RTD-14.1 Full height rotor turnstile

PERCo



+65
-40
temperature range

22-30V
operating voltage

W
105 W
power consumption

2
passage directions

20
persons/min

mechanical unlocking

M
motor drive

IP66
protection rating

Application

The RTD-14.1 Full height rotor turnstile is a normally closed electromechanical four-arm turnstile designed for both indoor and outdoor operation.

The turnstile is equipped with a motor drive. Its motor is activated during passage through the turnstile once the rotor sections have turned over 45° and starts their automatic rotation in the direction of passage to reset them to the initial (closed) position.

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.



RC panel

Operation modes

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

RTD-14.1 Full height rotor turnstile

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Main features

- operation of the turnstile via the RC panel, WRC, or ACS
- electronic board integrated into the turnstile housing
- power and control cables are routed to the top channel from below, through the barrier section
- the turnstiles can be installed in the same row without gaps and transitional elements, including if canopies are used
- 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 5 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 structure is achieved through the combined use of galvanization and powder coating for all its parts, which guarantees its long service life under adverse environmental conditions. Modifications with the S index are equipped with a rotor completely made of stainless steel
- high-strength polymer-based powder coating, which keeps the appearance intact during long-term operation
- two control modes – pulse and potential



Mechanical unlocking with a key



LED indication

Operating conditions

In terms of resistance to environmental exposure, the turnstile complies with GOST 15150-69, category N1 (outdoor application). Its operation is allowed at an ambient air temperature from -40°C to +65°C and relative air humidity of up to 98% at +25°C. The protection rating of the top channel is IP66.

The RC panel, with regard to its 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 galvanized steel; the S modification features a stainless steel rotor. Housing color – light grey. Upon request, the turnstile can be painted in other colors according to the RAL color chart.

The RTD-14.1 turnstile is serially produced and has a TR CU Certificate of Conformity (EAC).

Delivery set

Rotor section	4
Barrier section with upper half-couplings and a bottom rotary group	1
Section of the guide barrier set, assembled with an indication block and cable	2
Top channel	1
Supporting girder	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

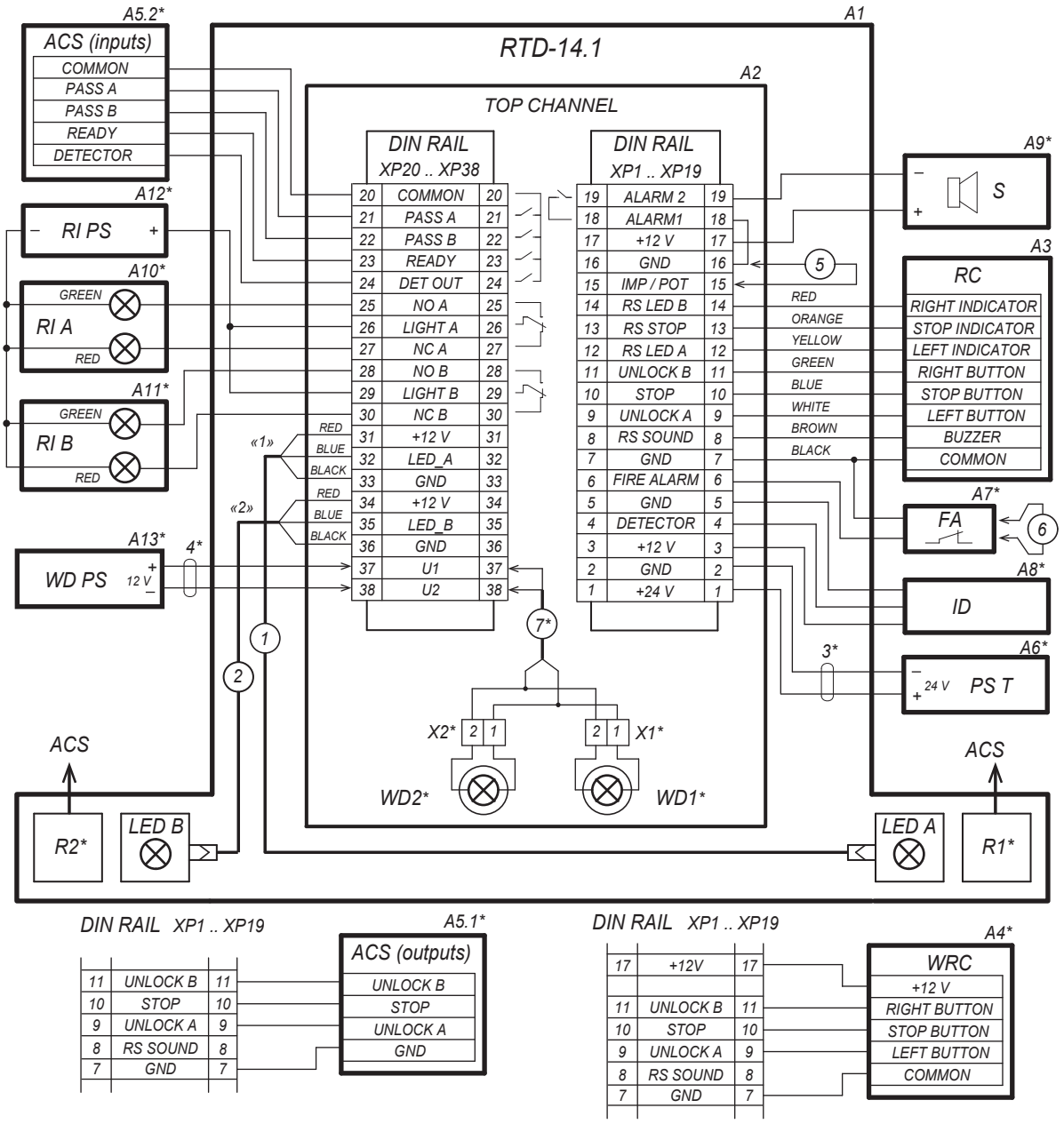
Additional equipment (upon request)	
RF-14 Foundation frame	1
RTC-16 Protective canopy	1 set
WHD-16 Full height security gate	1 set
Full height railing sections (MB-16 main section, MB-16D additional section)	
Jointing plates and brackets for connecting turnstile parts, railing sections, a canopy, or a security gate	
WRC (includes a receiver and two transmitters designed as radio fobs) with an operating range of up to 40 m	1
M10x60 anchor bolt with an anchor	12
M16x100 anchor bolt with an anchor	1

Technical specifications

Operating voltage	Turnstile	24±2.4 V DC
	Walkway downlights	12 V DC
Consumption current	RTD-14.1 turnstile (excluding walkway downlights)	max. 4.5 A
	Walkway downlights	max. 0.8 A
Power consumption	RTD-14.1 turnstile (excluding walkway downlights)	max. 105 W
	Walkway downlights	max. 10 W
Overall dimensions (LxWxH)	without a canopy	139×167×233 cm
	with the RTC-16 canopy	242x166x256 cm
Passageway width		540 mm
Turnstile weight	RTD-14.1	max. 210 kg
Packaging dimensions (LxWxH)	box 1	179×39×35 cm
	box 2	221×94×20 cm
	box 3	222×74×28 cm
	box 4	222×94×26 cm
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. 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 or through holes in the front end of the top channel (see the Installation section).



Layout of external connections to the RTD-14 turnstile

Layout elements	
Item	**Name**
A1	RTD-14.1 turnstile
A2	Top channel
A3, A4*	RC panel, WRC device

A5*	ACS controller
A6*	Power supply unit of the turnstile (24 V / 5 A)
A7*	Device for sending an emergency unlocking command
A8*	Intrusion detector
A9*	12 V DC siren
A10*, A11*	Remote indicators
A12*	Power supply unit for additional remote indication
A13*	Power supply unit for walkway downlights
WD*	Walkway downlights
LED	Indication blocks
R1*, R2*	ACS readers
1, 2	Indication cables
3	Turnstile power cable
4*,7*	Power cables for walkway downlights
5	Jumper for switching the Imp. / Pot. mode
6	FA jumper, installed if there is no Fire Alarm (A7) device

* Not included in the standard delivery set

Description of DIN-rail contacts		
Contact	**Electrical circuit**	**Function**
1, 2	+24 V, GND	Connection of the turnstile's power supply unit
3-5	+12 V, Detector, GND	Connection of the intrusion detector
6, 7	Fire Alarm, GND	Emergency unlocking input
8	RC Sound	Sound indication output of the RC panel
9-11	UnlockA, Stop, UnlockB	Turnstile control inputs
12-14	RS LedA, RS LedStop, RS LedB	RC-panel indication outputs
15, 16	IMP/POT	Selection of the turnstile control mode
17	+12 V	Output for power supply of additional devices
18, 19	Alarm 1, Alarm 2	Siren connection outputs
20	Common	Common contact for the PASS A, PASS B, Ready, and Det Out signals
21	PASS A	PASS A relay output (passage in direction A)
22	PASS B	PASS B relay output (passage in direction B)
23	Ready	Ready relay output
24	Det Out	Det Out relay output
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 the 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.

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 all the time while the signal is held. The control signal sent to the Stop input blocks both passage directions regardless of the signals at the Unlock A/B inputs.

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

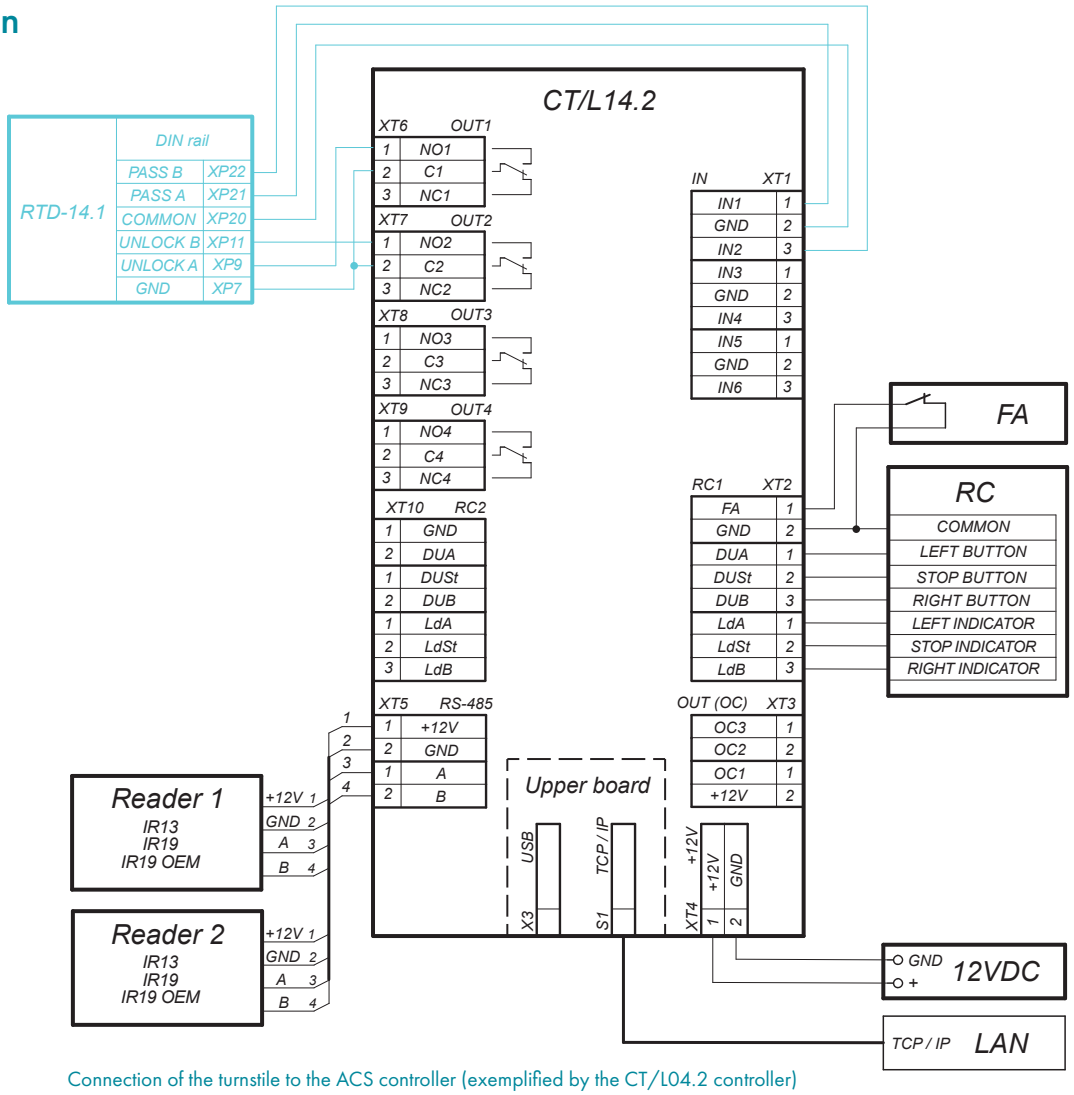
Regardless of the selected control mode, passage signals are generated when rotating the turnstile's rotor sections in either direction – Pass A or Pass B respectively. These signals can inform the ACS controller of the fact of passage in a particular direction.

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.

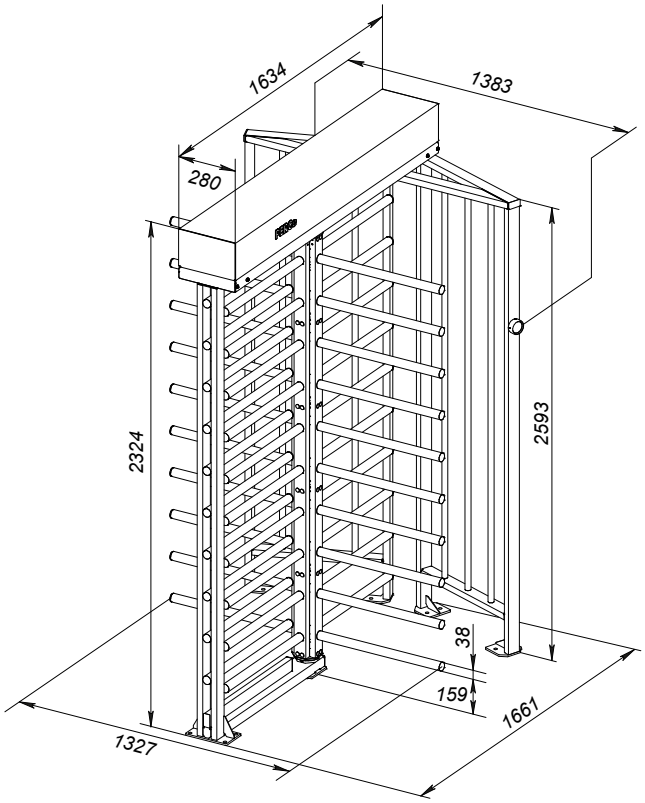
ACS connection example



Connection of the turnstile to the ACS controller (exemplified by the CT/L04.2 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 10 meters for a 1.5 mm^2 cable and 20 meters for a 2.5 mm^2 cable.

Overall dimensions



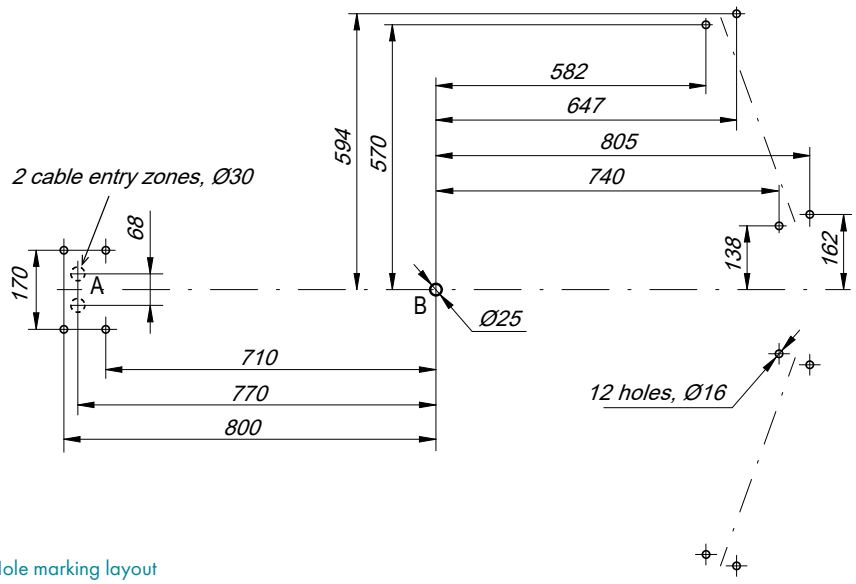
Overall dimensions of the turnstile with no canopy

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 RF-14 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.

The marking layout of turnstile mounting holes and recommended cable duct positions are shown in the figure below.



Hole marking layout

Cables from the power supply unit, walkway downlights, RC panel, ACS, and other equipment are routed to the turnstile, and then up along the barrier section to the top channel, namely, to the DIN-rail contacts.

It is recommended to place ACS readers on the sections of the guide barrier set near the indication blocks.

The turnstile is not intended to operate in the lock-chamber mode.

Foundation frame

The RF-14 Foundation frame is designed to improve the installation quality, which, in its turn, enhances the reliability of the RTD-14.1 turnstile. Its use is recommended for turnstiles intended for outdoor application. Bolts included in the frame's 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
Installation manual	1

Technical specifications

Overall dimensions (LxWxH)	1647x1318x65 mm
Net weight	25 kg

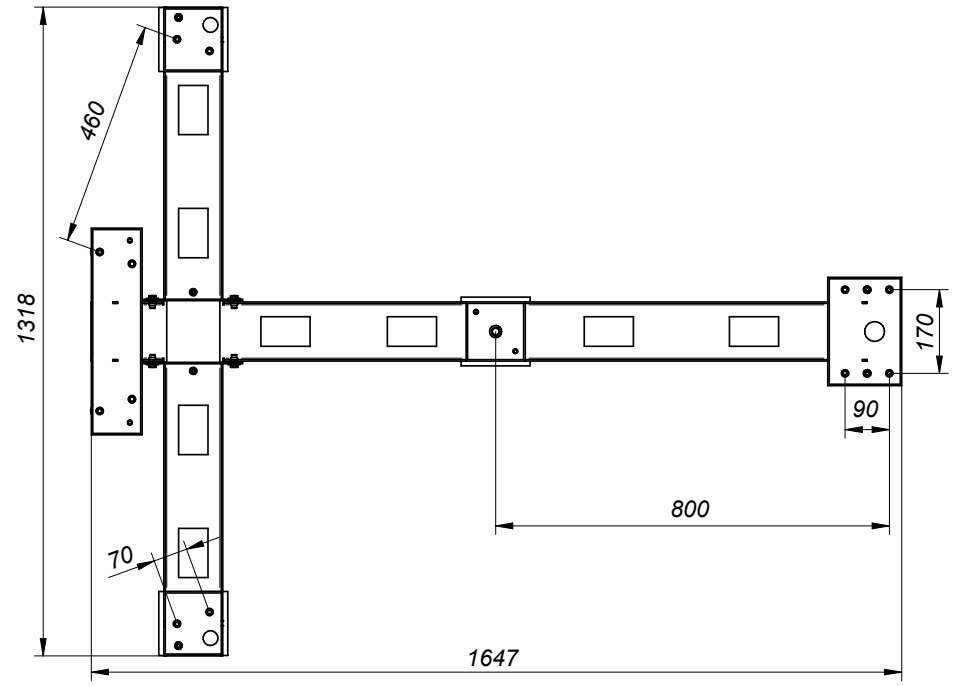
Installation

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.

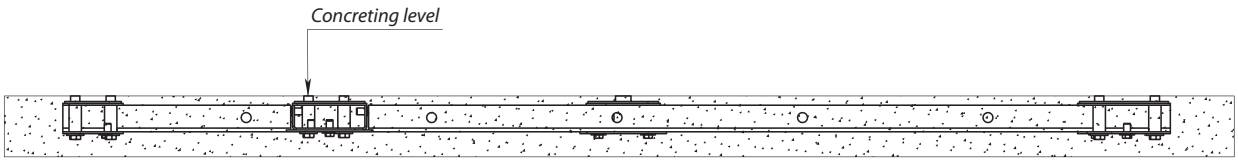
Cable ducts should be laid as required (they can be placed inside the frame).

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



Concrete pouring for the foundation

Canopy

The RTC-16 Canopy is designed to be used jointly with the RTD-14.1 turnstile and to protect it against direct precipitation and sunlight.

Main features of the product:

- as all its elements are galvanized and powder-coated, the product boasts high corrosion resistance, 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 a row.

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 +65°C and relative air humidity of up to 98% at +25°C.

Delivery set

Left / right half-frame	2
Post with brackets	4
Jointing plate	1
Mounting hardware required for assembly of canopy elements	1 set
Operation Manual	1

Additional equipment (upon request)	
M10x60 anchor bolt with an anchor	16

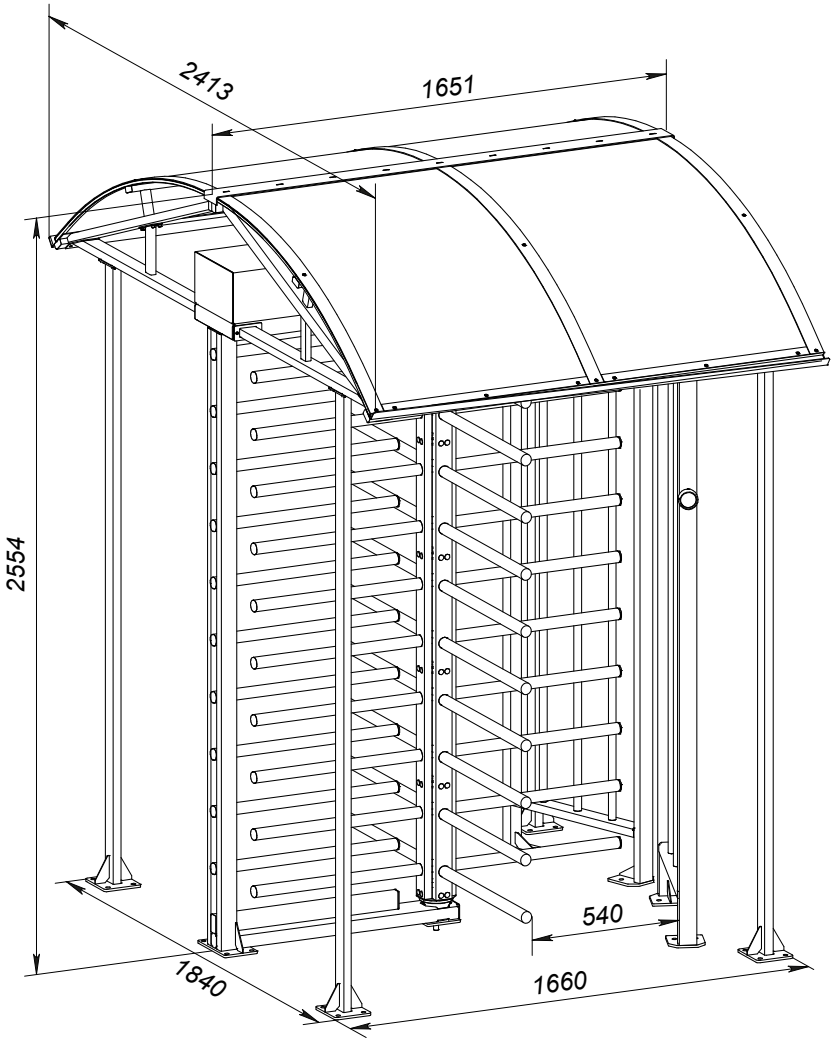
Technical specifications

Overall dimensions (LxWxH)	242x166x256 cm
Net weight	82 kg
Mean lifetime	8 years

Packaging dimensions (length x width x height)	
Box 1	180x137x62 cm
Box 2	222x45x30 cm

Overall dimensions with the canopy

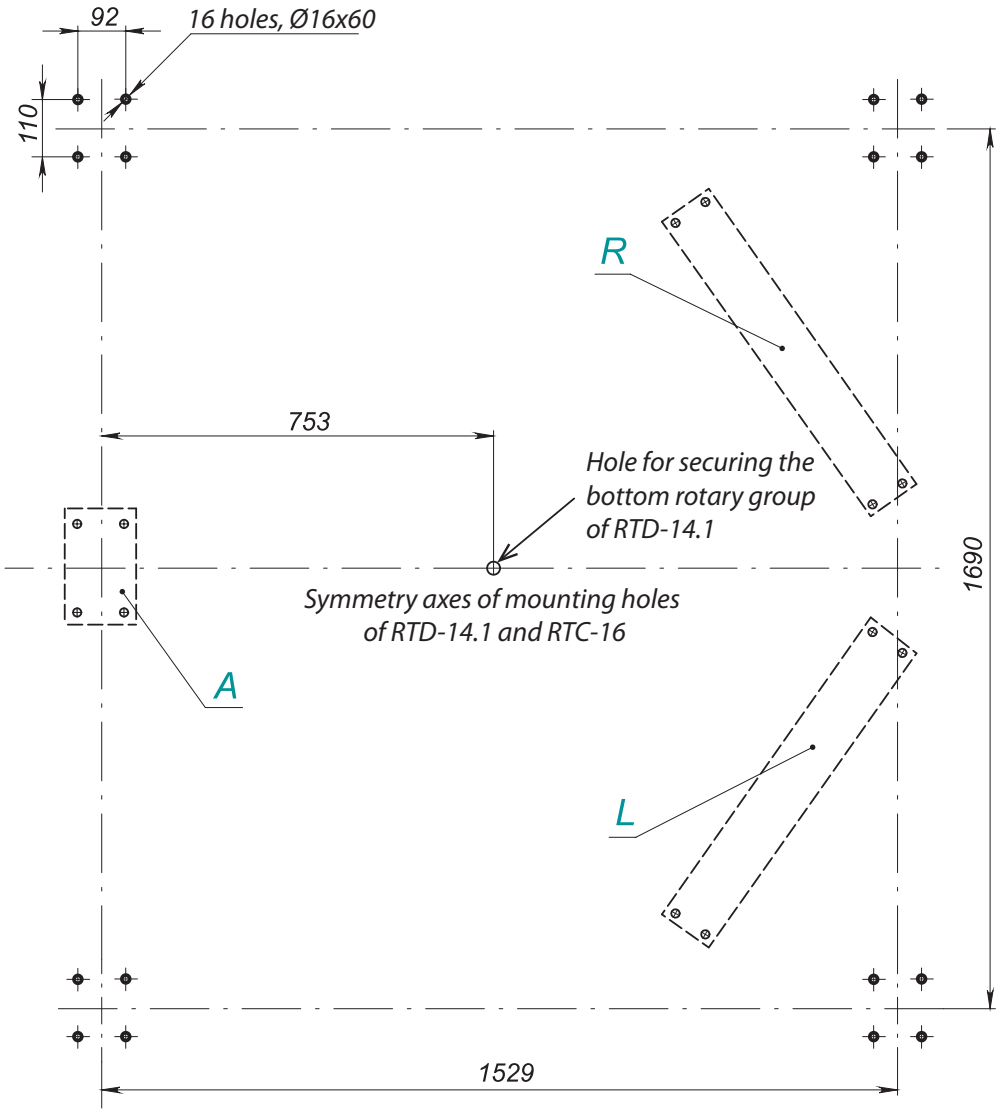
Overall dimensions of the turnstile when used jointly with the canopy are determined by the canopy's external dimensions.



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.