Aluminium Full Security Full Height Product Range

RTD-15.1 motorized

Full Height Electromechanical Rotor Turnstile

for indoor application / outdoor application (under shelter)

The rigid welded aluminium construction of this new Full Security Full Height rotor turnstile offers advanced reliability and vandal resistance, and guarantees many years of the turnstile trouble-free operation even in unfavourable environments.

The fine structure powder coating finish with micaceous iron-effect provides effective electric insulation, improved impact resistance and superior corrosion protection. This new coating has also brought a new level of design sophistication suitable for high quality exterior applications.

The convenience of passage through the turnstile is achieved by automatic rotation of the barrier wings.

The turnstile design and the 120° rotor configuration enable to install it for operation in the «Lock-chamber» access mode for additional video or biometric identification when increased access control is required.

Thanks to an extra foundation frame, RTD-15.1 can also be installed on unstable ground.

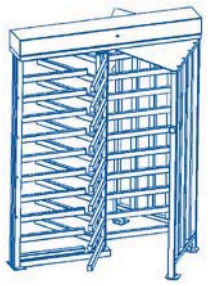
FEATURES AND BENEFITS:

- **built-in control unit**
- **bi-directional access control**
- **seamless integration into virtually any ACS**
- **automatic reset of rotor wings after each passage**
- **inertia-free and smooth rotation by electric drive**
- **built-in LED directional indicators**
- **anti-backup facility to prevent reverse rotation**
- **flush mounted walkway downlights**
- **key override control for each direction**
- **increased access control in “Lock-chamber” mode**
- **“Fire Alarm” control input to unlock the turnstile from fire alarm system or emergency button**
- **relay outputs for connection of intrusion detector and siren**
- **canopy with drainage to protect against the elements and climbing over (optional)**
- **straightforward installation**
- **safe supply voltage 24V DC**

Technical specification

Application:

The **RTD-15.1** rotor turnstile is intended for pedestrian management and access control to premises with high security requirements such as industrial areas, military installations, stadiums and sports facilities, power stations, etc. This turnstile offers a well-balanced combination of modern appearance, complete entrance security and high throughput.



Function:

The turnstile features six operating modes set from the remote control panel and is intended bi-directional single or multiple passages. Passage can be controlled in either direction.

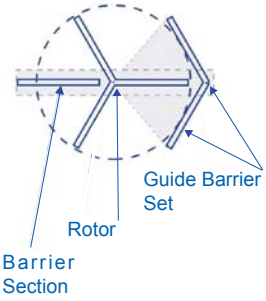
When increased access control is required, the turnstile can be mounted for operation in the “Lock-chamber” access mode (two-cycle rotation) for additional video or biometric verification.

Design:

The RTD-15.1 consists of a rotor assembly, a barrier section, a guide barrier set, a ceiling plate, a top channel with a cover, an operating mechanism, a control unit, a remote control panel and a set of cables.

Rotor

A three-wing sectional construction. Each section consists of a vertical support and 10 welded barrier arms and serves as a rotor barrier wing.



Barrier Section

A welded construction consisting of a supporting post and 10 barrier arms. The barrier section is furnished with a flange and a bottom bearing rotation unit.

Guide Barrier Set

A two-section element. Each section is a welded structure assembled of two supporting posts with flanges and a set of vertical security bars.
The supporting posts are furnished with LED directional indicators as standard.

Passageway

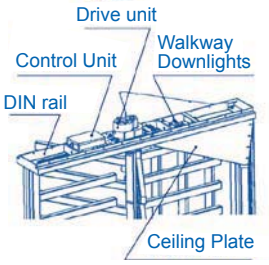
The rotor wings and the guide barrier set define the access passageway through the turnstile.

Top Channel

This element unites the barrier section, the rotor assembly and the guide barrier set into one construction and houses the walkway downlights, the control unit and the operating mechanism.

Two mechanical release locks are symmetrically mounted underneath the top channel, one for each direction.

The top channel is protected by a cover fixed at each end of the top channel by two screws.



Ceiling Plate

A ceiling plate spans the top channel and the guide barrier set, providing stability and support, and prevents climbing over the turnstile.

Status and Direction Light Indication

Located on the guide barrier supporting posts are two LED directional indicators:

- Green Arrow indicates that the turnstile is unlocked to permit a passage and shows the direction of authorised passage;
- Red Cross indicates that passage is not allowed and shows that the turnstile remains in locked status.

Walkway Downlights

The passageway is lighted by two flush mounted 24V halogen lamps as standard.

Operating Mechanism Components:

The components of the turnstile's operating mechanism are a rotor drive unit, optical rotation sensors, a locking device with drive and sensors, a rotation unit, and two mechanical release locks. The operating mechanism is installed on the base of the top channel. It is tested and adjusted by the manufacturer and does not require any further adjustment.

Electric Drive

The RTD-15.1 is a model with electric drive. The electric drive provides inertia-free rotation and quiet and smooth operation of the turnstile. At the beginning of each passage, once the barrier wing has rotated 12° in the permitted direction, the drive switches on to ensure complete rotation of the wings to the home position, irrespective of the force applied to push the wings forward.

Optical Rotation Sensors

The signals from the optical rotation sensors are used to form control voltage and determine a rotation speed. The sensors register real events of the passage through the turnstile, which ensures correct data input to the access control system.

Electromagnetic Locking Device

The locking device provides secure locking of the rotor in the reset state (in the home position). Four optical sensors installed on a separate board track the status of the locking device's electromagnets and send this information to the control unit.

Anti-backup

A locking disc is specially designed not to allow reverse rotation once the rotor has turned more than 60°.

Key Override Control

A key override allows the operating technician to unlock one or both directions of the RTD-15.1 turnstile if there is need to override the access control system or in case of power failure.

Separate key overrides are required for each passage direction - two mechanical release locks are located on the underside of the top channel as standard. The locks are keyed alike.

Interface:

The control unit (CU) of the RTD-15.1 is designed as a separate device placed inside the top channel. The CU microcontroller processes the incoming commands, accepts inputs from the optical rotation sensors, the locking device sensors and an intrusion detector, sends commands to the operating mechanism and control signals to external devices.

All the CU connectors and terminal blocks are placed on the DIN-rail mounted inside the top channel. The turnstile power supply, the walkway downlights power supply and the remote control unit (ACS controller) are cabled to the designated DIN-rail clamps.

The DIN-rail also features the following as standard:

- «Fire Alarm» control input to unlock the turnstile when an appropriate signal is received from fire alarm system or emergency button;
- relay outputs to connect remote light indicators, an intrusion detector, a siren and an emergency unlocking device;
- galvanic decoupling of the outputs to ensure noise-immunity of the turnstile electronics.

The turnstile electronics are protected against short circuit, overload and polarity inversion.

Control over Turnstile:

Control over the turnstile can be carried out in either pulse or potential control mode. In both modes the control signal is applied to the standard and/or optional control inputs on the DIN-rail.

The turnstile can be operated:

- from the remote control panel or a wireless remote control (in the pulse control mode);
- from access control system (ACS) via a controller (in either pulse or potential control mode).

This alternative ensures correct operation of the RTD -15.1 with any existing access control system, particularly use of ACS controllers with outputs supporting the potential control mode.

- The RTD-15.1 is a normally closed unit i.e. the reset state of the turnstile is “closed for entry and exit” (the rotor wings are locked in the home position). This is assured by the turnstile design regardless if the power supply is on or off.

  In the event of power failure the rotor can be unlocked with the mechanical release key; each direction has to be unlocked separately.
- The turnstile can be automatically unlocked on receipt of an appropriate signal from fire alarm system or emergency button.

Operating Modes:

One of the six following operating modes can be set from the remote control panel:

- single passage in the set direction (the turnstile is open for one passage in the permitted direction and closed in the opposite direction);
- bi-directional single passage (the turnstile is open for one passage in each direction);
- free passage in the set direction (the turnstile is open for multiple passages in the permitted direction and closed in the opposite direction);
- free passage in one direction, single passage in the opposite direction (the turnstile is open for multiple passages in the permitted direction and one passage in the opposite direction);
- always free (the turnstile is open for entry and exit);
- always locked (the turnstile is closed for entry and exit).

Timeout Facility: (timed re-lock)

The turnstile has a pre-set timeout period (the passage waiting time) when the turnstile is unlocked to allow a passage in the permitted direction. If the passage has not begun (i.e. the rotor has not turned) over this period, the CU microcontroller generates the signal to the operating mechanism that in its turn will lock the turnstile.

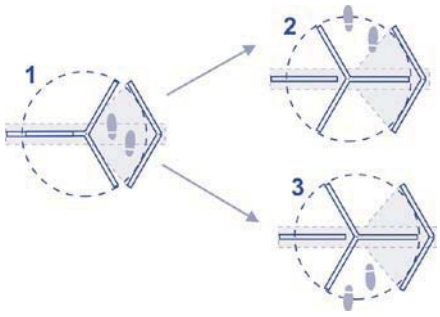
In the RTD-15.1 a timed auto re-lock if not rotated is a standard feature.
The passage waiting time in the pulse control mode is 5 sec regardless of the control signal duration. In the potential control mode the passage waiting time equals the control signal duration.

Lock Closing Rule (Rotor Boundary Position)

As the RTD-15.1 is designed with safety in mind, at the standard rotor orientation under no circumstances can a person get locked in the passageway, even if power failure occurs in the moment of passage. Concurrent closing of both passage directions is possible ONLY in the rotor reset state.

The Rotor Boundary Position (RBP) refers to the rotor position when the barrier wing has turned 60° in the permitted direction. Before the rotor reaches the RBP, the person passing through the turnstile can either keep on going in the permitted direction or return. As soon as the rotor has passed the RBP i.e. has turned more than 60°, no return is possible because reverse rotation of the wings is prevented by the anti- backup.

Rotor Boundary Position
(standard rotor orientation)



to complete the passage

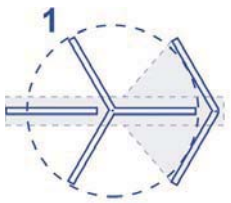
to return

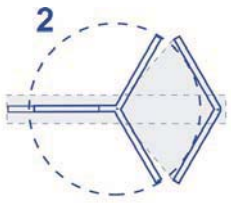
Passage is not possible when the turnstile is locked.
Pushing the barrier wings will not result in unblocking of the turnstile.

Lock-chamber Access Mode

When extra verification of the entrants is required, the turnstile design allows arrangement of the Lock-chamber access mode. This access mode can be set at the installation stage by mechanical change the rotor orientation 180° from the standard position when the passageway is closed by one barrier wing. In the Lock-chamber access mode the passageway is closed by two wings.

Standard rotor orientation





Lock-chamber rotor orientation

In the Lock-chamber access mode the control over the turnstiles is carried out by either remote control panel or wireless remote control.

The following operating modes can be set from the remote control:

- always free (the turnstile is open for entry and exit);
- always locked (the turnstile is closed for entry and exit);
- free passage in the set direction (the turnstile is open for multiple passages in the permitted direction and closed in the opposite direction);
- “lock-chamber two-phase access” (the turnstile is open in the permitted direction for one-by-one two-phase access and closed in the opposite direction).

Two - phase access

The direction of authorised passage is open from the control panel. When the person enters into the “lock-chamber” formed by the rotor wings and the guide barrier set, the rotor gets locked.

The guard is able to carry out biometric, video or other identity check and decide whether grant or deny the access (the first passage phase).

Depending on the check result and/or indication of biometric controller / face recognition device, the guard takes a decision either to unlock the prior set direction, thus allowing to complete the passage, or to open the opposite direction for exit (the second passage phase).

Power Supply:

The power is supplied from a power supply unit 24±2 V DC (ordered separately). The power can also be supplied from power supply units 22-35 V DC.

The walkway downlights can be powered only from power supply units 24±2 V DC (ordered separately).

The power supply to the turnstile and the walkway downlights is carried by the respective cables according to the connection layout.

An uninterruptible power supply unit (not supplied by the manufacturer) should be used to ensure proper operation of the turnstile in the event of power failure.

Materials:

galvanized, powder coated aluminium frame

the rotor barrier arms are furnished with black plastic caps

Finishes: RTD-15.1R

light beige sandpaper powder coating with pearl mica effect

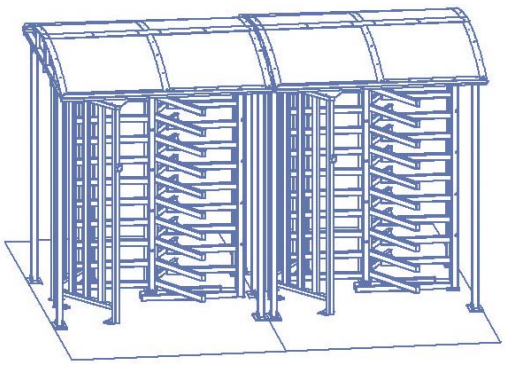
Powder coating to colour of choice (according to RAL) is available. Time of manufacture and price quotation are specified individually.

Options:

As barrier against the elements and climbing over, a protective canopy can be included in the delivery set. The canopy is made of cellular polycarbonate resistant to temperatures down to -60°C.

The canopy is furnished with drainage and a set of vertical supporting posts made of durable aluminium profile.

A number of canopied RTD-15.1 can be installed in one row. Special elements have been designed to provide reliable joining of two or more canopies. This design also allows for cabling through all the top channels of the lined turnstiles, which makes the installation considerably easier.



Technical specifications:

Power supply: - turnstile - walkway downlights	 24±2 V DC 24±2 V DC
Power consumption, max: - turnstile - walkway downlights	 105 W 105 W
Throughput rate: - in the single passage mode - in the free passage mode	 20 persons/min. 30 persons/min.
Number of operating modes: - in the pulse control mode - in the potential control mode	 6 3
Overall dimensions (H × W × D)	2325 x 1800 x 1600 mm
Passageway width	755 mm
Net weight : - turnstile - canopy with posts	 190 kg 50 kg
Operating temperatures: - turnstile - control panel	 - 40°C to +55°C +1°C to +40°C

Storage and Transportation

The turnstile 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 2 layers high.

Installation Details:

Installation requires a steady and level concrete (grade 400 or higher), stone or similar foundation at least 150 mm thick. Less steady foundations will require reinforcing elements or a mounting frame.

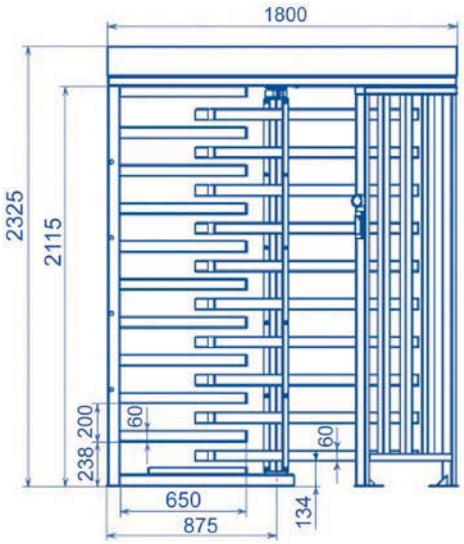
The installation should be carried out by qualified personnel only, in strict accordance with the manufacturer instructions (included in the delivery), mounting drawings and general electric safety requirements.

Warranty:

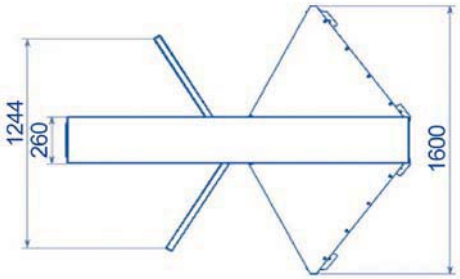
The manufacturer guarantees that the RTD-15.1 turnstile complies with applicable statutory safety and electromagnetic requirements provided that the instructions on storage, installation and operation are observed. The warranty period is 12 (twelve) months commencing from the date of sale.

RTD-15.1 Site Preparation

Overall dimensions:

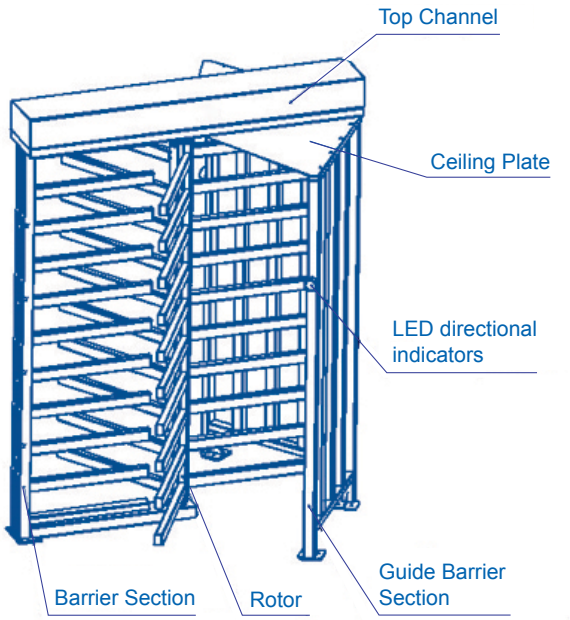


а) left-side view

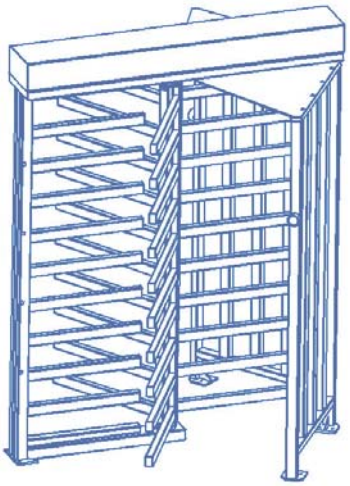


б) top view

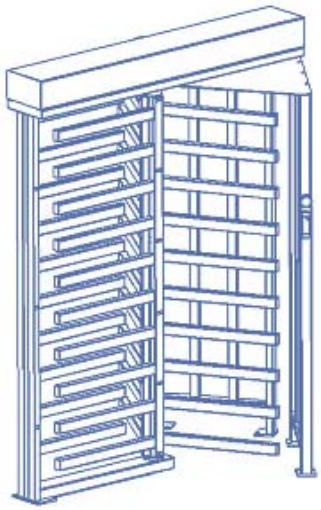
General view:



The reset state of the rotor wings:



а) standard rotor orientation



б) “lock-chamber” rotor orientation

Standard Delivery Set:

- rotor
- barrier section, ready-assembled
- guide barrier set
- LED directional indicators
- ceiling plate
- top channel, ready-assembled with electric drive, operating mechanism and mechanical release locks
- built-in control unit
- remote control panel
- walkway downlights
- set of keys for mechanical release locks
- set of cables

Available options:

- Turnstile power supply
- Walkway downlights power supply
- Canopy with posts

Matching Gates and Railings:

Available in the same material and colour as the RTD-15.1, full height MB-15 railings and WHD-15 wicket gates will help form a passageway of any required configuration and make the entrance design complete.

WHD-15 electromechanical security gate

MB-15 full height railing

Quality since 1988

Tel: +7 (812) 321 6172, +7 (812) 329 8924,
+7 (812) 329 8925
Fax: +7 (812) 516 4876

Postal address:
PERCo, P.O. Box 87,Saint Petersburg,
194295, Russia

E-mail:
export@perco.ru (product and price information)
support@perco.ru (technical support)
www.percoweb.com

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