

# EDM / EDM-BN

## Motorized Waist High Turnstile

The EDM is a waist high turnstile that provides single or bi-directional access control and/or patron counting. Motorized arm rotation provides a very comfortable passage experience for patrons. Upon loss of power or fire system input, the horizontal arm automatically drops to provide a clear exit passageway.



EDM (square cabinet)



EDM-BN (bullnose cabinet)

### COMMON APPLICATIONS

- Employee and Visitor Access Control
- Pedestrian Traffic Flow Control
- Patron Counting

### TYPICAL INSTALLATION SITES

- Entrances and Lobbies
- Fitness Clubs
- Recreation Centers
- Stadiums and Arenas
- Amusement Parks



## FUNCTION

EDM turnstiles provide single or bi-directional access control and are also suitable for pedestrian flow control and patron counting applications.

Equipped with a motorized drive system which uses very little power, EDM turnstiles provide a smooth, controlled and nearly silent rotation. Alvarado's precise rotation control allows a user to start the motorized arm rotation with just a touch of the horizontal turnstile arm. As an added benefit, the EDM's extended arm length provides a very comfortable passage width for patrons.

The EDM includes anti-panic or drop arm functionality. Upon loss of power, or receipt of a fire system input, the horizontal arm drops automatically to provide a clear exit passageway. Upon restoration of power or removal of the fire system input, the arms automatically engage to normal operational position.

Each direction of travel can be configured for controlled passage, free passage or no passage. In controlled passage mode, upon receipt of a valid card signal from an access control system, the turnstile unlocks allowing the user to pass in the requested direction. If a moving arm encounters an obstruction during rotation, the EDM's intelligent firmware detects the obstruction, sounds an alarm and precisely controls the motor operation to maximize user safety. An audible alarm also sounds if a user attempts to force the arms to rotate without receipt of a valid card signal.

Core turnstile settings, such as rotation speed and time to pass through the turnstile after access has been granted, are adjusted using an Alvarado provided configuration utility and laptop computer.

Card or biometric readers can be installed on the lid or lid cutouts can be provided for installation of readers on the underside of the lid.

The EDM provides rapid throughput. While throughput will depend on the access control system and readers used, the turnstile will process patrons as fast as they can walk through the turnstile.

The EDM is suitable for indoor or outdoor applications and comes in two cabinet styles, square end and bullnose end. The turnstiles ship fully assembled for quick and easy installation. Available finishes are satin stainless steel or color powder coat available in dozens of colors.



## AVAILABLE MODELS

Two models are available – the EDM (square ends) and the EDM-BN (bullnose or rounded ends).

For entertainment access control applications, Alvarado manufactures turnstiles designed specifically to integrate with ticketing systems in stadium, arena and amusement park applications. Please see our website or the Descriptive Specifications for the TAS12-EDM and related models.

## AVAILABLE FINISHES

### STAINLESS STEEL

The cabinet and lid are fabricated from #304 stainless steel polished to a #4 satin finish.

### POWDER COATED

The stainless steel cabinet is powder coated. The stainless steel lid, and the head and arms are not powder coated. Powder coating is available in a variety of colors.

## MATERIALS

### CABINET

The cabinet is fabricated from 14-gauge #304 stainless steel polished to a #4 satin finish. The cabinet houses the turnstile controller, motorized low energy drive mechanism, power supply and other components. The cabinet connects to two end support columns and is covered by a hinged lid assembly.

### LID

The lid is fabricated from 16-gauge stainless steel polished to a #4 satin finish. Opening the cover provide access to internal components and internally mounted card or credential readers. The cover provides a tight seal to repel water and dust. The lid is mounted to the cabinet with two hinge assemblies and secured with two cam locks.

### END SUPPORT COLUMNS

Each column contains a locking hinged door on the interior of the column to facilitate the running of power and communication cables and to provide access to attach the turnstile to a concrete floor without the use of visible anchors, bolts or fasteners. The columns also house certain options. Columns are fabricated from 14-gauge #304 stainless steel polished to a #4 satin finish.

## MATERIALS (CONT.)

### ROTATING HEAD AND ARMS

The rotating head is powder coated in a matte gray color. Turnstile arms are 1.4" O.D. x 16-gauge stainless steel sealed at the outer end by a welded stainless steel cap. The arms are staked into the rotating head, allowing for assembly without the use of visible exterior fasteners.

## CONTROLS, OPERATIONAL MODES AND FUNCTIONALITY

### CONTROLS

<b>Turnstile Control Board (TCB)</b>	The turnstile control board (TCB) controls turnstile operation and provides the connection points for facility access control systems or opening devices such as push buttons. Activation for either direction of operation is achieved by supplying a momentary dry contact to the TCB. Terminal strips on the board provide access to the available I/O. Communication between the turnstile and access control system is in the form of dry contact inputs and outputs. A UL listed primary to low voltage power supply provides 24VDC power for motor operation. 24VDC power is stepped down internally to 5/12 VDC for other low voltage operational requirements.
<b>Locking Control</b>	The locking and unlocking of the turnstile arms is controlled using an integrated locking clutch.
<b>Rotation Control and Self-Centering</b>	EDM series turnstiles have motorized rotation control. A digital position encoder and Alvarado's control firmware provides a smooth, controlled rotation that automatically returns the turnstile arms to the home position and senses obstructions in the rotation path.

### PASSAGE MODES

The EDM provides the following user configurable passage modes. Passage mode changes are easily implemented using included key locks located on the underside of the cabinet.

<b>Controlled Passage</b>	The turnstile direction is in a normally locked state. Upon receipt of an authorization signal, the turnstile arms move forward slightly in the passage direction to prompt the user to enter. With a slight touch of the horizontal arm, motor rotates the arms to allow a single passage in the authorized direction. The arms return to the home position after the user has passed through the turnstile. Either or both rotation directions can be set to controlled passage.
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**PASSAGE MODES (CONT.)**

<b>Free Passage</b>	An authorization signal is not required for a user to pass through the turnstile. A slight touch of the turnstile arm in the free passage direction rotates the arms to allow a single passage. Either or both rotation directions can be set to free passage
<b>No Passage</b>	No passage is allowed. The rotating arms are locked in place. Valid electronic credentials are ignored. Either or both rotation directions can be set to no passage.
<b>Remote Passage Mode Configuration</b>	The above passage modes can be controlled remotely through inputs on the TCB. The access control system uses these inputs to set the desired mode, or Alvarado offers an optional three-position key switch (Remote Turnstile Mode Key Switch Option) that is field wired into the TCB. Turning the key to one of three positions places the turnstile in Controlled Passage mode, Free Passage mode or No Passage mode. A separate key switch is required for each rotation direction.

**FUNCTIONALITY - OTHER FEATURES AND TOOLS**

<b>Operational Configuration</b>	Turnstiles come standard as fail-safe. The horizontal arm drops when power is removed or a fire system input is received. Once power is restored or the fire input is removed, the arms automatically reset to the normal operating position. As an option, a backup battery can be installed in the turnstile to provide fail-lock functionality. With this option, the horizontal turnstile arm will not drop if power is removed from the turnstile until the battery is depleted. The arm will still drop if a fire system input is received.
<b>Access Timeout</b>	This feature adjusts the time a user can pass through the turnstile after an activation (unlock) signal has been received. The default setting is 20 seconds before the turnstile automatically relocks. The included configuration utility allows this time to be user adjusted.
<b>Independent Turnstile Testing</b>	The TCB includes test activation buttons which allow the unlocking function to be tested independent of the access control system. This is an excellent tool for field troubleshooting.
<b>Arm Cycle Time</b>	The configuration utility is used to adjust the factory set rotation speed if desired.



<b>Arm Impact</b>	If a moving arm encounters resistance during rotation, the arms will stop moving and wait for a defined period before attempting further rotation. If desired, an audible alarm sounds when an obstruction is encountered.
<b>Forced Arm Attempt</b>	If a user attempts to force arm rotation in controlled pass mode without receipt of a "authorized" input signal, an alarm will sound.
<b>Emergency Override Fire Alarm Input</b>	Activation to drop the horizontal arm to provide a clear passageway in conjunction with a fire alarm or other life safety system is achieved by supplying a sustained dry contact to the appropriate location on the TCB terminal strip. Status lights, if this option is used, turn off. When the contact is removed, the turnstile arms return to the normal operating position.
<b>Power Loss</b>	In the event of power loss, the horizontal arm will drop, providing a clear passageway. When power is restored, the turnstile arms return to the normal operating position. If the battery backup option is used, please see the description of operation with this option in place.

## CARD READERS / PHYSICAL ACCESS DEVICES

Installers can attach card readers or access devices directly to the top of the turnstile. Alvarado can also, as an option, provide a 3" x 4" cutout fitted with scratch resistant acrylic on either side (or both sides) of the lid to allow installation of an appropriate sized proximity reader under the lid. See options.

## TURNSTILE INTERFACE TO ACCESS CONTROL SYSTEM

Single passage activation is achieved by supplying an isolated, voltage-free, momentary dry contact of 1 second or less to the appropriate location on the turnstile control board. An output is provided when the turnstile is rotated.

A description of the available input and output signals (dry contacts) available from the turnstile control board are provided below:

Input Signal	Entry / Exit
Passage Direction Closed	√
Passage Direction Open (Free Pass)	√
Good Card (Single Activation)	√
Bad Card (Used with JS3 Light Option)	√

Output Signal	Entry / Exit
Rotational Signal	√



## OPTIONS

### 220VAC

A 220-240VAC, 50 Hz power supply and EU wiring scheme is utilized.

### ALTERNATIVE CABINET STYLES

The EDM is available in square end or bullnose cabinet styles.

### BACKUP BATTERY POWER

A trickle charge battery system is installed in one of the support columns. Upon loss of power the turnstile continues to function normally operating approximately three hours on a full charge. If the fire system input is engaged, upon receipt of the input, the horizontal turnstile arm automatically drops to provide a clear exit passageway. When the fire system input is removed, the turnstile arms automatically rotate into place for normal operation.

### BATTERY POWERED COUNTERS

A lithium battery powered LCD seven-digit counter is installed in the turnstile. Each rotation of the turnstile arms generates a count. One counter is required per direction of travel. Counters can be reset to "0" using a key switch integrated into the turnstile cabinet.

### CARD READER CUTOUT

A 3" x 4" cutout in the lid is fitted with scratch resistant acrylic allowing the attachment of many types of proximity readers underneath the lid.

### COMPUTERIZED COUNTING

Each turnstile rotation outputs a count to GateWatch10, Alvarado's computerized patron counting software. GateWatch10 provides real-time entry, exit and in-venue totals in conjunction with Alvarado turnstiles.

### CUSTOM INTEGRATION

Alvarado can provide custom integration of other access control components, including larger readers. Contact Alvarado about requirements.

### EXPEDITED MANUFACTURING TIMES

Expedited manufacturing times are available. Contact Alvarado for more information.



## OPTIONS (CONT.)

### PORTABLE BASEPLATE

The turnstile is mounted to a black powder coated baseplate with a stainless steel guide rail, wheels and a handle. The wheels can be raised or lowered using included foot pedals. Wheels are lowered to maneuver the turnstile. Wheels are raised to secure turnstile in place. A Neutrik style power connector and cable provide power to the turnstile from an AC outlet.

### PUSH BUTTON ASSEMBLY

Unlocks the turnstile for one passage. The stainless steel push button assembly is usually supplied separately to allow transmission of an unlock signal from a remote location such as an attendant desk.

### RKO-3 (REMOTE TURNSTILE MODE KEY SWITCH)

A 3-position key switch is provided that allows the turnstile to be placed in one of the three available operational modes. A key switch is required for each direction of operation. RKO-3 key switches are provided loose, for installation in a location remote from the turnstile. Please note that this option is separate from the two position key switches that come standard, installed in the turnstile cabinet. See Passage Mode Configuration, above.

### USER NOTIFICATION ACTIVATION LIGHTS (JS-3 LIGHTS)

An LED array is located under the lid. The JS-3 light option functions as follows:

#### YELLOW / GREEN / RED SELECTION

Yellow Light



Normal "ready" state; indicates the turnstile is locked and ready for card presentation.

Green Light



Illuminates when the access control system provides the turnstile control board an "authorized" input. When the green light illuminates, the turnstile will unlock and remain unlocked until the turnstile is rotated or the time for passage expires. The green light flashes to prompt patrons when the direction is in free pass mode.

Red Light



Illuminates when the access control system provides an "unauthorized" input. The turnstile remains locked. Also illuminates (and an audible alarm sounds) if an arm encounters an obstruction during rotation, or if a user attempts to force an arm rotation in controlled passage mode without receipt of a valid card signal.

## OPTIONS (CONT.)

### OPEN / CLOSE STATUS LIGHTS

An opaque end piece is flush mounted in the upper end “leg” on each side of the turnstile diffusing green and red signal lights. The lights function similar to toll booth lights, and perform in the following manner:

Green



An illuminated green bar indicates the turnstile is open for use. The bar remains green when a valid card input is received.

Red



An illuminated red bar indicates the turnstile is closed for use. The bar remains illuminated red and activation inputs are ignored. The red light also activates if an arm encounters an obstruction during rotation, or if a user attempts to force an arm rotation without receipt of a valid card signal.

## SHIPPING AND SITE PREPARATION

### SHIPPING

EDM turnstiles are shipped assembled.

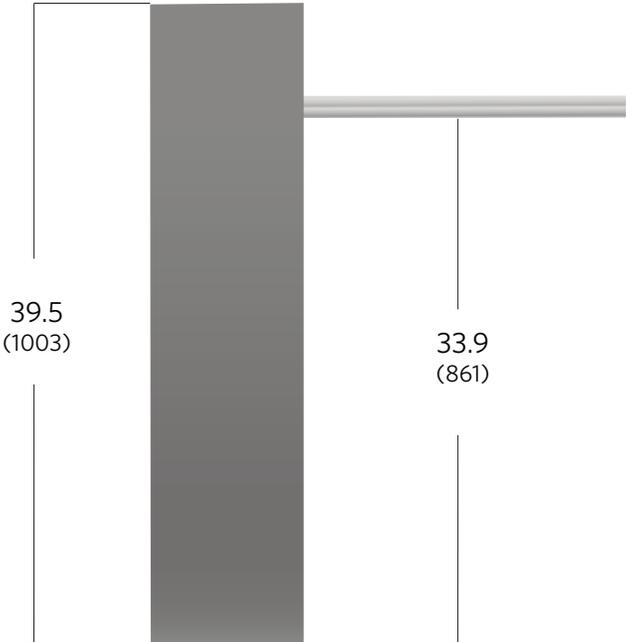
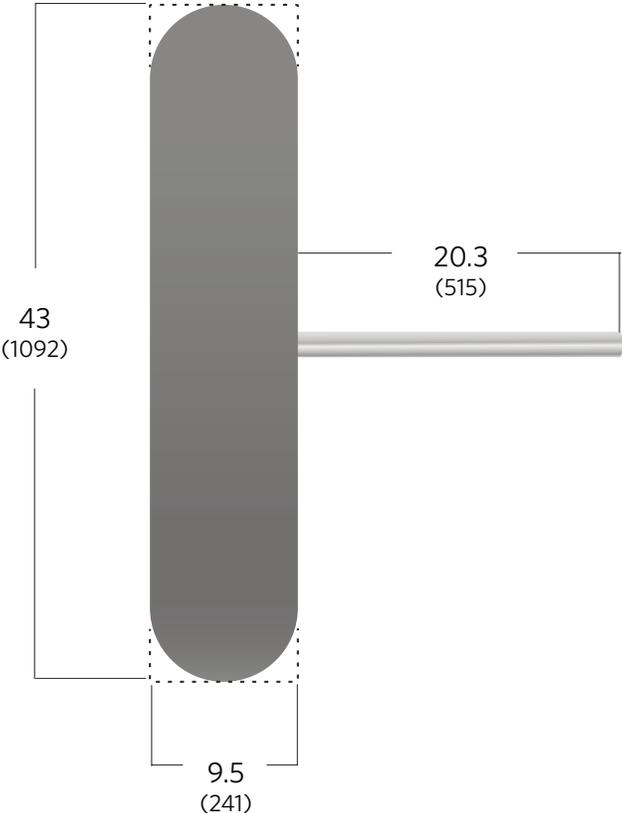
### SITE PREPARATION

Turnstiles must be installed on a firm foundation in a manner that allows the required power and activation signal cabling to be pulled into the unit. The recommended slab platform should be 4” deep, level concrete. Concrete anchors, bolts and washers are included with each turnstile. Installation should be performed by a skilled installer following Alvarado’s directions and instructions. Detailed drawings and installation manuals are available.

TECHNICAL DIMENSIONS\*

Dimensions are shown in inches (mm). All measurements are approximate.

\*Dimensions are the same for both square and bullnose cabinet styles.



Approximate Throughput Rates

Card Reader Type*	Users per minute
Proximity	30-40

\*Access control system response is assumed to be instantaneous

Electrical	Description
UL Rated Power Supply	110-120 VAC, 60 Hz or 220-240 VAC, 50 Hz (optional)
Power Requirements	Maximum power consumption is 60W per lane with all options installed.
Operational Voltage	Primary power is stepped down and rectified for low voltage 24VDC, 12VDC, and 5VDC operation.
Fuse Protection	24VDC, 12VDC and 5VDC is fuse protected. The 24VDC power supply is rated for lighting and industrial surges/per IEC 61000-4-2-5, 6, 8, 11

Weights and Environmental

Product Weight	160 lbs.	73 kg
Shipping Weight	340 lbs.	154 kg Includes weight of shipping crate(s)
Operating Temperature	10° to 115° F	-12 to 46° C
Storage Temperature	30° to 160° F	-1 to 71° C
Relative Humidity	90% (non-condensing)	--

WARRANTY

For a period of one year from the date of shipping, Alvarado will replace or repair, at Alvarado’s option, any products or parts which are defective in materials or workmanship, provided recommended installation and maintenance procedures are followed. This warranty is void if damage is due to improper installation, maintenance or use. This warranty is limited to parts only, and does not cover labor or shipping charges incurred in connection with the removal or replacement of warranted products or parts.

This warranty is expressly made in lieu of any and all other warranties, expressed or implied, including, but not limited to implied warranties of merchantability and fitness for a particular purpose. Alvarado shall not be liable for any loss or damage, directly or indirectly, arising from the use of purchased products. In no event shall Alvarado be liable to buyer for consequential damages, special damages, incidental damages, loss of use, business interruption, loss of profits, or damages of any kind arising out of the use or inability to use a purchased product. In NO event shall Alvarado be liable for damages which exceed the purchase price of a covered product.

