

TTD-03.1

Electromechanical Box Tripod Turnstile
for indoor application

VTR020

Technical Specification



Application:

The TTD-03.1 turnstile is designed to maintain access control to industrial and office facilities, banks, shops, transport terminals, etc.

High throughput capacity allows its use for heavy pedestrian traffic.

Function:

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

Design:

The TTD-03.1 consists of a turnstile housing with a built in control logic board (CLB), a top cover with LED directional indicators, a remote control panel and a set of barrier arms.

The turnstile housing is constructed as a sheet metal framework on a frame base with two outer panels.

The top part of the housing contains a rotation mechanism with three barrier arms fixed into a hub and a damper, a self-centering mechanism, a control mechanism with optical arm rotation sensors and a locking device, a mechanical release lock.

The top cover is made radio transparent to allow concealed mounting of readers inside the turnstile housing. The operation zone stands out with a different colour; the read range is up to 80 mm.

Status and Direction Light Indication:

Two LED directional indicators with bright pictograms are located on the top cover as standard:

- 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.



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 CLB connector block contacts.

This alternative ensures correct operation of the TTD-03.1 in any existing access control system, allowing use of controllers with outputs supporting the potential control mode.

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).



The TTD-03.1 is a normally closed unit (N/C), i.e. the turnstile remains locked until it receives a valid authorisation signal or is unlocked with a mechanical release key.

If integrated into a fire alarm system, the turnstile can also be automatically unlocked by fire alarm signal.

Control Mechanism Components:

Operation of the turnstiles is controlled by an electro-mechanical assembly located under the top cover. The control mechanism consists of the following parts:

- a self-centering mechanism to ensure automatic complete rotation of the barrier arms to the home position regardless of the force used to pass through the turnstile;
- a control mechanism with optical arm rotation sensors and a locking device:
 - the arm rotation sensors to track real passage events through the turnstile and ensure accurate count inputs to the access control system for reports generation;
 - the locking device to securely lock the barrier arms in the home position after each passage;
- a hydraulic damper to ensure smooth and quite operation;
- a mechanical release lock to unlock the turnstile with a key in the event of emergency.

Operating Modes:

The turnstile features six operating modes 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).

Interface:

The TTD-03.1 turnstile is controlled via the control logic board (CLB) placed inside the turnstile housing. The CLB microcontroller processes the incoming commands, accepts inputs from the optical rotation sensors and an intrusion detector, sends commands to the control mechanism and control signals to external devices.



The CLB has the following standard features:

- “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 power supply unit, the remote control panel and/or the ACS controller are cabled directly to the connector block located on the CLB.

The logic is protected against short circuits, overloads and polarity inversion.

**Timeout Facility:
(timed re-lock)**

The turnstile has a preset timeout period (the passage waiting time) when the turnstile is unlocked to allow a passage in the permitted direction.

A timed auto re-lock if the passage has not begun (if not rotated) over this period is a standard feature.

The passage waiting time in the pulse control mode is 5 seconds regardless of the control signal duration. In the potential mode the passage waiting time is equal to the control signal duration.

Power Supply:

The turnstile is powered from a regulated power supply unit 12V DC @1A (ordered separately).

If the power supply fails, the turnstile retains the set position for each direction, i.e. the open passage direction remains open, and the closed passage direction remains closed.

An uninterruptible power supply (UPS) is required to secure off-line operation of the turnstile (ordered separately).

**Key Override
Control:**

A key override allows the operating technician to unlock both directions of the TTD-03.1 turnstile if there is need to override the access control system or in case of power failure.

The mechanical release lock is built into the turnstile housing as standard and comes with a set of keys.



**Anti-panic
Folding Arms:**

Optionally the turnstile can be supplied with anti-panic folding arms. In the event of emergency the top barrier arm can be easily folded to clear the passageway without use of any special keys or tools. Under normal conditions the anti-panic arms function as standard barrier arms.



Materials:

Turnstile Housing:	steel with high quality powder coating or stainless steel
Hub:	mild steel, black painted
Top cover:	artificial stone (dark blue or black colour available)
Barrier arms:	polished AISI 304 stainless steel tube (32 mm) with plastic end caps

**Available
Colours and Finishes:**

TTD-03.1G -	sandpaper powder coating with pearl mica effect; dark grey colour
TTD-03.1E -	high quality powder coating plus lacquered finish; "starlit night" colour
TTD-03.1S -	brushed stainless steel

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

Technical Specifications:

Operational voltage	12V DC
Throughput rate (in the single passage mode)	30 persons/min.
Overall dimensions (HxLxW): - with barrier arms - without barrier arms	1000x1083x684 mm 1000x1083x260 mm
Passageway width	500 mm
Operating temperature range	+1°C to +40°C

Transportation and Storage

The turnstile in the original package should be transported only in closed freight containers or other closed type cargo transport units. The turnstile is shipped in two separate boxes.

During storage and transportation the boxes containing the housing CANNOT be stacked on each other, while the smaller boxes with the top covers can be stacked no more than 6 layers high.

Installation:

It is recommended to install the turnstile on a steady and level concrete floor (grade 400 or higher) or another firm foundation at least 150 mm thick.

Installation should be performed only by qualified personnel, in strict accordance with the manufacturer's instructions (supplied with the turnstile), electrical safety requirements and installation drawings.

Warranty:

The manufacturer guarantees the TTD-03.1 turnstile complies with applicable statutory safety and electromagnetic requirements provided that the instructions on storage, installation and operation are observed.

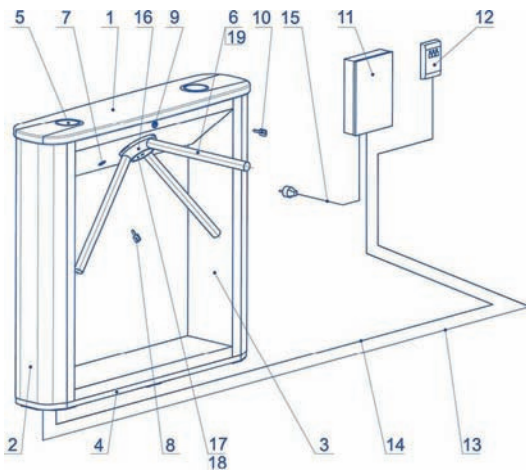
The warranty period is 12 (twelve) months commencing from the date of sale.

Installation Examples



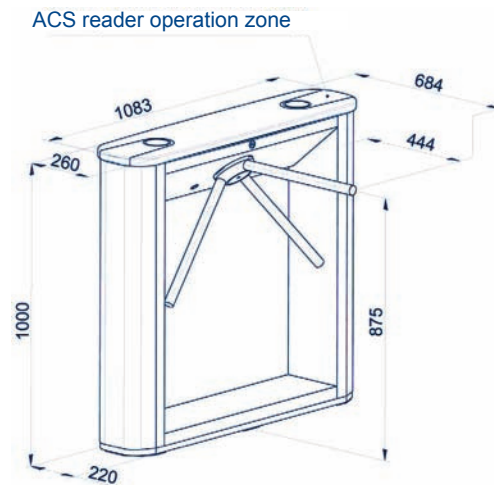
TTD-03.1 Site Preparation

Overall view

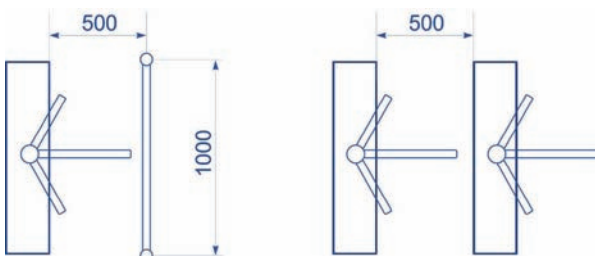


1 — top cover; 2 — outer panel; 3 — framework; 4 — frame base; 5 — LED directional indicator; 6 — barrier arm; 7 — mechanical release lock; 8 — mechanical release key; 9 — turnstile top cover lock; 10 — turnstile top cover key; 11 — turnstile power supply; 12 — remote control panel / wireless remote control / ACS controller; 13 — control cable; 14 — power cable; 15 — AC power cable; 16 — hub; 17 — hub cover; 18 — M4x25 screw; 19 — M8x30 bolt.

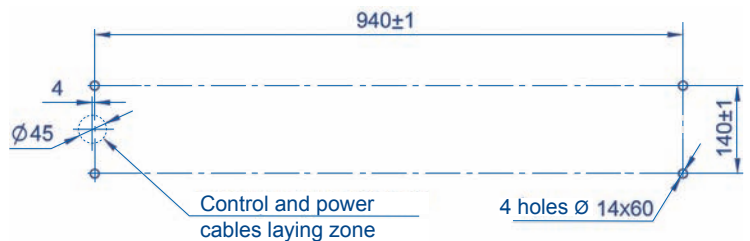
Overall dimensions



Optimal arrangement of passageway



Floor anchor position and cable entries



Concealed mounting of ACS readers

The TTD-03.1 design allows concealed mounting of ACS readers with operational range not less than 80 mm under the turnstile top cover.



Standard Delivery Set:

- turnstile housing
- built-in control logic board CLB
- turnstile top cover (specified at time of order, 2 colours available) with 2 LED directional indicators
- barrier arms* (specified at time of order)
- cable remote control panel
- mechanical release lock with 2 keys
- packaging

* Types of Barrier Arms:

- standard barrier arms
- anti-panic folding arms

Available options:

- Regulated power supply 12V DC@1A
- Uninterrupted power supply 12V DC@2A and battery backup 7Ah

For complete design solutions:

The turnstiles can be supplied with matching railings enabling to make the entrance design complete.
More than 30 types of elements and standard modules allow forming passageways of any required configuration.



Nestor company N.V. Tel. 00-32-(0)9-380.40.20
E3-Laan 93 Fax 00-32-(0)9-380.40.25
B-9800 Deinze info@nestorcompany.be
Belgium www.nestorcompany.be



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