RTD-15 Full height rotor turnstile

PERCo



+55
-40
temperature range

24V
operating voltage

W
105 W
power consumption

2
passage directions

20
persons/min

mechanical unlocking

M
motor drive

Application

The RTD-15 Full height rotor turnstile is a normally closed electromechanical turnstile designed for both indoor and outdoor operation.
Two modifications of the RTD-15 turnstile are available:

- RTD-15.1 with a motor drive. Its motor is activated at the beginning of passage through the turnstile once the rotor sections have turned about 12° and starts their automatic rotation in the passage direction to reset them to the initial (closed) position.
- RTD-15.2 with a mechanical drive. In this case, during passage through the turnstile, after the rotor sections have turned more than 60°, the operating mechanism automatically resets them to their initial (closed) position.



RC panel

The delivery set includes an RC panel. The orientation of its buttons relative to passage directions is set when connecting the panel to the turnstile. It is recommended to install the turnstiles assuming that the peak load totals 20 persons/minute per passage zone. The turnstiles can come complete with a security gate and railings produced in the same design.

The turnstile ensures access control in two directions; the turnstile operation mode can be set independently for each passage direction.

Operation modes

Available operation modes:

- passage denial in both directions
- single passage in one direction and passage denial in the other direction
- single passage in both directions
- free passage in one direction and passage denial in the other direction
- free passage in one direction and single passage in the other direction
- free passage in both directions
- lock-chamber mode (two-phase mode with a stop for checking incoming persons, to be set during the installation process)

RTD-15 Full height rotor turnstile

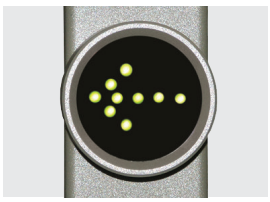
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Main features

- operation of the turnstile via its RC panel, WRC, or ACS
- electronic board integrated into the turnstile housing
- possibility of setting the lock-chamber mode for the turnstile
- the reverse rotation of the rotor is blocked upon turning the rotor sections more than 60°
- the Fire Alarm control input enables connection of a device sending an emergency unlocking command (e.g., from the fire alarm system)
- the turnstile can be mechanically unlocked with a key in each passage direction, which ensures free rotation of the rotor sections in this direction
- built-in ultra-bright LED indicators of passage permission / denial
- built-in walkway downlights (two 4 W LED lamps)
- the device can be additionally protected against precipitation and attempts to climb over its top by installing an optional canopy, which forms a single structure jointly with the turnstile
- the turnstile can be installed even on soft ground by applying a dedicated foundation frame
- high corrosion resistance of the aluminum alloy structure, which guarantees its long service life under adverse environmental conditions
- high-strength polymer-based powder coating, which keeps the appearance intact during long-term operation
- two control modes – pulse and potential
- possibility of connecting an intrusion detector and siren to the turnstile



Mechanical unlocking with a key



LED indication

Operating conditions

In terms of resistance to environmental exposure, the turnstile complies with GOST 15150-69, category N2 (outdoor application). Its operation is allowed at an ambient air temperature from -40°C to +55°C and relative air humidity of up to 98% at +25°C. The protection rating of the top channel is IP55.

The RC panel, with regard to resistance to environmental exposure, complies with GOST 15150-69, category NF4 (operation in rooms with climate control). It may be operated at an ambient air temperature from +1°C to +55°C and relative air humidity of up to 80% at +25°C.

Design

Housing – powder-coated aluminum structure. Housing color – light beige with pearl mica effect. Upon request, the turnstiles can be painted in other colors according to the RAL color chart.

The RTD-15 turnstile is serially produced and has a TR CU Certificate of Conformity (EAC).

Delivery set

Rotor section	3
Barrier section, assembled with an indication block and indication cable	1
Section of the guide barrier set, assembled with an indication block	2
Top channel	1
Mounting hardware required for assembly of turnstile parts	1 set
RC panel (with a 6.6 m long cable)	1
Key to mechanical release locks (2 pcs per lock)	4
Documentation set	1
Spare parts kit	1
Installation leaflet with a QR code	1

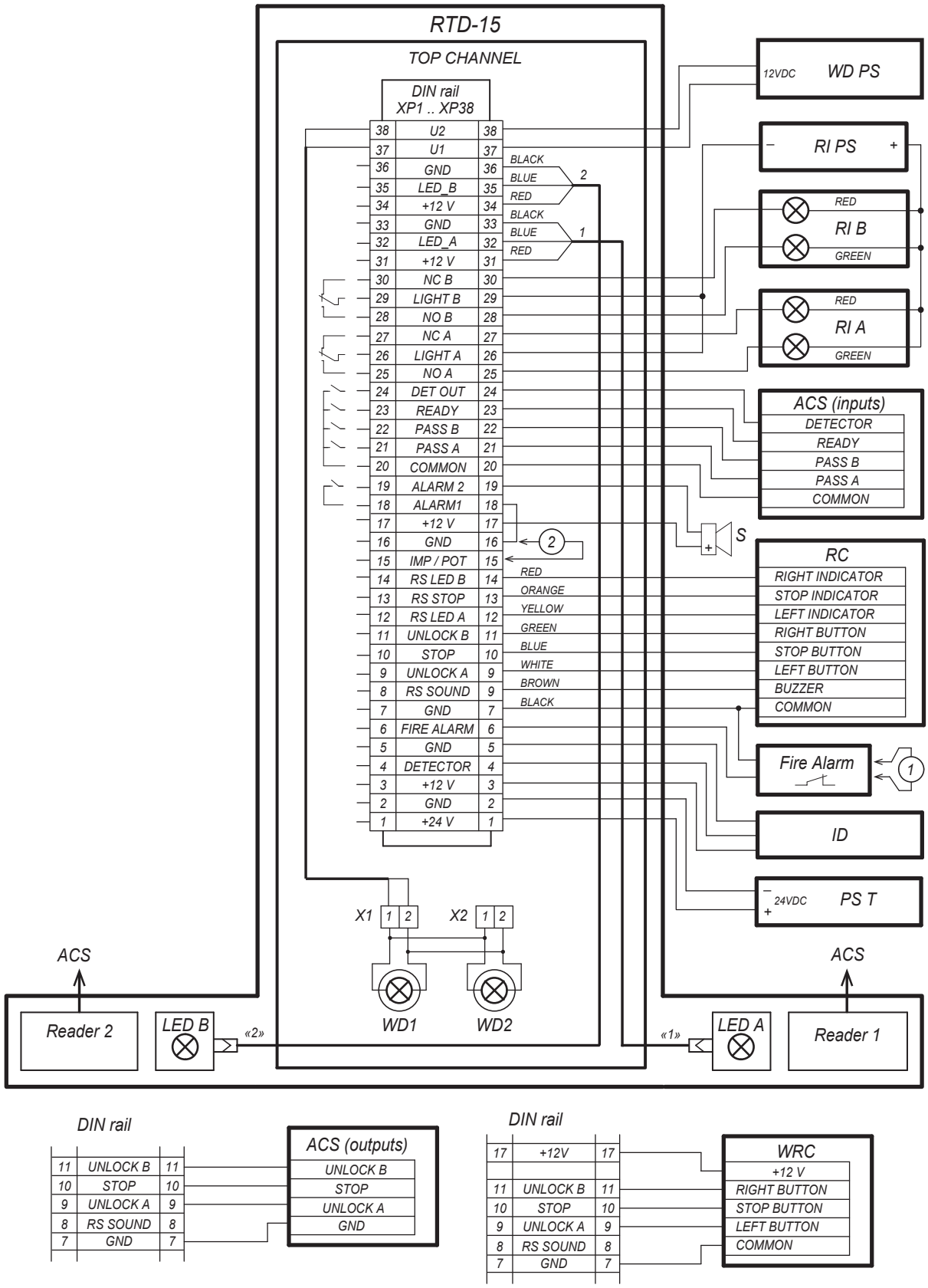
Additional equipment (upon request)	
RF01 Foundation frame	1
RTC-15.3 Protective canopy	1 set
WHD-15 Full height security gate	1 set
Full height railing sections (MB-15R main section, MB-15D additional section)	
Jointing plates and brackets for connecting turnstile parts, railing sections, a canopy, or a security gate	
WRC (includes a receiver and two transmitters designed as radio fobs) with an operating range of up to 40 m	1
M10 anchor with a bolt and washers	12
M16 anchor with a bolt and washers	1

Technical specifications

Operating voltage	Turnstile	24±2.4 V DC
	Walkway downlights	12 V DC
Consumption current	RTD-15.1 turnstile (excluding walkway downlights)	max. 4.5 A
	RTD-15.2 turnstile (excluding walkway downlights)	max. 1.2 A
	Walkway downlights	max. 0.9 A
Power consumption	RTD-15.1 turnstile (excluding walkway downlights)	max. 105 W
	RTD-15.2 turnstile (excluding walkway downlights)	max. 30 W
	Walkway downlights	max. 10 W
Overall dimensions (LxWxH)	without a canopy	1800×1600×2325 mm
	with the RTC-15.3 canopy	2379×1807×2594 mm
Passageway width		755 mm
Turnstile weight	with the RTC-15.3 canopy	max. 260 kg
	without the RTC-15.3 canopy	max. 190 kg
Throughput rate	in the single passage mode	20 persons/min
	in the free passage mode	30 persons/min
Mean time to failure		min. 2 000 000 passages

Connection

The turnstile control unit is placed in the top channel, which is located in the upper part of the turnstile. External cables are connected to a DIN rail located inside the top channel, with the use of contacts under the screw. All cables are routed to the DIN rail through the lower hole in the barrier section on the flange side, then up along the post to the top channel (see the Installation section).



1 – jumper wire if no Fire Alarm device is connected
2 – jumper wire for switching the IMP/ POT control mode

Layout of external connections to the RTD-15 turnstile

Description of DIN-rail contacts		
Contact	Electrical circuit	Function
1, 2	+24 V, GND	Connection of the power supply unit
3-5	+12V, Detector, GND	Connection of the intrusion detector
6	Fire Alarm	Emergency unlocking input
7	GND	Negative terminal of the power supply unit
8	RSSound	Sound indication output of the RC panel
9-11	Unlock A, Stop, Unlock B	Turnstile control inputs
12-14	RS LedA, RS LedStop, RS LedB	RC-panel indication outputs
15	IMP/POT	Selection of the turnstile control mode
16	GND	Negative terminal of the power supply unit
17	+12 V	Positive terminal for power supply of the Siren and WRC devices
18, 19	Alarm 1, Alarm 2	Alarm relay contacts
20	Common	Common contact for the PASS A, PASS B, Ready, and Det Out signals
21	PASS A	PASS A relay contact (passage in direction A)
22	PASS B	PASS B relay contact (passage in direction B)
23	Ready	Ready relay contact
24	Det Out	Det Out relay contact
25-30	NO, Light, NC	Relay contacts for connecting remote indicators
31-36	+12 V, LED, GND	Contacts for connecting indication blocks located on the guide barrier set's sections
37, 38	U1, U2	Connection of the power supply unit of walkway downlights

Operation algorithm

The turnstile can be operated via its RC panel (included in the delivery set), WRC, or ACS controller.

The turnstile 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 by the user by installing or removing the IMP /POT jumper on the DIN rail. Absence of the jumper activates the pulse mode; its installation switches the device to the potential mode.

In the pulse control mode, a pulse is applied to the Unlock A/B input so that the turnstile automatically unlocks for a single passage in the selected direction. The passage waiting time does not depend on the control pulse duration and amounts to 5 seconds. A pulse sent to the Stop input blocks both passage directions. Pulses sent simultaneously to the Unlock A/B and Stop inputs switch the turnstile to the *Free passage* operation mode in the selected direction.

The pulse mode is recommended for operation from the RC panel.

In the potential control mode, a control signal is applied to the Unlock A/B input, and the turnstile remains unlocked in the selected direction for all the time while the signal is held. The control signal sent to the Stop input blocks both passage directions regardless of signals at the Unlock A/B inputs.

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

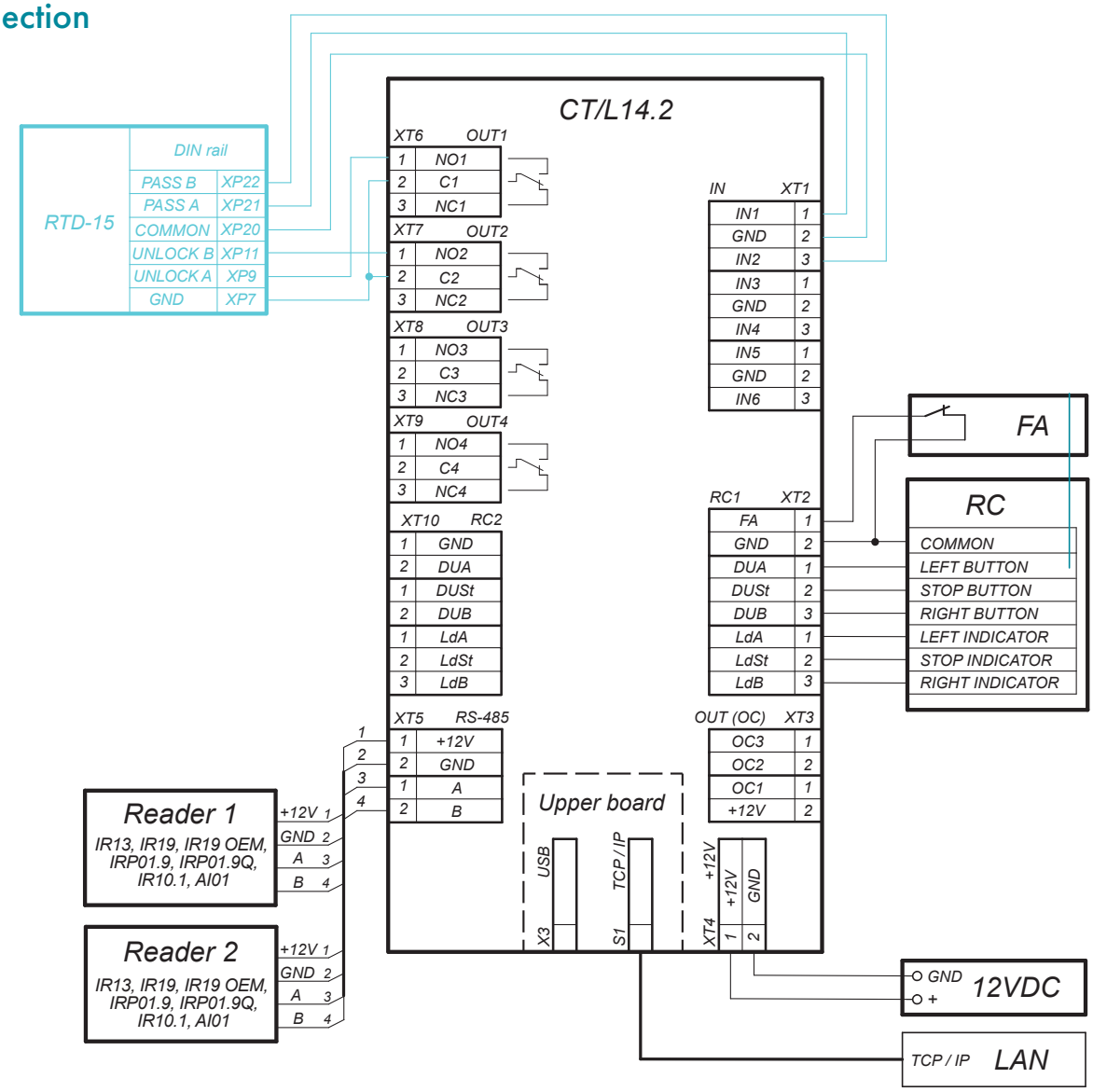
Regardless of the selected control mode, passage signals are generated when rotating the turnstile's rotor sections in either direction – Pass A or Pass B respectively. These signals can inform the ACS controller of the fact of passage in a particular direction.

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

Note

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

ACS connection example

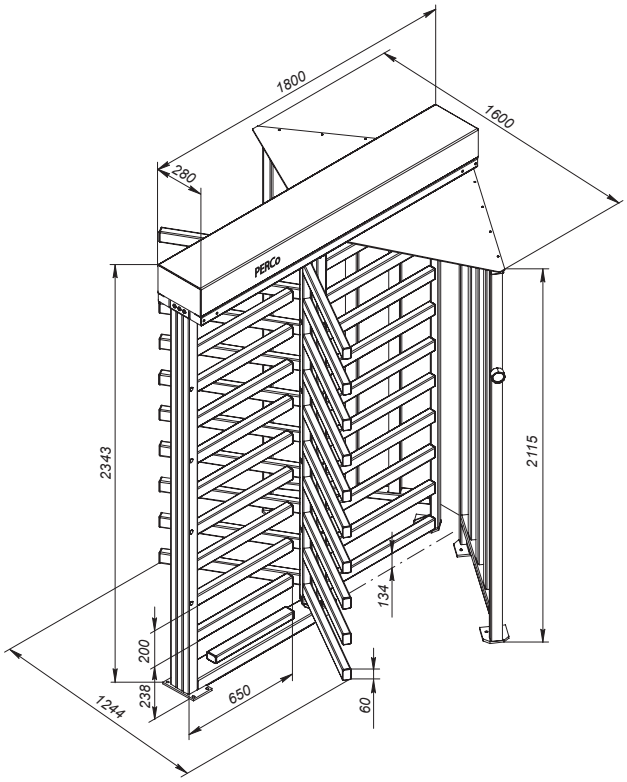


Connection of the turnstile to the ACS controller (exemplified by the CT/L14.2 controller)

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

The allowable length of the cable from the turnstile's power supply unit depends on its cross-section and must not exceed 30 meters for a cable with a 0.75 mm² cross-section.

Overall dimensions



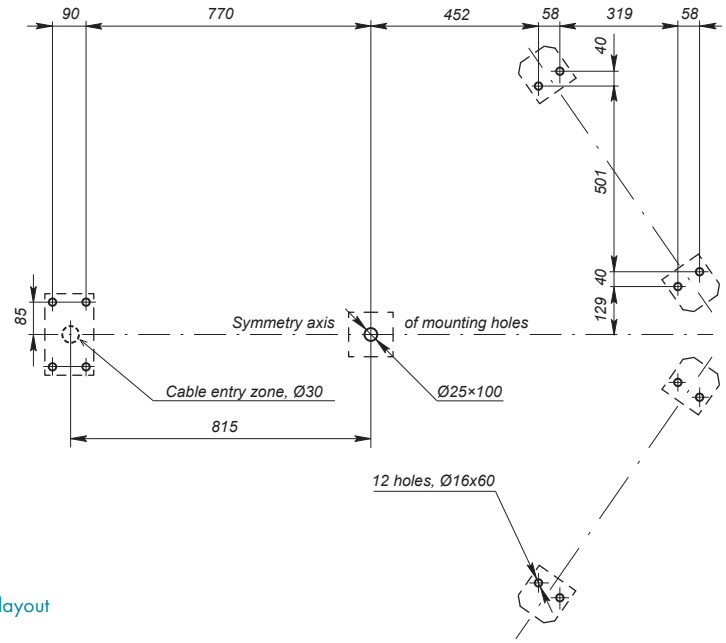
1 – barrier section
2 – rotor section
3 – turnstile's top channel
4 – (right) section of the guide barrier set
5 – (left) section of the guide barrier set
6 – indication block

Overall dimensions of the turnstile with no canopy

Installation

Foundation requirements: smooth concrete (grade 400 or higher), stone, and similar foundations with a thickness of at least 150 mm. When installing the turnstile on a less steady foundation, one should apply embedded reinforcing elements (500x500x500 mm) or the RF01 Foundation frame.

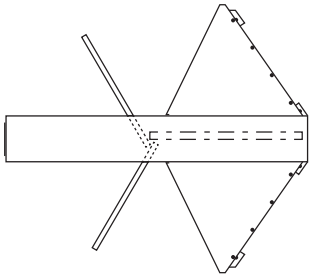
The use of the foundation frame eliminates the need to mark mounting holes and install anchors, while helping to secure the turnstile in a more reliable manner.



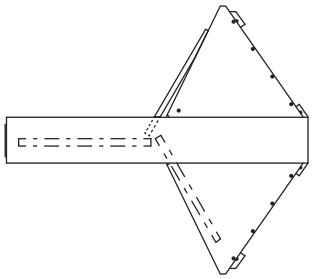
Hole marking layout

It is recommended to place ACS readers on the sections of the guide barrier set near the indication blocks. The cable from the readers is to be laid jointly with the indication cable.

To enable the turnstile to operate in the lock-chamber mode, the initial position of the rotor sections should be set accordingly in the course of installation.



Operation without the lock-chamber mode



Operation in the lock-chamber mode

Foundation frame

The RF01 0-01 Foundation frame is designed to improve the installation quality, which, in its turn, enhances the reliability of the RTD-15 turnstile's operation. Its use is recommended for turnstiles intended for outdoor application. Bolts included in the frame delivery set are used to attach the turnstile to the frame.

The frame is made of galvanized sheet steel.

Delivery set

Shell 1, shell 2	2
Mounting hardware	1 set
Certificate	1

Technical specifications

Overall dimensions (LxWxH)	1792x1550x70 mm
Net weight	max. 23 kg

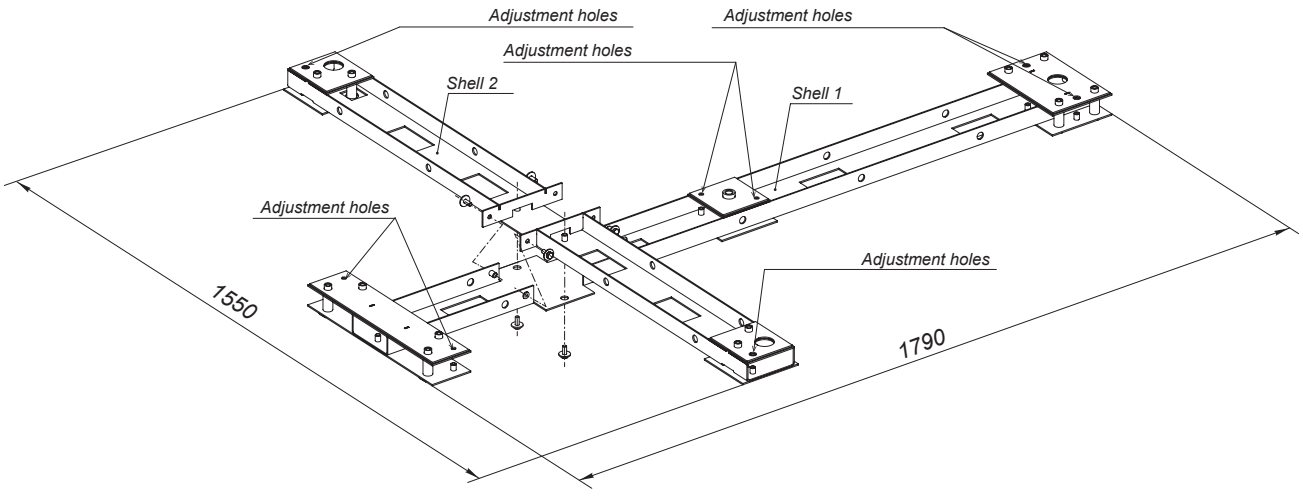
Installation

The assembled frame is installed on a prepared foundation platform with dimensions of 2000x1700 mm and a depth of 200-250 mm, leveled in the horizontal plane with pins included in the delivery set, and fixed against any possible movements.

Cable ducts should be laid as required (they can be placed inside the frame).

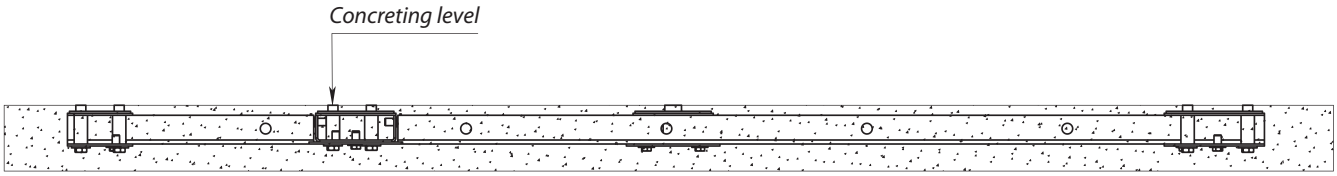
The frame is filled with concrete of the strength class of B22.5 or higher, up to the upper surface level of threaded bushings for fastening the turnstile.

The recommended total concrete thickness should amount to at least 150 mm.



Frame installation

RTD-15 Full height rotor turnstile



Concrete pouring for the foundation

Canopy

The RTC-15.3 Canopy is designed to be used jointly with the RTD-15 turnstile and to protect the turnstile against direct precipitation.

Main features of the product:

- high corrosion resistance of the aluminum alloy structure, which guarantees its long service life under adverse environmental conditions
- reduced weight, which simplifies the installation process
- high-strength polymer-based powder coating, which keeps the appearance intact during long-term operation

It is possible to install several turnstiles under the canopies in the same row, in particular, with the upper transit cabling through the top channels. Various brackets and plates are applied to connect the turnstile to the MB-15 railing sections, wall, or WHD-15 security gate (see the description of the MB-15 railing).

Operating conditions

In terms of resistance to environmental exposure, the canopy complies with GOST 15150-69, category N2 (outdoor application). Its operation is allowed at an ambient air temperature from -40°C to +55°C and relative air humidity of up to 98% at +25°C.

Delivery set

Canopy half-frames	2
Post	4
Jointing plate	1
Mounting hardware required for assembly of canopy elements	1 set
Operation Manual	1

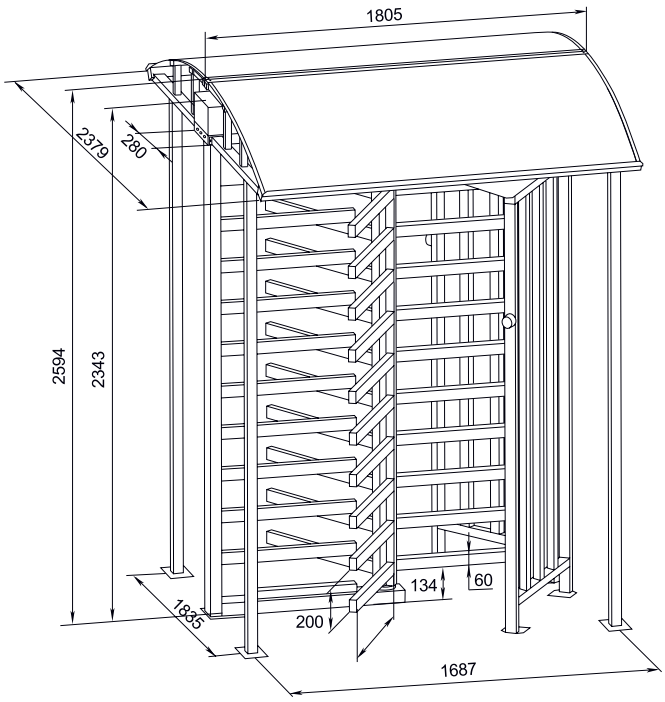
Additional equipment (upon request)	
M10 anchor with a bolt and washers	16
Jointing plates and brackets for connecting turnstile parts, railing sections, a canopy, or a security gate	

Technical specifications

Overall dimensions (LxWxH)	2379×1807×2594 mm
Net weight	max. 70 kg
Mean lifetime	min. 8 years

Overall dimensions with the canopy

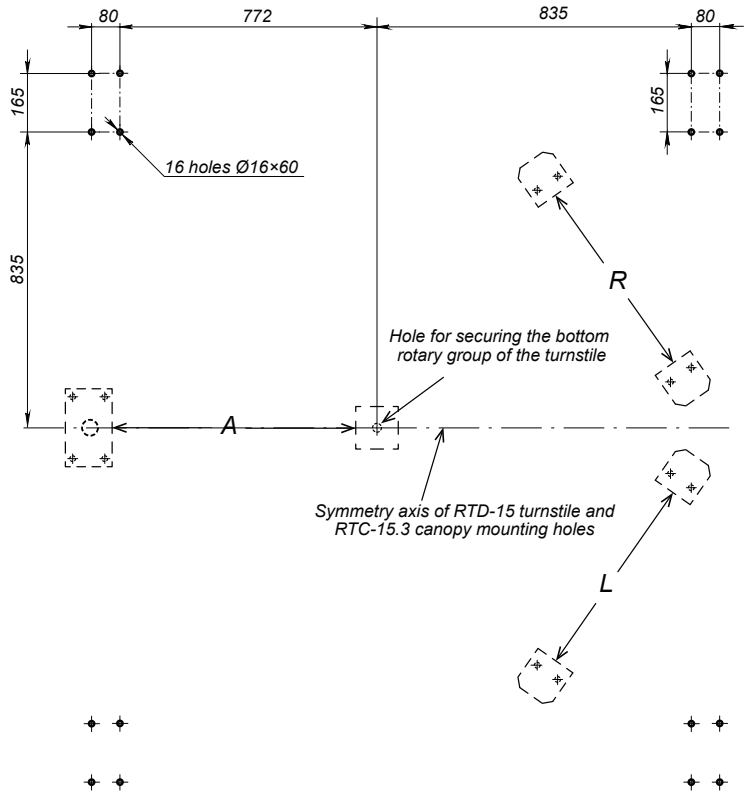
Overall dimensions of the turnstile when used jointly with the canopy are determined by the canopy's external dimensions.



Overall dimensions of the turnstile with the canopy

The foundation requirements for installing the canopy are similar to the requirements for installation of the turnstile.

The symmetry axes of the mounting holes are the same for the turnstile and canopy.



Marking of canopy mounting holes

A — fixing point for the turnstile's barrier section;
L — fixing point for the left section of the guide barrier set;
R — fixing point for the right section of the guide barrier set.

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.