside the section under one of the glass top covers). The microcontrollers installed on the boards control the drives of the sliding panels, process signals from IR detectors, process external commands, and generate signals about passage through the turnstile.

Functions of contacts of the remote terminal block on the DIN rail

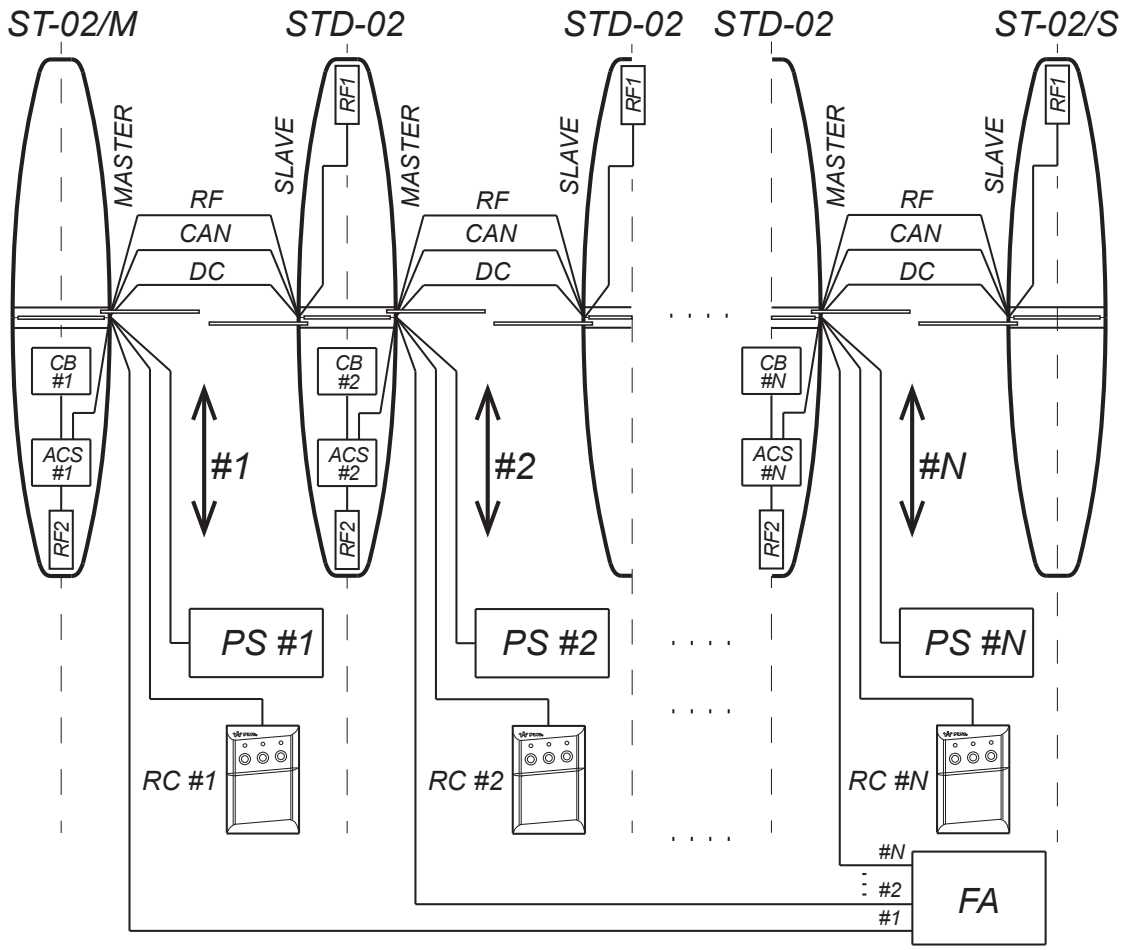
No.	Contact	Master section	Slave section
1	+24V	External power supply connection	Not used
2	GND		
3	+24V	Power supply to the Slave section (DC cable connection)	Power supply from the Master section (DC cable connection)
4	GND		
5	GND	CAN cable connection	CAN cable connection
6	H		
7	L		

8	GND	Common (RC panel connection)	Not installed
9	Unlock A	Control input for direction A	
10	Stop	Control input – passage denial	
11	Unlock B	Control input for direction B	
12	Led A	Indication output for direction A on the RC panel	
13	Led Stop	Passage denial indication output on the RC panel	Not installed
14	Led B	Indication output for direction B on the RC panel	
15	Sound	RC-panel sound signal output	
16	Fire Alarm	Control input for emergency passage unblocking	
17	GND		
18	+12V	GND	
19	GND	+12V	
20	Alarm1	Siren connection output	
21	Alarm2		
22	Common	Common for the PASS A and PASS B outputs	
23	PASS A	PASS A output (passage in direction A)	
24	PASS B	PASS B output (passage in direction B)	
25	RF	Spare contact for connection of a built-in reader	Spare contact for connection of a built-in reader
26			
27			
28			



Connection layout of the ST-02 speed gate

Layout elements		
Item	Description	Q-ty, pcs
A1	Master section (side of the section)	1
A1.1	Remote terminal block (DIN rail) of the Master section	1
A1.2	Control board	1
A2	Slave section (side of the section)	1
A2.1	Remote terminal block (DIN rail) of the Slave section	1
A3	RC panel	1
A4	Speed gate's power supply unit	1
A5	Device for sending the Fire Alarm command	1
A6 (A6.1, A6.2)	ACS controller	1
A7	WRC device	1
A8	12 V DC siren	1
A9.1 A9.2	Remote indication block	2
A10	Power supply unit for remote indicators	1
A11	RF1 and RF2 access card readers	2
1	DC connection cable	1
2	CAN connection cable	1
3	Jumper wire if there is no Fire Alarm device installed (A5). Installed by default.	1



Connection layout of the ST-02 speed gate and STD-02 double-sided sections for arranging a checkpoint with several passage zones

Operation algorithm

The speed gate can be operated from the RC panel (included in the delivery set), WRC, or ACS controller.

The speed gate is controlled by applying a low-level signal to the Unlock A, Stop, and Unlock B contacts relative to the GND contact. The response to these signals depends on the control mode selected with the Pulse switch.

In the pulse control mode (the Pulse switch is in the ON position), a pulse is applied to the Unlock A(B) input so that the speed gate's sliding panels automatically open for a single passage in direction A(B). The passage waiting time does not depend on the control pulse duration and amounts to 8 seconds. A pulse sent to the Stop input closes the sliding panels from any position, thereby blocking the passage. Pulses sent simultaneously to the Unlock A(B) and Stop inputs switch the device to the *Free passage* operation mode in the selected direction.

The pulse mode is recommended for operation from the RC panel or WRC. The orientation of RC-panel buttons can be changed by swapping the RC-panel wires connected to the Unlock A and Unlock B contacts as well as Led A and Led B respectively.

In the potential control mode (the Pulse switch is in the OFF position), a control signal is applied to the Unlock A(B) input so that the sliding panels open for passage in the selected direction and remain open all the time while the signal is held. The control signal sent to the Stop input closes the sliding panels, which blocks the passage regardless of signals at the Unlock A(B) inputs.

The potential mode is recommended for operation from the ACS controller.

Regardless of the selected control mode, passage signals are generated when passing through the gate in either direction – PASS A or PASS B respectively. These signals can inform the ACS controller of the fact of passage.

In emergencies, the passage is opened by removing a low-level signal from the Fire Alarm contact relative to the GND contact.

Furthermore, the product features:

1. Normally closed and normally open operation mode (to be selected with the XP2 Mode1 jumper)

2. Additional *Automatic opening in the selected direction* mode (the R1 switch in the ON position); it can be activated only in the normally closed operation mode. It allows free passage through the turnstile in one preset direction (to be selected with the R2 switch) with automatic opening and closing of the sliding panels during passage.

Note

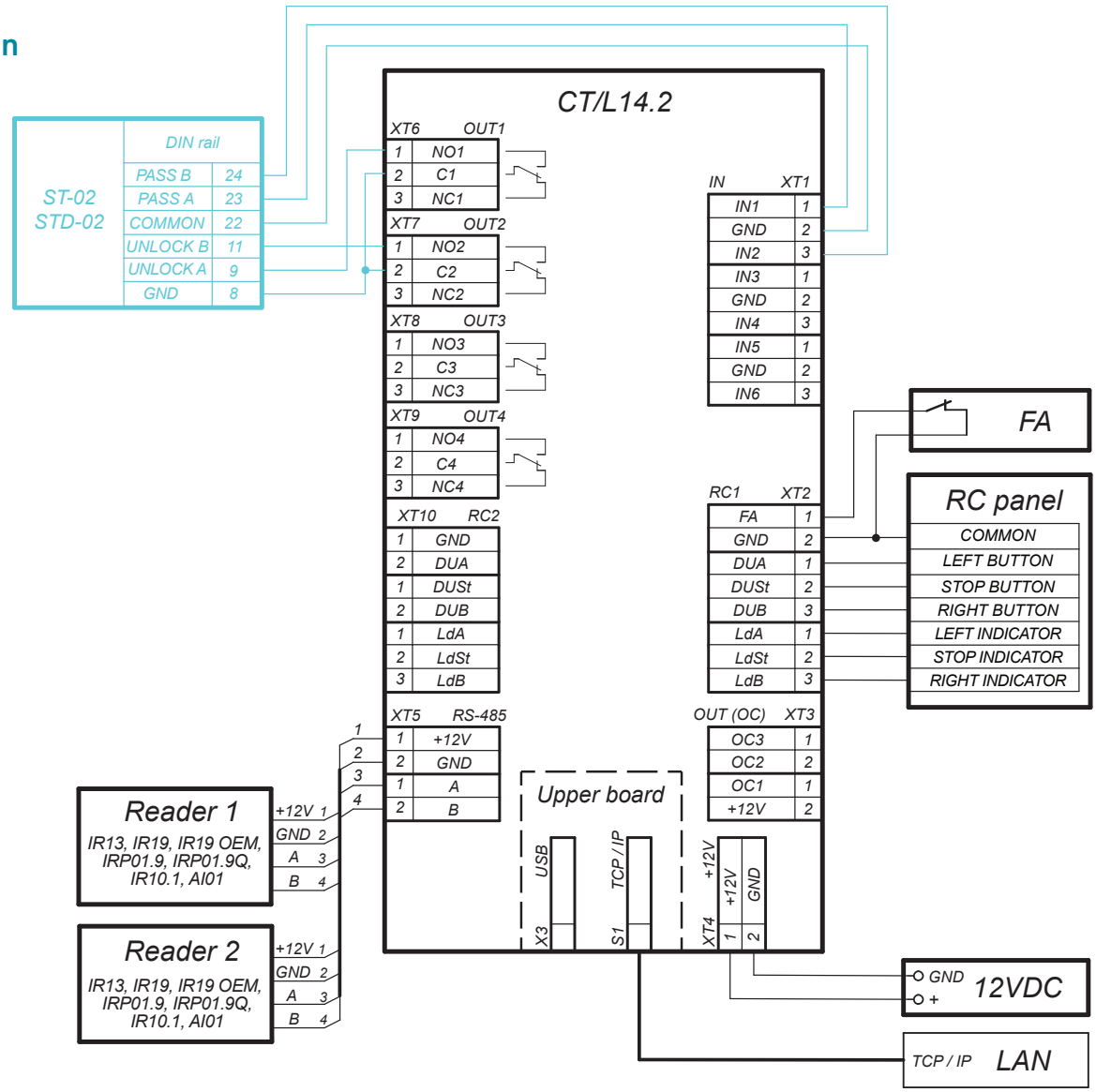
When operating the speed gate via the ACS controller, it is recommended to connect the RC panel to the ACS controller.

The maximum allowable length of the RC-panel (ACS-controller) cable amounts to 40 meters.

The allowable length of the cable from the power supply unit depends on its cross-section and must not exceed:

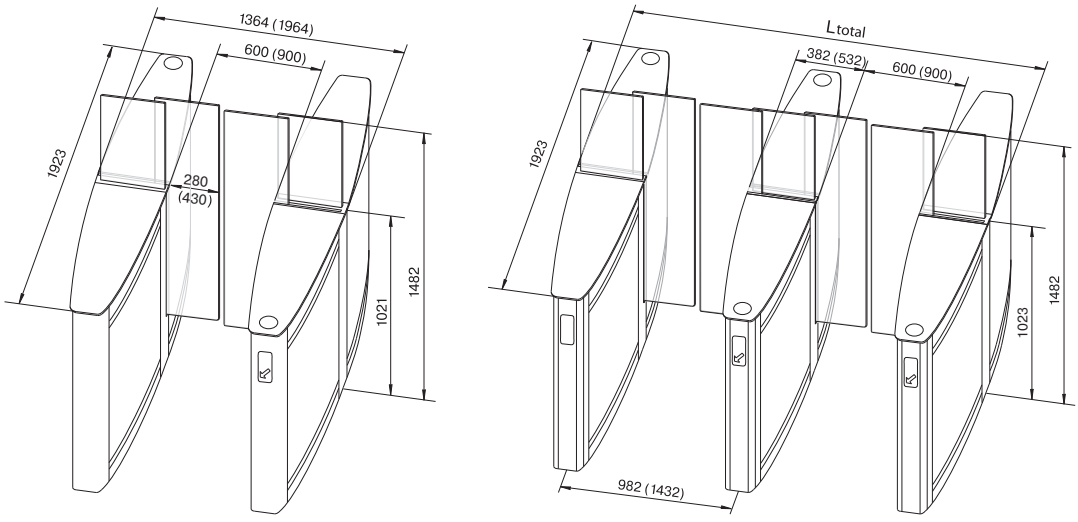
- for a cable with a cross-section of 1.5 mm^2 – 10 meters;
- for a cable with a cross-section of 2.5 mm^2 – 20 meters.

ACS connection example



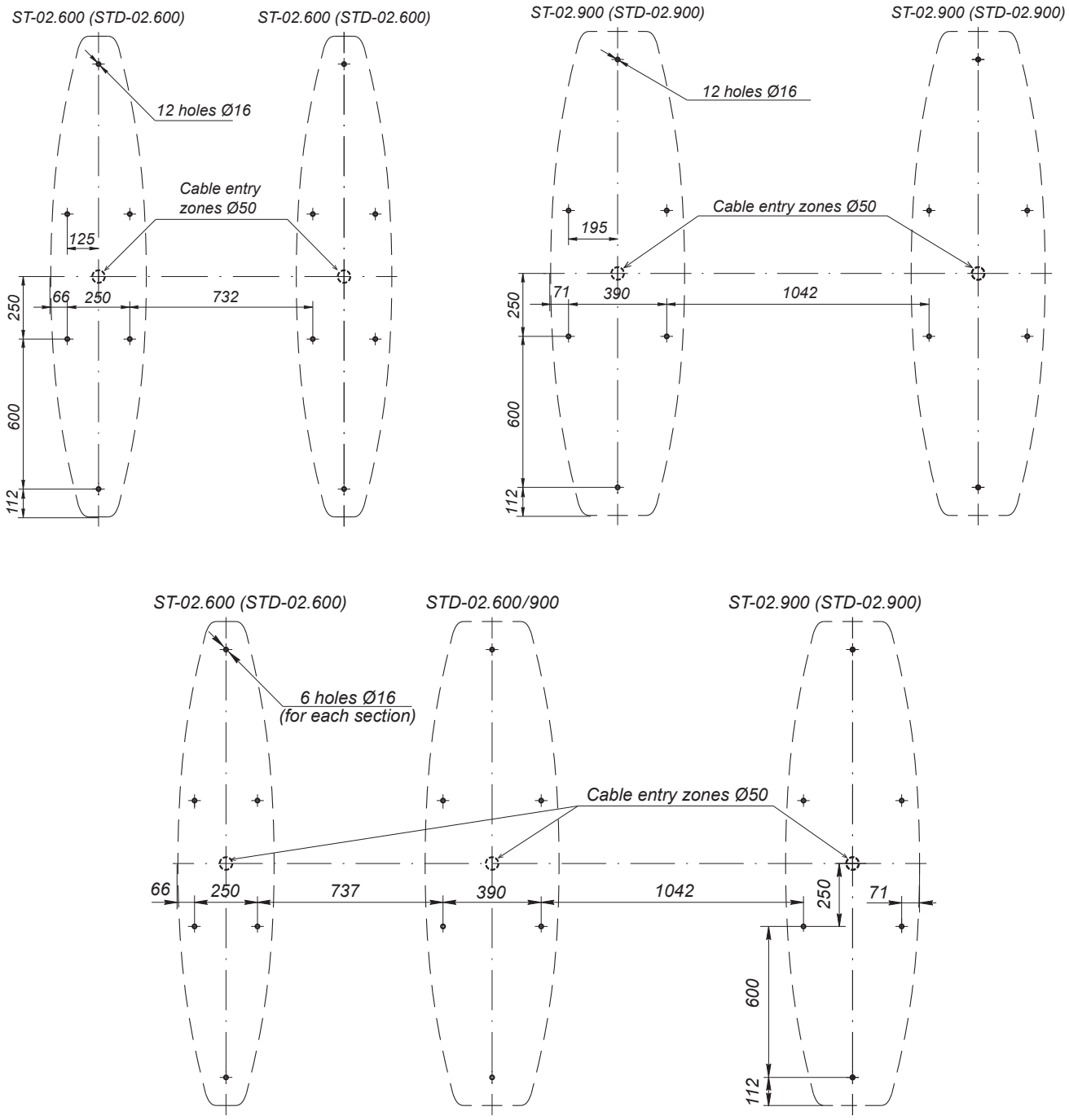
Example of connection of the speed gate to the ACS controller

Overall dimensions



Overall dimensions

Installation



Marking of section mounting holes on the floor and cable entry zone

Foundation requirements: concrete (grade 400 or higher), stone, and similar foundations with a thickness of at least 150 mm; when installing sections on a less steady foundation, one should apply embedded reinforcing elements (450x450x200 mm).

Warranty

The warranty period amounts to 5 (five) years commencing from the date of sale, unless otherwise stipulated in the product delivery contract. In case of sale and installation of the equipment by authorized PERCo dealers and service centers, the warranty may start from the date of commissioning.

If there is no date of sale in the warranty card, the warranty period shall commence from the date of manufacture specified in the Certificate and on the label of the product.