



FULL HEIGHT TURNSTILES OPERATION and MAINTENANCE GUIDE

TTF 100 Series



TTF 400 Series



TTF 500 Series



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FULL HEIGHT TURNSTILES

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FULL HEIGHT TURNSTILES

1 Introduction

1.a General Information

Please read your user guide carefully. This guide is prepared to inform you about installation and maintenance of turnstiles. The guide is necessary for healthy and durable turnstiles.

TURNSTILES will renew user guide if there occurs a noticeable change in products. However as a matter of our continuous change and development principle, there can be small differences among the products indicated in this user guide.

1.b Safety Warnings

Turnstile operates with high voltage which can be life-threatening as an electric coming through power supply. Before starting to maintain and repair, be sure that line electric reaching power supply is insulated and it is safe. You must cut off the power before maintaining.

In case electric exists in the turnstile, experts must interfere in the turnstile.

1.c Hardware Modification

There cannot be any alteration without getting permissions from TURNSTILES. Any alteration in the hardware must be notified in written. If required, additional technic information warnings and precautions can be provided by TURNSTILES.

1.d Packaging Contents

- a- TTF Series Full Height Turnstile
- b- Brake Allen
- c- User Guide
- d- Arm Bracalet and Plugs
- e- Serial NO Label



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2 TECHNICAL SPECIFICATIONS

2.a General Features

Operation	Unidirectional and birectional, Entry and Exit
Driving	Hand operated.
Case Material	AISI 304 Stainless Steel (EN10082-2Grade 1G/2G) or Electrostatic powder coated or galvanized.
Rotor	AISI 304 Stainless Steel (EN10082-2Grade 1G/2G) or Electrostatic powder coated or galvanized.
Rotor Arms	AISI 304 Stainless Steel or Electrostatic powder coated or galvanized.
Function	Electronic microprocessor controlled. Return signal for both directions. Led indicators. Time setting for locking and unlocking. Control-free pass through set direction. Fast passage with the help of relay memory.
Mechanism	Hardened cast iron, mechanism cams, and steel with hardened nails.
Power Supply	220 VAC/ 110VAC, 50/60Hz
Power Consumption Rates	Max. 30 watt, min. 15 watt
Internal Voltage	12VDC Max.
Power Failure	Turnstile arms allow free exit as astandart feature in case of a power failure and emergency. Unless indicated otherwise turnstiles are produced and delivered in this mode.
Operating Temperature	-10 to +55°C
Transport and Storage Temperature	-20 to +55° C
Relative Humidity	95% Max.

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2.b Technic Features Table

The following table list the specifications and datas of TURNSTILES (TTF Series) Full Height Turnstiles.

The specifications in the table can change due to philosoph of change and improvement adopted by TURNSTILES.

MODEL	MECHANIC	ELECTRONIC	HEIGHT	WIDTH	EN	WEIGHT	PWR CONSUMPTION	TEMPERATURE	POWER SUPPLY
TTF 114S	LTF09v8	ECB-201R03	2180	1350	800	150 kg	max. 30 watt	- 10°, +55°	220 / 110 VAC
TTF 114D	LTF09v8	ECB-201R03	2180	1900	1180	250 kg	max. 60 watt	- 10°, +55°	220 / 110 VAC
TTF 113S	LTF09v8	ECB-201R03	2180	1350	800	150 kg	max. 30 watt	- 10°, +55°	220 / 110 VAC
TTF 113D	LTF09v8	ECB-201R03	2180	1900	1180	250 kg	max. 60 watt	- 10°, +55°	220 / 110 VAC
TTF 414S	LTF09v8	ECB-201R03	2230	1480	1480	200 kg	max. 30 watt	- 10°, +55°	220 / 110 VAC
TTF 414D	LTF09v8	ECB-201R03	2230	2215	1480	300 kg	max. 60 watt	- 10°, +55°	220 / 110 VAC
TTF 413S	LTF09v8	ECB-201R03	2230	1480	1480	200 kg	max. 30 watt	- 10°, +55°	220 / 110 VAC
TTF 413D	LTF09v8	ECB-201R03	2230	2215	1480	300 kg	max. 60 watt	- 10°, +55°	220 / 110 VAC

*Dimensions (mm) unit size is taken as a basis for turnstiles.

*The standard arm length for tunstiles is 50cm; moreover it can be extended up optional.

*Routing LEDs (indicator) are given as a standard equipment with all turnstiles specified in the table; moreover they can be removed or their place can be altered according to customer demand.

*Operating frequency of all turnstiles specified in the table is 50hz.

* Dimensions can be change to all turnstile models specified in the table as an option according to customer demand.

* TTF Series Full Height Turnstiles could be produced stainless steel or in any color with powder coated or galvanized.

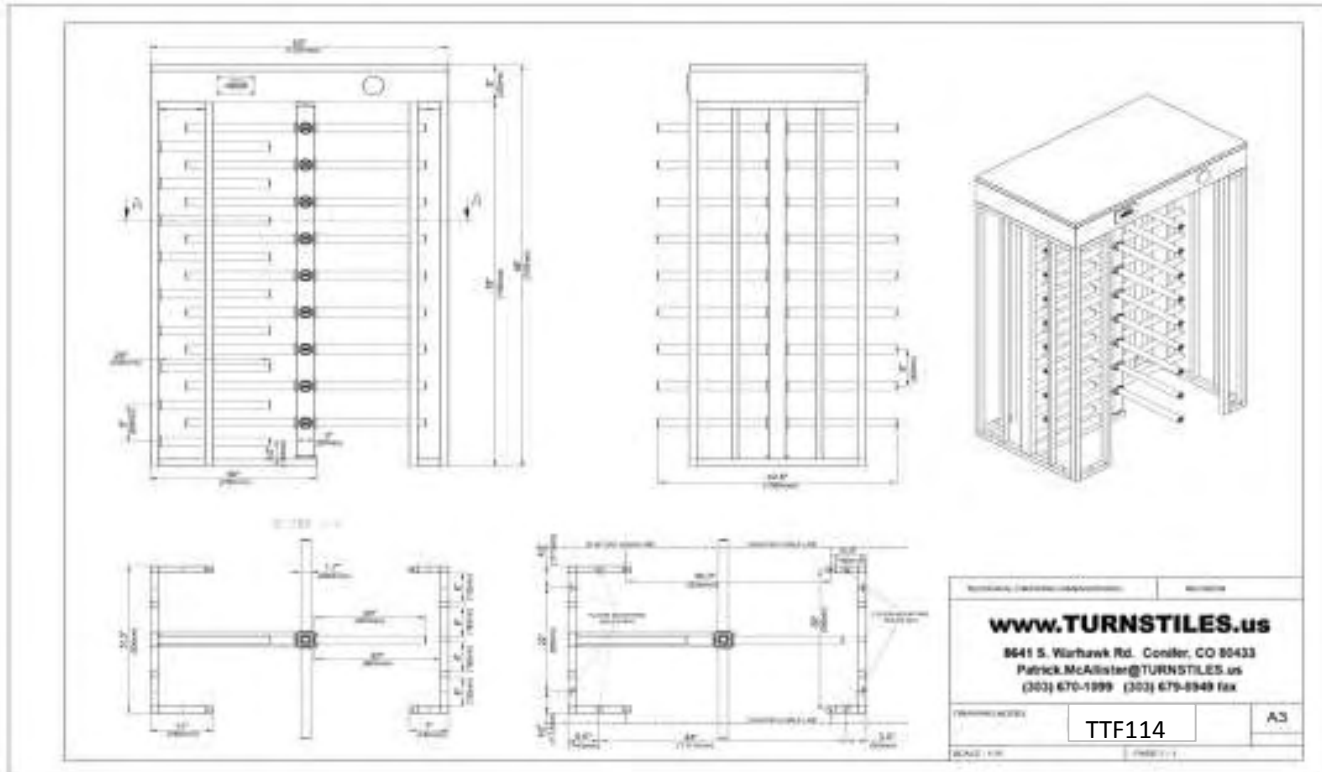
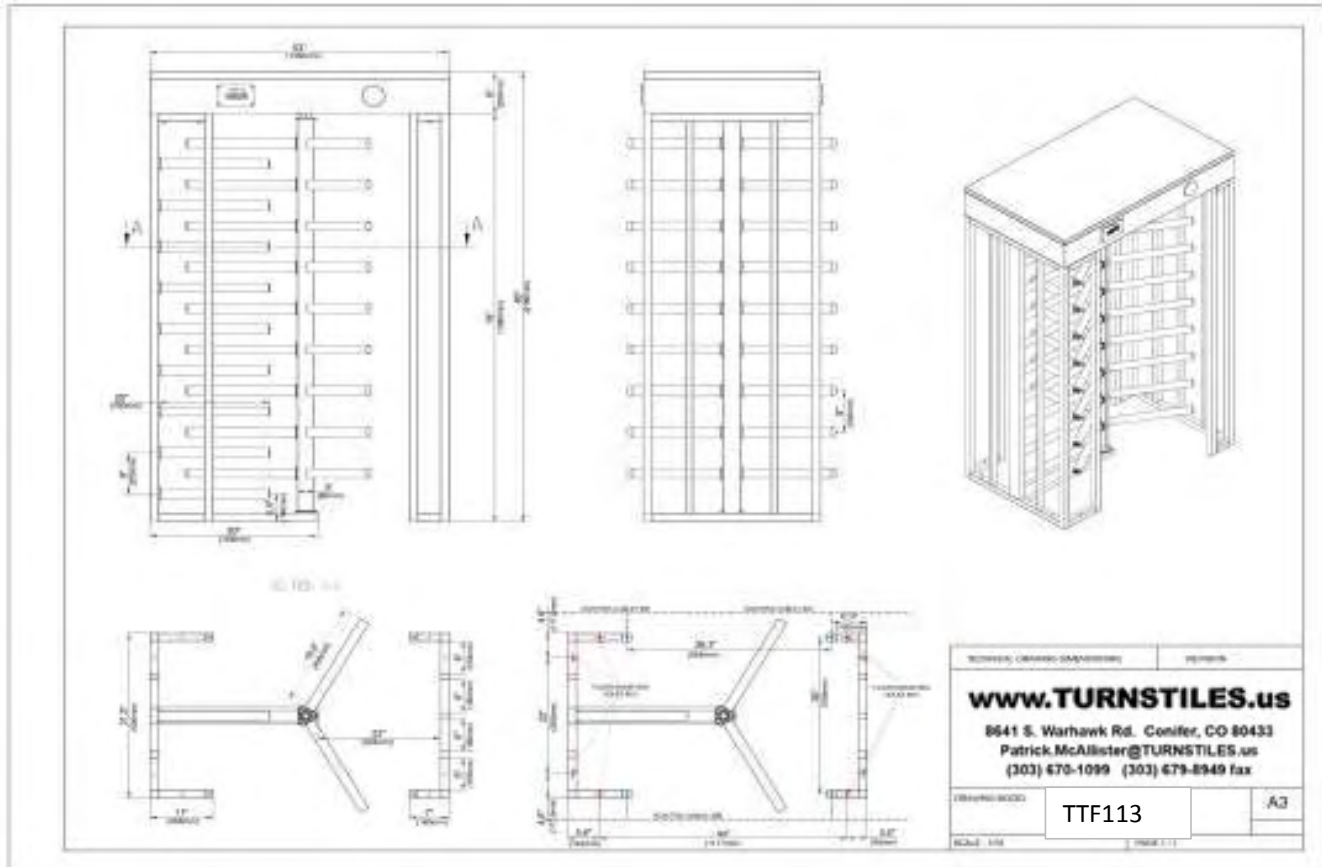
* There are no differences between S Case and Standart Full Height Turnstiles. So we didn't include technical drawings to this manual.



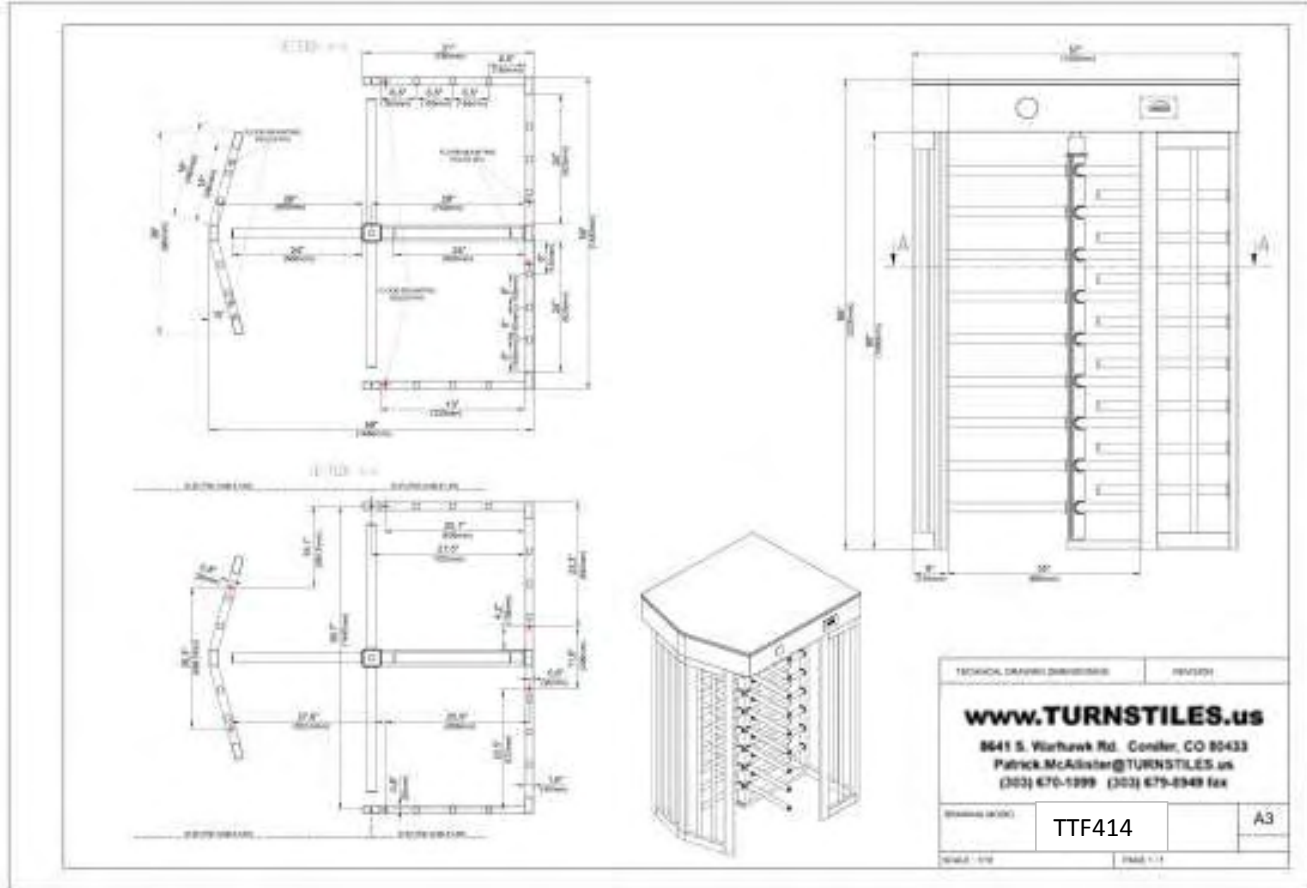
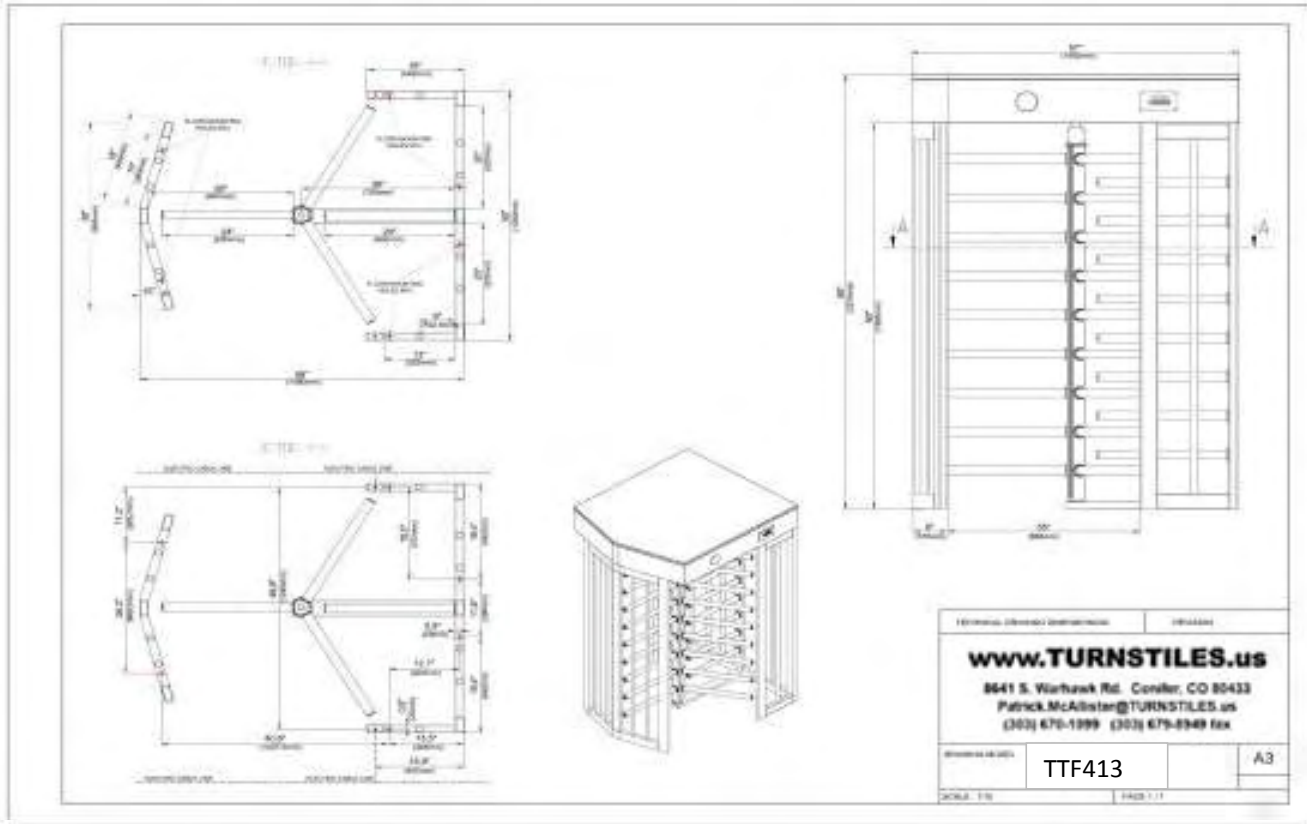
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2.c Physical Dimensions



FULL HEIGHT TURNSTILES



FULL HEIGHT TURNSTILES

Technical drawing of a full height turnstile (TTF104). The drawing includes side and front views with dimensions such as 2400mm height, 1000mm width, and 1000mm depth. A perspective view shows the turnstile with its doors open. A title block contains the following information:

TECHNICAL DRAWING SHEET		REVISED
www.TURNSTILES.us		
8641 S. Warhawk Rd. Conifer, CO 80433 Patrick.McAlister@TURNSTILES.us (303) 670-1999 (303) 670-8949 fax		
DRAWING MODEL	TTF104	A3
SCALE: 1:10	PAGE 1 OF 1	

Technical drawing of a full height turnstile (TTF514). The drawing includes side and front views with dimensions such as 2400mm height, 1000mm width, and 1000mm depth. A perspective view shows the turnstile with its doors open. A title block contains the following information:

TECHNICAL DRAWING SHEET		REVISED
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DRAWING MODEL	TTF514	A3
SCALE: 1:10	PAGE 1 OF 1	

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2.d Options and Standart Specifications

TTF Series Tripod Turnstiles provide secure access control system for users with optional equipment and accessories that can be added.

The following table shows equipment and accessories belonging to TTF Series Full Height Turnstiles.

MODEL	STANDARD EQUIPMENT		EQUIPMENTS AND ACCESSORIES THAT CAN BE ADDED				
	ROUTING LEDS		BUTTON BOX	CARD READER ASSEMBLY KIT	COIN UNIT	COUNTER	CEILING LIGHTING
	STOP	PASS					
TTF 114S	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 114D	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 113S	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 113D	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 414S	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 414D	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 413S	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 413D	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
TTF 513	STANDARD	STANDARD	OPTIONAL	OPTIONAL	-	OPTIONAL	STANDARD
TTF 514	STANDARD	STANDARD	OPTIONAL	OPTIONAL	-	OPTIONAL	STANDARD



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3 INSTALLATION

3.a Unpacking

Take the turnstile out of the package and check carefully whether it is damaged or not. Be sure that you receive the turnstile in full with serial no label, one amount of frame key, one amount of brake allen, and user guide. If the turnstile gets damaged during transport, please notify in written.

3.b Wiring

Please use 3x1.5mm TTR power cable and 5A safety fuse for turnstile feeding. Earthing must be at least 10 amp. Another cable line must be installed for data cables which are for card readers set on turnstile and/or other turnstile control equipments. Data cabled mustn't installed in the same line with electric cables.

3.c Field Arrangement and Positioning

The ground, on which the turnstile will be installed, must be smooth and in its square. Turnstiles are settled according to place they are going to be connected. we recommend you to leave a space (5cm) between turnstile arm and other turnstile's back ; according to preference more or less space can be left. Use steel dowel or chemical dowel for ground connections.

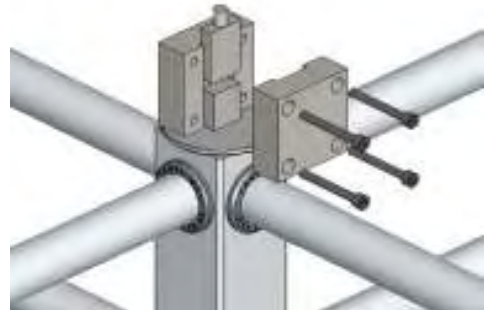
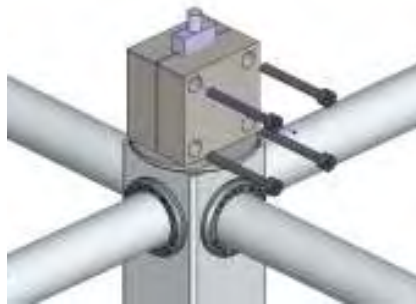
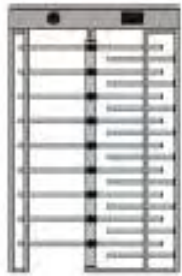


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3.d Arm & Wing Installation

Two trained staff must disassemble the rotor part. First one has to hold the rotor, the other one has to disassemble 4 pieces of M8 imbus bolts which are on the rotor shaft and camshaft with the 6mm allen key. After disassembled the bolts, rotor has to be lift up gently and removed from the slot on the bottom.



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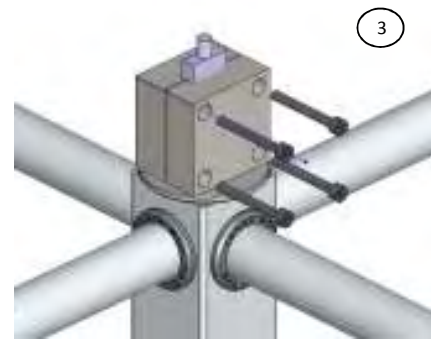
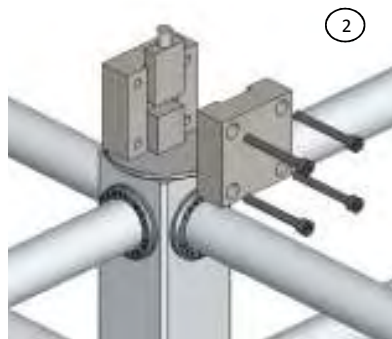
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3.d Arm & Wing Installation

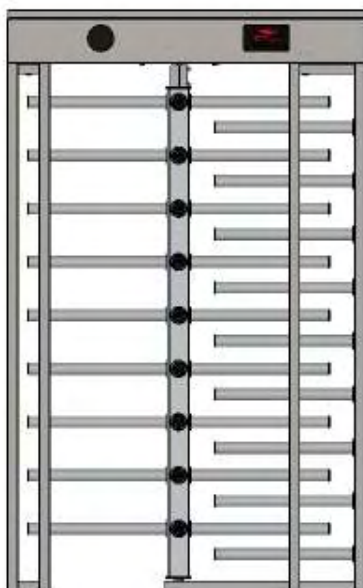
The turnstile arms manufactured in 50 cm length as a standard and they are welded to the rotor. Stainless steel and powder coated arms can be implemented according to demand. Rotor and arms are privately produced with thick material and have long physical life thanks to its welded structure. The arms which are 50 cm as standard, can be manufactured longer dimensions. The turnstile rotor can be easily connected thanks to the rotor shaft and mechanic shaft are secured together by a clamp. The arms do not unfasten or dislocate thanks to stay bolt screws on the hub. The rotor and arms are sent as assembled.

Assembly order of turnstiles.

- 1- The rotor is placed into the slot in the base and the arms are setted to the correct position.
- 2- The rotor clamp which is consisted with two parts placed so as to surround the rotor and mechanical shafts
- 3- The M8 imbus bolts are tightened well and checked if there is any space on it.



Position should be as follows after the rotor assembled.

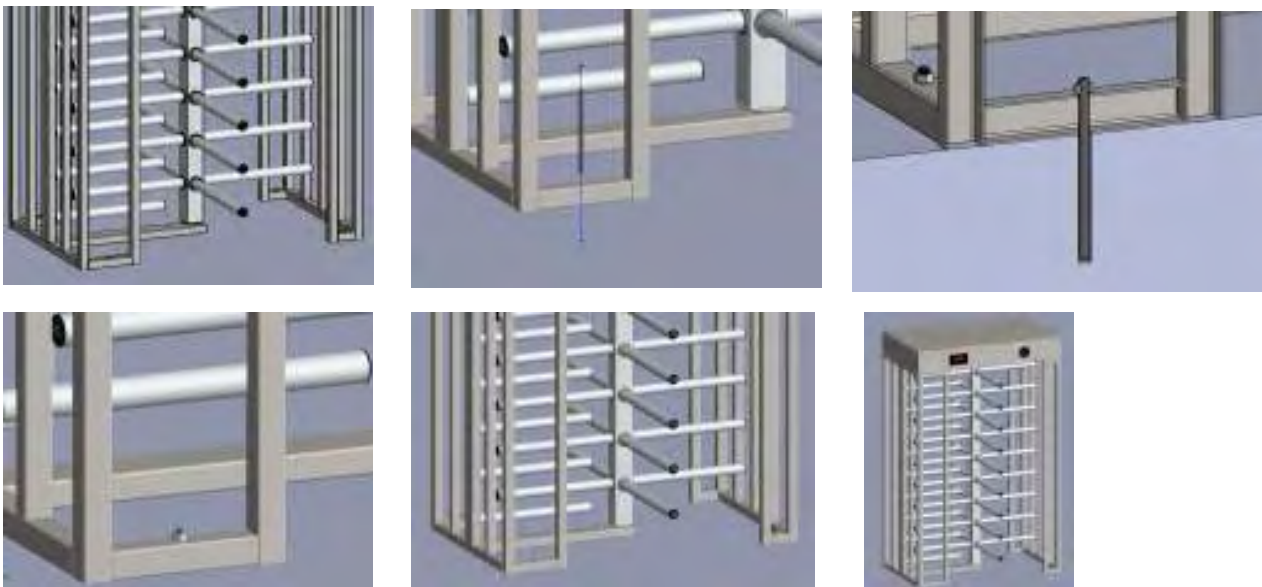


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3.e Ground Installation

After the turnstiles are settled, around of turnstile's leg part is drawn and marked then the turnstile is removed. The marked locations are drilled and the turnstile are placed on the holes. The holes are filled with chemical blended epoxy and mounting rods are attached. The nuts are tightened securely after the freezing process (10 minutes).



The energy and card reader cables are passed through the side profiles and provide access to the upper tray. All connections can be made at the upper tray easily.

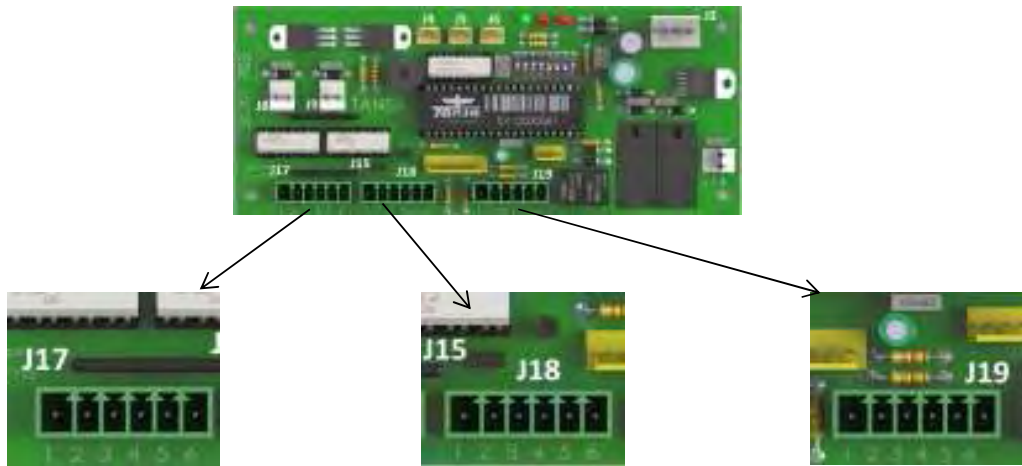


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3.f Electrical Connections

LTT type turnstiles need 220VAC power (optional 110VAC) to operate. Power cables are recommended as 3 core x 1,5 mm² flexible cable. Power cables should be connected to the power connections next to the DC power supply.



1- +24VDC
 2- A Direction Relay input
 3- B Direction relay input NO
 4- Optional Input
 5- Emergency Input NC
 6- GND

1- +24VDC
 2- Optional Input
 3- Optional Input
 4- Optional Input
 5- Optional Input
 6- GND

1- A Direction Passed Output
 2- A Direction Passed Output NO
 3- B Direction Passed Output
 4- B Direction Passed Output NO
 5- Optional Output COM
 6- Optional Output NO

- Control input connections were designed with optocouplers in order to prevent outsource noise. Control inputs need dry contact/relay to operate. If there is no valid dry contact/relay output on the controller, turnstile can be controlled by PNP output.

- Normally Open (NO) dry contact/relay needed for control inputs. Normally Closed (NC) inputs should be not used.

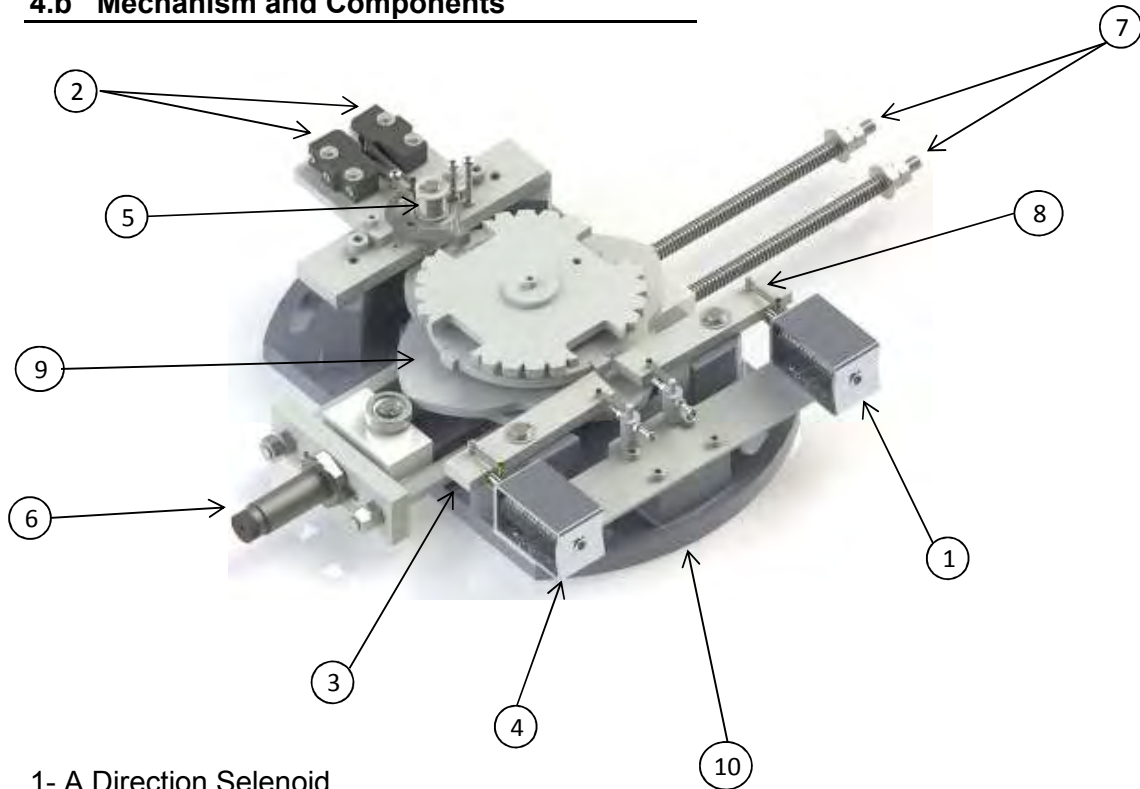
-Emergency Input is controlled by NC output. On J17 connection no.1 and no.5 should be connected with a shortcircuit cable if there will be no emergency connection. For alarm system connections, the output of the alarm system should be connected instead of this shortcircuit.



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4.b Mechanism and Components



1- A Direction Solenoid

2- Motion Switch

3- Lock arm

4- B Direction Solenoid

5- Reverse Direction Balance Spring

6- Shock Absorber

7- Balance Spring

8- Solenoid Spring

9- Monoblog Cam Group

10- Cast Iron Mother Board



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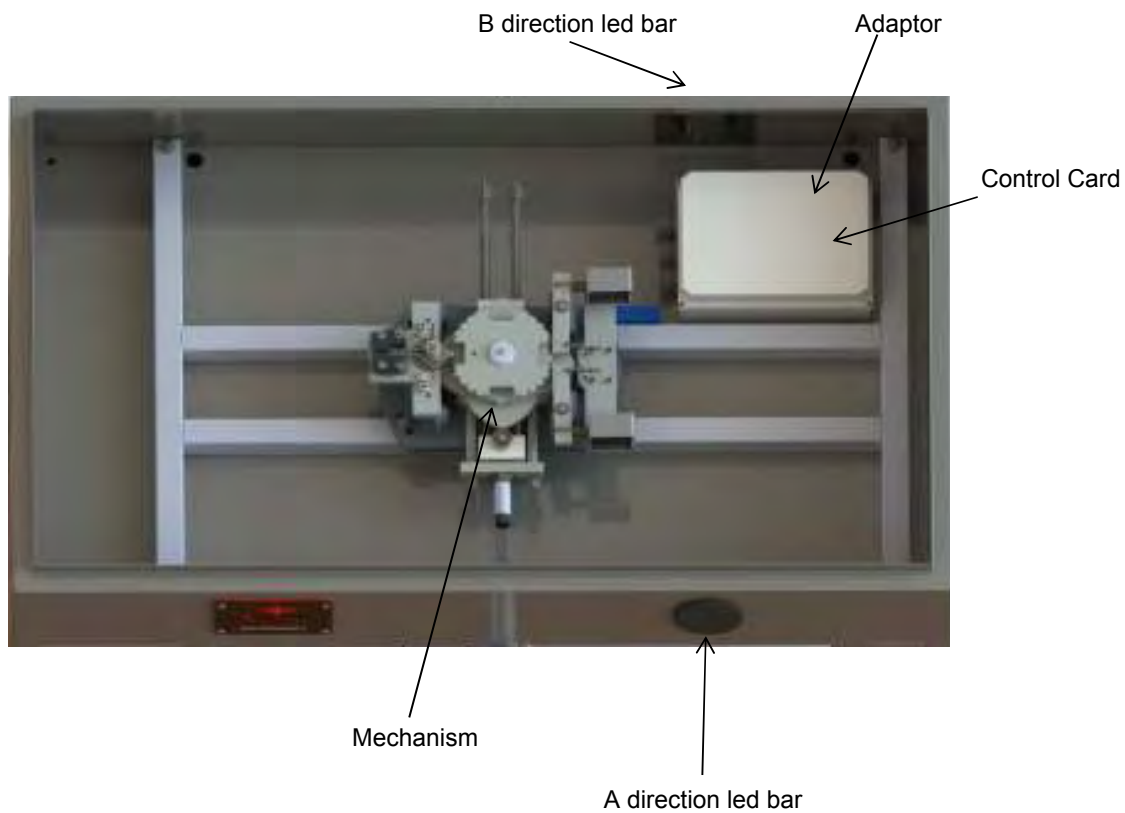
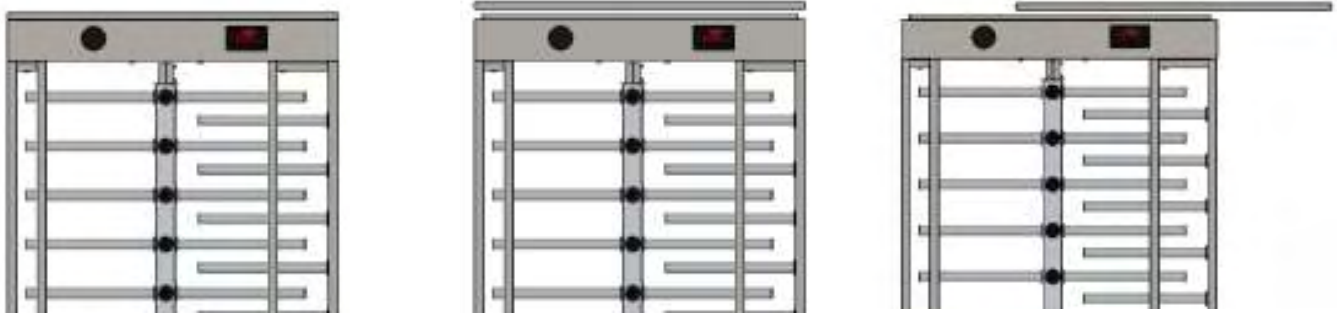
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4.a Inside of the turnstile

Opening Top Lid

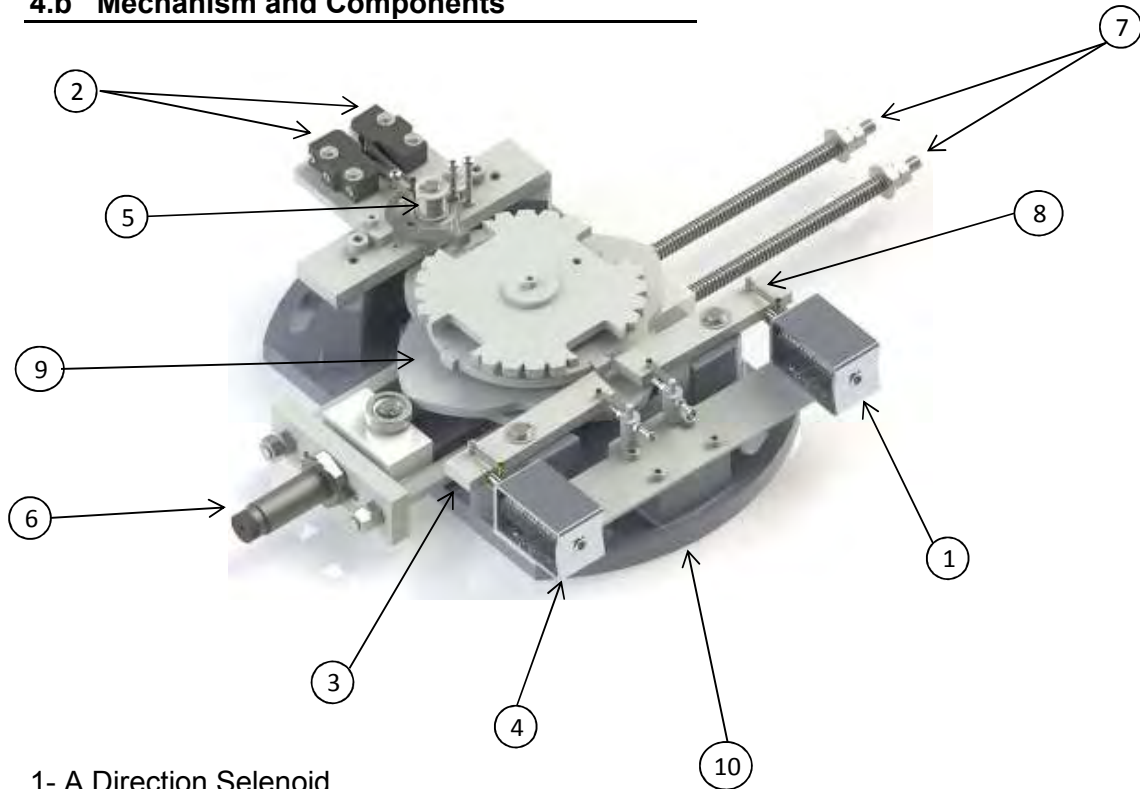
2 trained staff must open the top lid together. There is no lock on the top lid top lid so 2 trained staff must lift up the lid together.



The sample photo belongs to TTF 114 model turnstile. It could have some changes with TTF 400 and TTF 500 series. With minimal size of mechanism and other equipment there is enough space for easy wiring.

FULL HEIGHT TURNSTILES

4.b Mechanism and Components



1- A Direction Solenoid

2- Motion Switch

3- Lock arm

4- B Direction Solenoid

5- Reverse Direction Balance Spring

6- Shock Absorber

7- Balance Spring

8- Solenoid Spring

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4.c Absorber Adjustment

Shock-absorber is adjusted in the factory. Can be changed or re-set.

1 - With the allen key which is in the turnstile, allen screws which is on the rear side of the shock-absorber

2 - On the rear side of the shock-absorber there numbers between 0 and 9. "0" means soft absorbing, "9" means harder absorbing.



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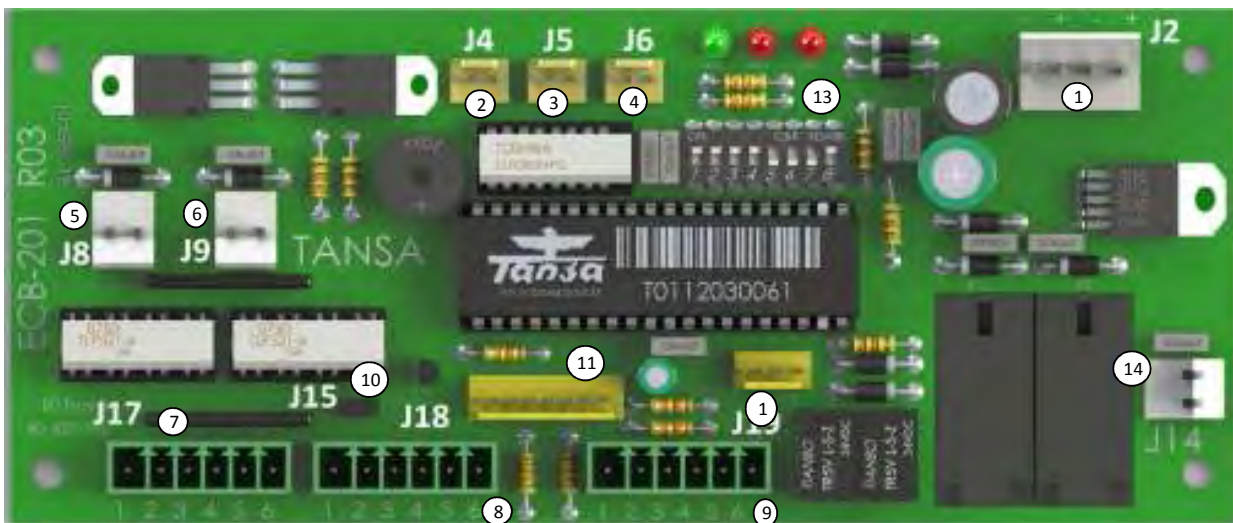
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4.d Control Board Specifications

You can see the controller of the turnstile. All connectors are designed as sleeve type in order to make easy connections. All components are in industrial standards. LED lights inform about the current processes. Flashing green LED means controller is operating. Red LED's are power LEDs and means power is On. The numbers which are on the processor shows the version and operating type so it should not be ripped off.

ECB-201 R03 Turnstile Control Board



- 1 - 12V Power Connection
- 2 - No use for full height turnstiles
- 3- A direction indicator
- 4- B direction indicator
- 5- A direction solenoid output
- 6- B direction solenoid output
- 7- Control Connections
- 8- Optional Connections
- 9- Passage direction output No input
- 10- Control input voltage choice
- 11- Arm rotation sensor input
- 12- PC communication connection TTL option
- 13- Function Switches







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4.e Function Settings Switches



Fabrication Settings



<p>Sw1 - Sw2</p> 	<p>Automatic Locking Time</p> <p>→ Sw1 ON - Sw2 ON 20 Seconds Sw1 OFF - Sw2 ON 15 Seconds → Sw1 ON - Sw2 OFF 10 Seconds Sw1 OFF - Sw2 OFF 5 Seconds</p>	<p>After the unlocking signal received from the controller, if the arms will not rotate, the system waits for a setted reloading time. After the rotation of the arms completed, controller cancels the locking time and locks immediately.</p>
<p>Sw3 - Sw4</p> 	<p>Passage Directions</p> <p>→ Sw3 ON A Direction - Controlled Sw3 OFF A Direction - Free → Sw4 ON B Direction - Controlled Sw4 OFF B Direction - Free</p>	<p>With this setting, the controller can be set for free or controlled entrance & exit. Sw3 and Sw4 should be set for each direction.</p>
<p>Sw5</p> 	<p>Memory Settings</p> <p>Sw5 ON Memory Active → Sw5 OFF Memory Passive</p>	<p>Turnstiles are delivered with "Memory Passive" mode. This means that after receiving unlocking signal from the access controller, the turnstile's controller will not accept new unlocking signals until tripod completes its rotation. In "Memory Active" option, up to 200</p>
<p>Sw6</p> 	<p>Single Button Settings</p> <p>Sw6 ON Single Button Active → Sw6 OFF Single Button Passive</p>	<p>If just one access controller will be used to control both enter & exit directions, the access controller should be connect to AB direction connections. When access controller sends the unlocking signal to the turnstile, turnstile mechanism unlocks both direction. But with</p>
<p>Sw7</p> 	<p>Minimum Entry Signal Time</p> <p>Sw7 ON 200mS → Sw7 OFF 20mS</p>	<p>If the access controller sends the unlocking signal in a very short period or sending multiple signals this setting should be 20ms (OFF). But normally as standard this setting is ON (200mS)</p>
<p>Sw8</p> 	<p>Beep On 7 Off</p> <p>→ Sw8 ON Audible Warning On Sw8 OFF Audible Warning Off</p>	<p>In "ON" condition, after receing the unlocking signal from the access controller, the audible warning "beeps" in order to inform it is in unlocked position and passage is available. After the rotation will be completed it stops "beeping".</p>

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5 Instruction Of Use

5.a Using Turnstiles

Turnstiles opens by a signal coming from control system and/or by various readers like control button, barcode or fingerprints according to customer's preference.

If any material is stuck among turnstile arms, please STOP and do not CONTINUE to push the arms in the same direction.

Do not pass through the turnstile while your big luggage and/or briefcase is in front of you or behind you.

Normally closed : Turnstile mechanism stays locked until passage authority signal comes.

Turnstile allows free exit in case of power failures.

5.b Operation Modes

Turnstile emergency alert system is provided with two different versions. Unless indicated otherwise, turnstiles are manufactured in Fail-Safe mode.

Fail-Safe : Mechanism stays free for passing in case of nonexistence of electric.
(Standard)

Fail-Locked : Mechanism stays locked for passing in case of nonexistence of electric.
(Optional)



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5.c Operating System Specification:

TTF Series FULL HEIGHT TURNSTILES OPERATION & SYSTEM TABLE

Can be controlled by all kinds of access control systems as well as token/coin acceptor. Connections, indicator LEDs and switch positions are controlled by a microprocessor. Can be work bi-directional. Can send an digital output signal to the access control system as well as to a PC after each turn of the arms (each passage). During power shortage, mechanism unlocks itself for free exit or entrance (fail safe).

MODEL	MECHANICAL PART		OPERATING SYSTEM			MATERIAL FEATURES		
	MANUAL	MOTORIZED	MOTION	LOCKING	BRAKING	CASE	ROTOR and ARMS	CAM
TTF 114S	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 114D	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 113S	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 113D	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 413S	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 413D	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 414S	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated
TTF 414D	YES	Optional	By pushing	solenoid	hidrolic	stainless steel / powder coated	stainless steel / powder coated	coated



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6 Maintenance and Repair

6.a General Cleaning

Turnstile arms must be regularly cleaned.

Routine cleaning for all surfaces : Cleaning Agents including acidic or basic chemicals damage AISI 304 stainless steel and leave a mark. Use liquid detergent including soft chemicals like stainless maintenance spray or detergent used for cleaning windows.

6.b Routine Maintenance

Mechanism must be controlled periodically for good working conditions and must be cleaned. Dust and dirt is the most important factor which shortens mechanism life.



Caution : Be sure that electricity is closed before controlling the mechanism.

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- A** Lubricate once a year. Use Molycote BR2+ grease oil or a grease oil which includes one of graphite/molybdenum sulphide components for lubricating.
- B-D** Wipe with a dry clean fabric every six months.
- C** Please disassembly the segments "C" in every six months.
Clean the pins and holes and use No 10 grease oil.
- E** Control hydrolic shock absorber gauge showed by E whenever you check mechanism. You can easily arrange brake hardness with hidrolic brake gauge allen gived with the turnstile over hydrolic.



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FULL HEIGHT TURNSTILES



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**TURNSTILES reserves the right to modify design and details.*
