

RTD-16 Full height rotor turnstile



+55
-40
temperature
range

22-30V
operating
voltage

105 W
power
consumption

2
passage
direction

20
persons/min

mechanical
unlocking

M
motor drive

Application

RTD-16 full height rotor turnstile is a normally closed electromechanical turnstile designed for indoor and outdoor operation.

The following versions of the turnstile are available:

RTD-16.1 – with motor drive. The motor drive is activated at the beginning of the passage through the turnstile once the rotor has turned about 12° and starts rotating in the passage direction till the home (closed) position reached;

RTD-16.2 – mechanical drive. In this case during the passage through the turnstile after the rotor has been turned more than 60°, the actuating mechanism resets the rotor to its home (closed) position.

RTD-16.1S and RTD-16.2S turnstiles are equipped with a stainless steel rotor.

The delivery set includes an RC-panel. Buttons' orientation relative to the passage directions is to be set upon connecting the RC-panel to the turnstile. It is recommended to install one turnstile based on a maximum working load of 20 persons/min. Turnstiles can be equipped with a matching gate and railings.

The turnstile provides passage control in two directions, turnstile operating mode may be set independently for each passage direction. Supported operating modes:



RC-panel

Operating 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-step mode with a pass-through verification, set during installation))
- operation of the turnstile from RC-panel, WRC, ACS
- built into the turnstile housing electronic board
- lock-chamber mode is available

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Main features

- power and control cables can be routed to the turnstiles through the guide barrier section and through the top channel
- turnstiles can be installed close to each other without gaps and connected elements including installation under canopies
- reverse rotation locking – prevents reverse rotation of the rotor once the rotor has been turned more than 60°
- Fire Alarm control input that allows connecting the emergency unlocking device (for example, fire alarm system)
- Mechanical unlocking with a key is available for each passage direction which provides free rotation in this direction
- built-in hyperluminous LED indicators of the passage grant / denial
- built-in walkway downlights (two 4W LED lamps)
- matching canopy protects the turnstile from precipitations and climbing over
- turnstile can be installed on loose ground using a special mounting frame
- high corrosion resistance provided by galvanized and powder coated elements guarantees a long service life in adverse environmental conditions; "S" version is equipped with a stainless steel rotor.
- high-quality polymer powder coating provides outer appearance at continuous duty
- two control modes – pulse and potential
- possibility to connect an intrusion detector and a siren to the turnstile



Mechanical unlocking with a key



LED indication

Operating conditions

The turnstile, with regard to resistance to environmental exposure, complies with GOST 15150-69 category N2 (operation outdoors). The operation of the turnstile is allowed at ambient temperature from -40°C to +55°C and relative air humidity up to 98% at + 25°C. Top channel protection class – IP54.

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

Design

Finish – galvanized powder-coated steel; "S" version features a stainless steel rotor.

It is a serially produced product certified for compliance with applicable Russian and European CE standards.

Delivery set

Rotor section	3
Barrier arms section with half-coupling and bottom rotation unit	1
Guide barrier set assembly with indication block and indication cable assembly	2
Top channel	1
Supporting girder	1
Mounting hardware required for elements installation	1
Turnstile	1

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Turnstile power cable (15 m)	1
Key to mechanical release locks (2 per each lock)	4 per one main section
Documentation set	1
Spare parts and accessories kit	1
Optional equipment (upon request)	
RF16 foundation frame	1
RTC-6 canopy	1
WHD-16 full height security gate	1
Full height railing sections (MB-16R main section, MB-16D optional section)	
Attaching plates and brackets required for connecting the elements of the turnstile, railing sections, canopy, swing gate	
WRC (consisting of a receiver and two transmitters in the form of key fobs) with a range of up to 40 m	1
SORMAT PFG IR 10-15 anchor bolt M10x60	12
SORMAT PFG IR 16-25 anchor bolt M16x100	1
Turnstile power supply	1
Walkway downlights with hardware	2
Walkway downlights power supply with cable	1

Technical specifications

Operating voltage	Turnstile	24 ± 2.4 V BC
	Walkway downlights	12 V DC
Current consumption	RTD-16.1 turnstile (except for walkway downlights)	max 4.5 A
	RTD-16.2 turnstile (except for walkway downlights)	max 1.2 A
	Walkway downlights	max 0.8 A
Power consumption	RTD-16.1 turnstile (except for walkway downlights)	max. 105 W
	RTD-16.2 turnstile (except for walkway downlights)	max. 30 W
	Walkway downlights	max. 10 W
Overall dimensions (LxWxH)	Without canopy	160x165x231 cm
	With RTC-16 canopy	242x166x256 cm
Passageway width		630 mm
Turnstile weight	RTD-16.1	max. 191 kg
	RTD-16.2	max. 193 kg
Package dimensions (LxWxH)	Box #1	180x40x34 cm
	Box #2	221x21x98 cm
	Box #3	225x2x98 cm
	Box #4	225x21x98 cm
	Box #5	224x27x98 cm
Throughput rate	In the single passage mode	20 persons / min
	In the free passage mode	30 persons / min
Mean time to failure		2,000,000 passages

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Connection

The turnstile control unit is in the top channel located in the upper part of the turnstile. External cables are connected to the DIN-rail located inside the top channel. All cables are routed to the DIN-rail through the bottom hole in the barrier section on the flange side, then up along the post to the top channel or through the front end of the top channel (see Sect. "Mounting").

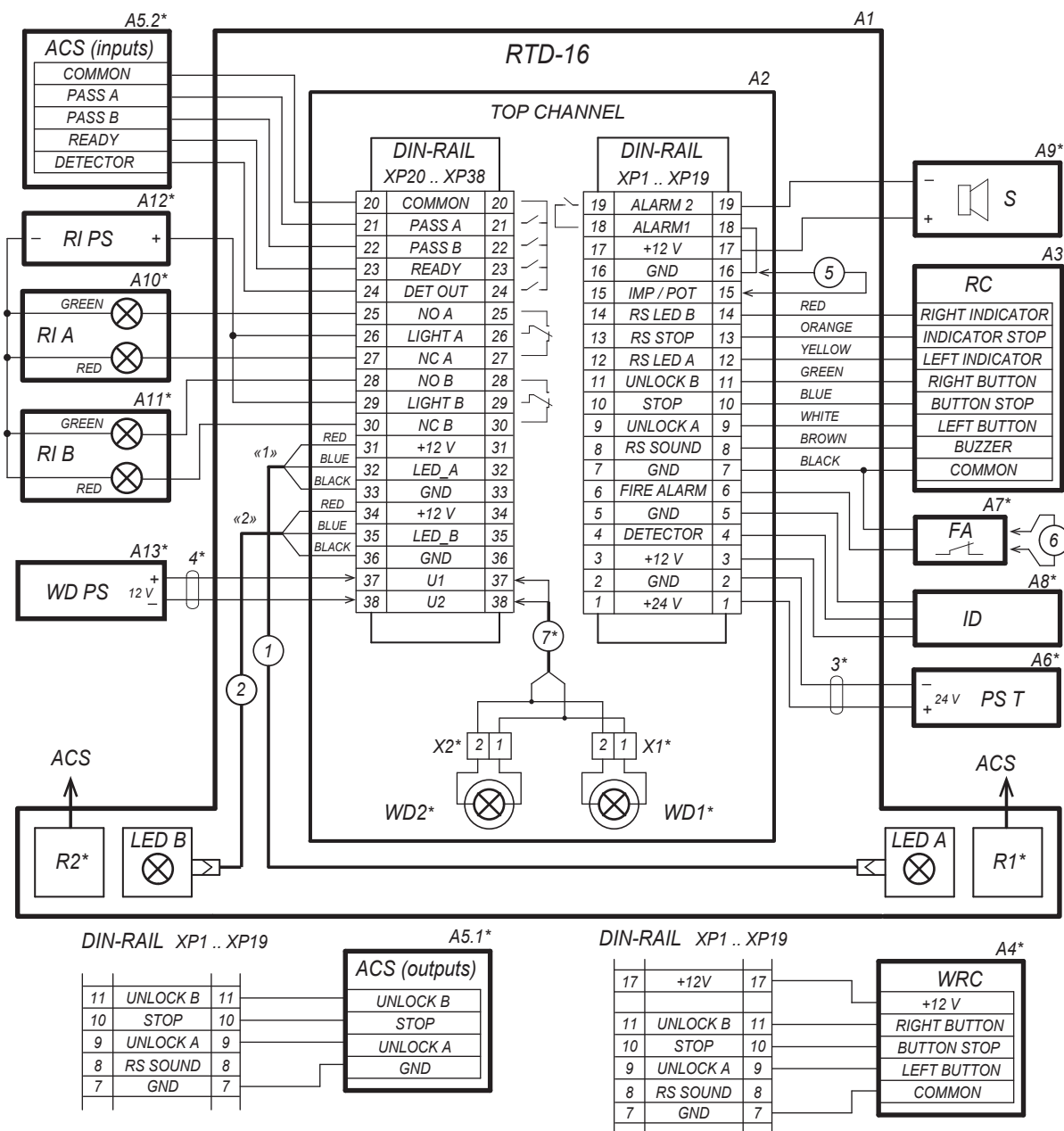


Diagram of external connections to the RTD-15 turnstile

Diagram description	
Item	Description
A1	RTD-16 turnstile
A2	Top channel
A3, A4*	RC-panel, WRC

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

* The equipment is not included in the standard delivery set

DIN-rail description		
Contact	Electrical circuit	Designation
1, 2	+24 V, GND	Power supply connection
3-5	+12 V, Detector, GND	Intrusion detector connection
6, 7	Fire Alarm, GND	Emergency unlocking input
8	RC Sound	RC-panel sound indication output
9-11	UnlockA, Stop, UnlockB	Turnstile control inputs
12-14	RS LedA, RS LedStop, RS LedB	RC-panel indication outputs
15, 16	IMP / POT	Turnstile control mode setting
17	+12 V	Output for powering additional devices
18, 19	Alarm 1, Alarm 2	Siren connection outputs
20	Common	Common contact for PASS A, PASS B, Ready, Det Out signals
21	PASS A	PASS A relay contact (passage in the direction A)
22	PASS B	PASS B relay contact (passage in the 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
37, 38	U1, U2	Connection of the walkway downlights power supply

Operation algorithm

The turnstile can operate from 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. Turnstile response to these signals depends on the control

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mode the user has selected (specified by if the IMP/POT jumper wire is installed / removed on the DIN-rail.

Pulse control mode is when a pulse is applied to the Unlock A (B) input, the turnstile will automatically open for a single passage in the selected direction. The waiting time for the passage being completed does not depend on the duration of the control pulse and lasts 5 seconds. Sending a pulse to the Stop input locks both passage directions. Simultaneous sending of pulses to Unlock A (B) and Stop inputs places the turnstile in the "Free passage" mode in the selected direction.

Pulse mode is recommended during operation from the RC-panel.

Potential control mode is when the control signal is applied to the Unlock A (B) input, the turnstile remains unlocked in the selected direction during the entire holding signal time. Sending control signal to the Stop input locks both passage directions regardless of the signals at the Unlock A (B) inputs.

Potential mode is recommended during operation from the ACS controller.

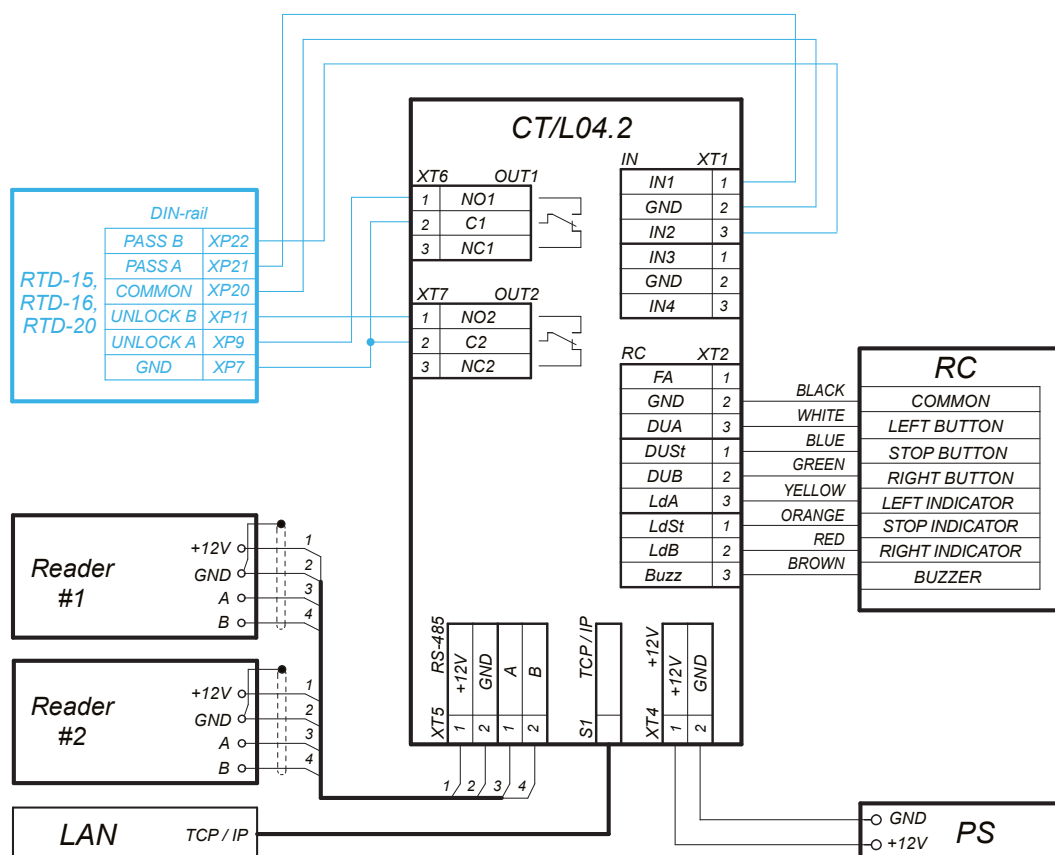
Regardless of the selected control mode, Pass A or Pass B signals are generated when moving the barrier sections in one direction or the other. These signals can inform the ACS controller of the fact of passage in the selected direction.

Emergency passage opening is performed by removing a low-level signal from the Fire Alarm contact relative to the GND contact.

Note

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

Example of connection to the ACS



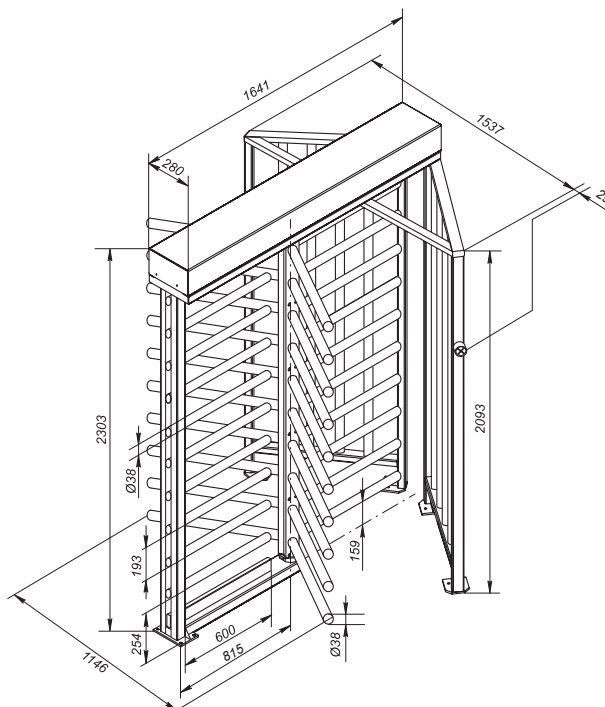
Turnstile connection to the ACS controller (using CT/L04.2 controller as an example)

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The maximum allowed cable length of the RC-panel (ACS controller) is 40 meters.

The maximum allowed cable length of the turnstile power supply depends on its cross section and must be: for cables with 1.5 mm² cross-section is 10 m, for cables with 2.5 mm² cross section - 20 meters.

Overall dimensions



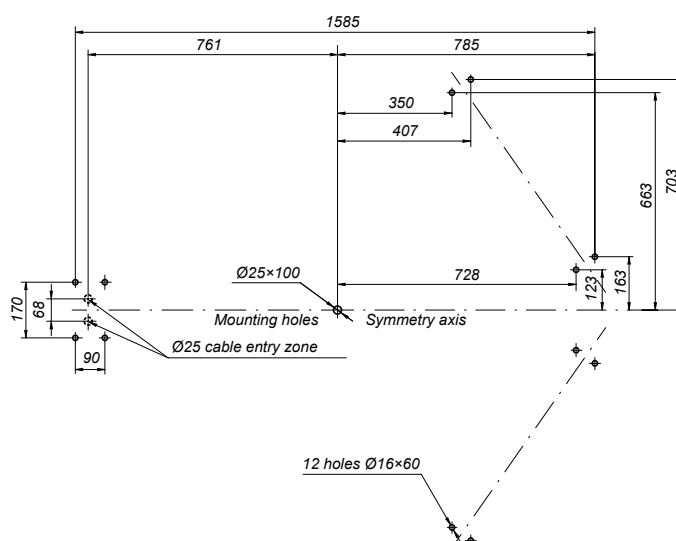
Turnstile overall dimensions without canopy

Mounting

Foundation requirements: plain concrete (grade 400 or higher), stone or similar foundations of at least 150 mm thick. For the installation on a less steady foundation it is recommended to apply reinforcing elements (500×500×500 mm) or RF16 foundation frame.

When using the foundation frame, hole marking and anchors are not required; the turnstile mounting is more secure.

Hole marking for turnstile installation and cables positioning are shown in Figure.



Hole marking

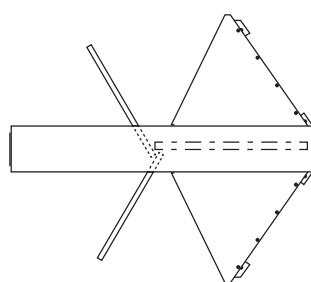
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Cables of power supply, walkway downlights, RC-panel, ACS and other equipment are routed to the turnstile.

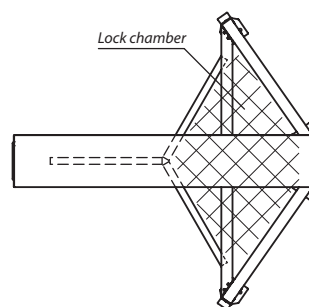
Then above-mentioned cables are routed up through the barrier arm section to the top channel to the DIN-rail contacts.

It is recommended to place ACS readers on the guide barrier sets near the indication blocks.

Lock-chamber mode is arranged during the installation, the home position of the rotor sections should be installed correspondingly.



Lock-chamber mode



Non-lock-chamber mode

Foundation frame

RF-16 foundation frame is designed to raise the mounting quality level which makes the RTD-16 turnstile more secure. The foundation frame is recommended for turnstiles intended for outdoor applications. Bolts, included in the foundation frame delivery set, are used for fixing the turnstile to the foundation frame.

The foundation frame is made of galvanized sheet steel.

Delivery set

Framework 1, framework 2	2
1 - 4 plates	5
Mounting hardware (set)	1
Certificate	1

Technical specifications

Overall dimensions (LxWxH)	1630x1536x65 mm
Net weight	23 kg

Mounting

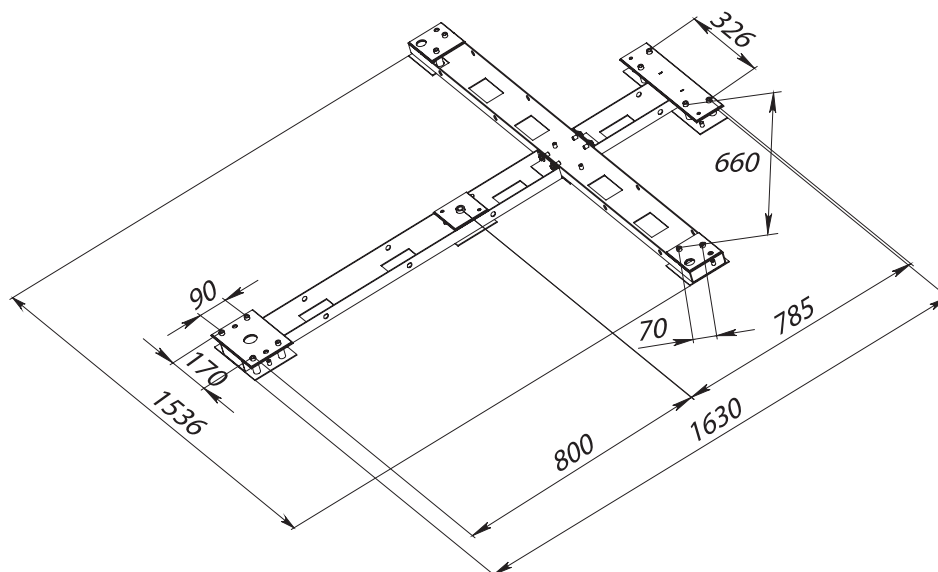
Assembled frame is installed on prepared foundation sized 2000x1700 mm and 200-250 mm deep, is levelled with included in the delivery set pins and is secured not to be moved.

Cable channels are to laid (cable channel is allowed to be placed inside the frame).

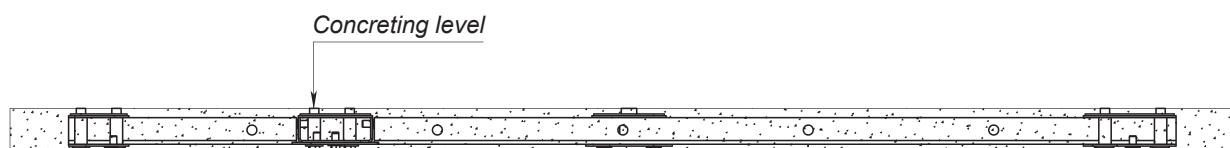
Concrete (grade not less B22,5) casting of the foundation is to the upper thread bushings for turnstile fixation.

Concrete overall thickness must be min. 150 mm.

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Frame mounting



Concrete casting

Canopy

RTC-16 canopy is designed to be used together with the RTD-16 turnstile and to protect the turnstile from precipitations.

Main features:

- due to all elements being galvanized and powder coated, high corrosion resistance provides a long service life in the adverse environmental conditions
- reduced weight providing easy mounting
- high-quality polymer powder coating provides outer appearance at continuous duty
- several turnstiles can be installed in a row

Operating conditions

The canopy, with regard to resistance to environmental exposure, complies with GOST 15150-69 category N2 (operation outdoors). The operation of the canopy is allowed at ambient temperature from -40°C to +45°C and relative air humidity up to 98% at + 25°C.

Canopy

Left/right half-framework	2
Post with brackets	4
Coupling plate	1
Mounting hardware required for canopy installation	1
Operation Manual	1
Optional equipment (upon request)	
SORMAT PFG IR 10-15 anchor bolt M10x60	16

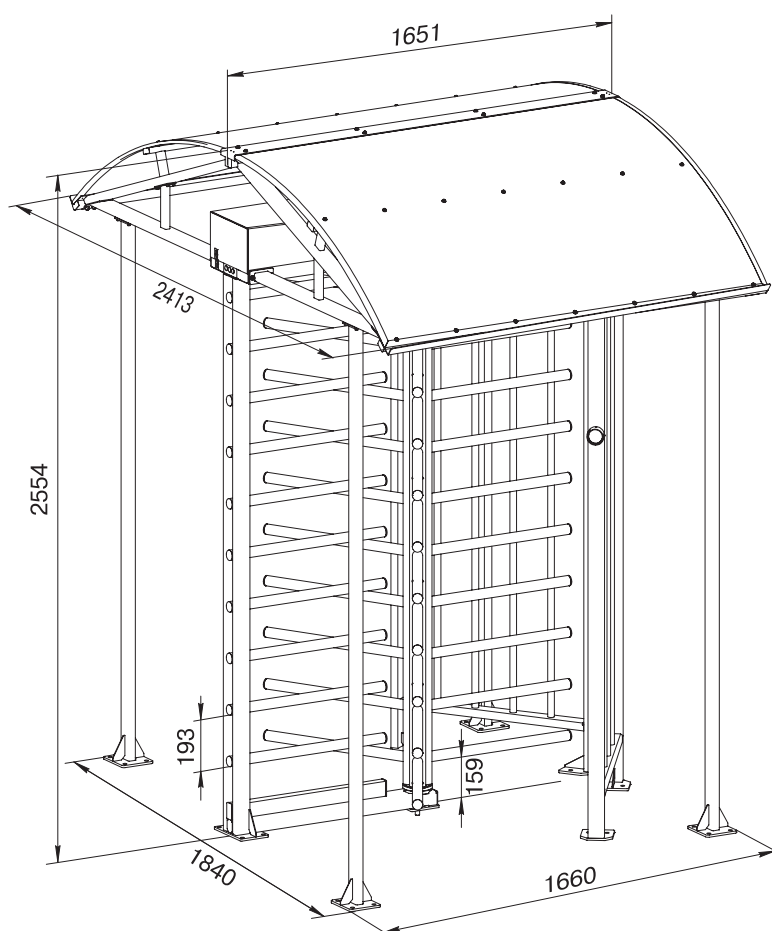
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Technical specifications

Overall dimensions (LxWxH)	242x166x256 cm
Net weight	max. 82 kg
Mean lifetime	8 years
Package dimensions (LxWxH)	
Box #1	180x137x62 cm
Box #2	222x45x30 cm

Overall dimensions with canopy

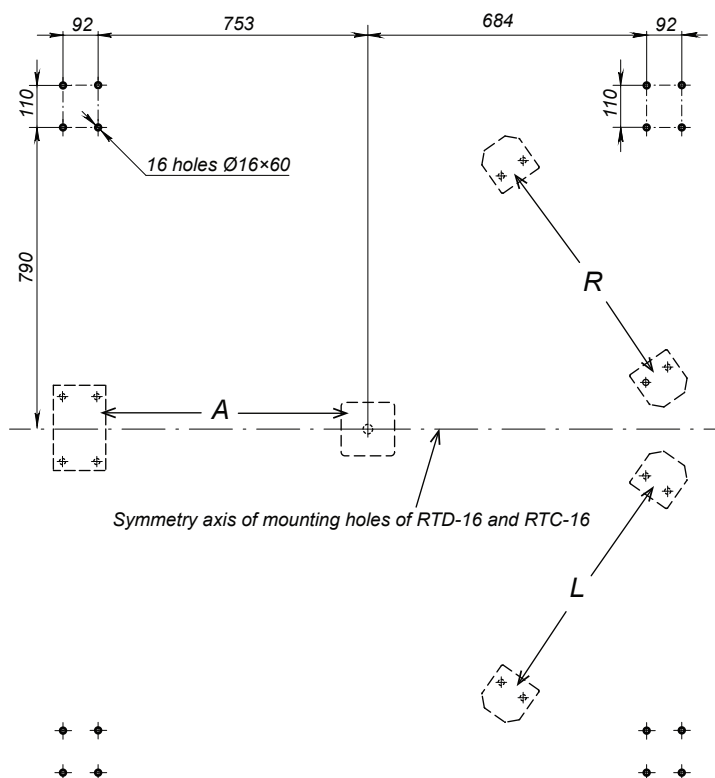
Turnstile overall dimensions with canopy are defined by the canopy overall dimensions.



Turnstile overall dimensions with canopy

Canopy foundation requirements are similar to the requirements for the turnstile mounting. The symmetry axes of the turnstile mounting holes are the same.

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Hole marking for canopy mounting

- A – rotor section fixing point
- 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 is 5 (five) years commencing from the date of sale, unless otherwise determined in the delivery contract of the Product. In case of sale and installation of the equipment by authorized PERCo dealers and service centers, the warranty starts from the date of commissioning.

Should there be no date of sale on the warranty card, the warranty period shall commence from the date of manufacture specified in the Certificate and on the Product label.