

# EDM / EDM-BN

## Motorized Waist High Turnstile

The EDM is a motorized waist high turnstile that provides single or bi-directional access control. Motorized arm rotation provides a very comfortable passage experience for patrons. In the event of an emergency the horizontal arm automatically drops to provide a clear exit pathway.



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

The EDM provides several operational modes (described below), including bi-directional access control. The turnstile is also used for pedestrian flow control and patron counting applications. The EDM provides a wide patron passage width and is suitable for indoor or outdoor installations.

The EDM integrates easily with facility access control systems and devices such as push buttons. 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 motorized rotation system uses very little power. The system consists of a brushless DC motor, digital position encoder and Alvarado's intelligent control firmware which provides precise, controlled, operation. The rotation and operational functions are very smooth and the operation of the turnstile is extremely quiet.

In controlled passage mode, upon receipt of a valid credential signal, the motorized arms move forward slightly in the passage direction to prompt the user. With a slight touch of the horizontal arm the turnstile motor moves the arms allowing near touchless user passage. Should the moving arms encounter an obstruction during the rotation process, the EDM's smart firmware detects the obstruction, precisely controlling the motor operation to maximize user safety.

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

The EDM also 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.

The EDM comes with a configuration utility (EDM Utility) that allows adjustment of configurable settings through software. The EDM Utility loads on a Windows laptop. Settings are adjusted by plugging the laptop into the turnstile control board.

The EDM is shipped fully assembled for quick and easy installation. Available finishes include satin stainless steel or powder coat in one of our dozens of available colors.

## AVAILABLE CONFIGURATIONS

### EDM

This turnstile has square ends and can be configured to provide controlled passage in both directions, free passage in both directions; controlled passage in one direction and free passage in the other. Either direction of passage can also be restricted (direction closed - no passage allowed).

### EDM-BN

This turnstile has the same functionality as the EDM, but has a bullnose end and lid design.



## AVAILABLE FINISHES

### POWDER COATED

The 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.

### STAINLESS STEEL

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

## 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 supplies and other electronics. The cabinet is a center housing that connects to the two end legs.

### COVER / LID

The cover is hinged and secured with key locks. Opening the cover provides access to the internal components as well as internally mounted card or credential readers. The cover provides a tight seal to repel water and dust and is fabricated from 14-gauge #304 stainless steel polished to a #4 satin finish.

### END LEGS

The end legs attach to the center cabinet. The interior of each leg contains a locking hinged door which, when opened, provides interior access to facilitate the running of power and communication wiring and provides access to mount the turnstile to a concrete floor. The interior portion of the legs are also used to house certain options. End legs are fabricated from 14-gauge #304 stainless steel polished to a #4 satin finish and are either squared (EDM) or rounded (EDM-BN).

### ROTATING HEAD AND ARMS

The rotating head is a steel casting powder coated in a matte gloss gray color. Turnstile arms are 1.4" OD x 16-gauge stainless steel sealed at the outer end by a welded stainless steel cap.

## CONTROLS, OPERATIONAL MODES AND FUNCTIONALITY

### CONTROL MECHANISMS

**Turnstile Control Board (TCB)** The TCB controls turnstile operation and provides the connection interface point for third-party access control systems and activation devices such as push buttons. Communication between the TCB and access control systems is accomplished through the use of dry contact inputs and outputs. Terminal strips on the TCB provide access to the available I/O, including inputs for turnstile activation and outputs for turnstile feedback signals when a passage occurs. A UL listed primary power to low voltage power supply provides 24VDC power for motor control. 24VDC power is stepped down internally to 5/12VDC for other low voltage operational requirements.

### PASSAGE MODES

The EDM offers the following user-configurable passage modes:

**Controlled Passage** The arms are locked in place in the home position. Upon receipt of an authorization signal from an access control system, the turnstile arms unlock and increment forward approximately an inch to prompt the user that passage is now possible. With a slight touch of the horizontal arm the turnstile motor begins to rotate to allow user passage. The arms automatically return to the home position after passage. Controlled passage can be implemented in either a single direction or bi-directionally.

**Free Passage** An authorization signal is not required for a user to pass through the turnstile. Pushing on the arm in the free passage direction starts the rotation to allow passage. Either rotation direction can be set to free passage.

**No Passage** No passage is allowed. The rotating section is locked in place. Activation inputs are ignored and passage is not allowed. The barrier arm will still drop if power is removed or a fire alarm or life safety input is received. No passage can be implemented either in a single direct or bi-directionally.

**Passage Mode Configuration** The above passage modes can be controlled and set in one of two ways: (1) Two three-position key locks (one for each rotation direction) are located on the underside of the cabinet. Turning the key switch to the appropriate position allows the turnstile to be placed in any of the available passage modes. (2) To change passage mode configurations from a remote location, a three-position key switch can be wired into a terminal strip on the turnstile controller to control passage mode configurations in both the entry and exit directions.

### FUNCTIONALITY - OTHER FEATURES AND TOOLS

**Standard Operational Configuration** The standard configuration is fail safe. In the event of power loss or fire system input the horizontal turnstile arm automatically drops to provide a clear exit passageway. When power is restored, or the fire system input is removed, the turnstile will produce a series of audible sounds and then automatically rotate to lock arms into place for normal operation.



<b>Optional Configuration</b>	As an option, a backup battery can be installed in the turnstile. With this option, upon loss of power the turnstile continues to function normally. If the fire system input is utilized, 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 will produce a series of audible sounds and then automatically rotate to lock arms into place for normal operation.
<b>Access Timeout</b>	This feature adjusts the time a user is allowed to pass through the turnstile after an activation (unlock) signal has been received. The default setting is 20 seconds before the turnstile automatically relocks. The EDM Utility allows this time to be user adjusted.
<b>Turnstile Testing</b>	The turnstile control board includes test activation buttons which allow the unlocking function to be tested independent of the access control system. The EDM Utility also includes various other testing capabilities that assist with access system integration and troubleshooting.
<b>Arm Holding</b>	EDM turnstiles utilize an electromechanical toothed clutch to securely lock the arms into home position.
<b>Arm Cycle Time</b>	This is an adjustable feature. The configuration utility is used to adjust factory set speeds if desired.
<b>Arm Impact</b>	In the event that moving arms encounter resistance during rotation, the arms will stop moving and wait for a defined period before attempting further rotation. After a defined number of attempts the arms will return to the home position. If desired, an audible alarm can sound when an obstruction is encountered.
<b>Emergency Override / Fire Alarm</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 turnstile control board terminal strip. Open/Closed Status Lights, if this option is used, turn off. When the contact is removed, the turnstile will produce a series of audible sounds and then automatically rotate to lock arms into place for normal operation.
<b>Power Failure</b>	In the event of a loss of power to the unit, horizontal arm will drop, providing a clear passageway. When power is restored, the turnstile will produce a series of audible sounds and then automatically rotate to lock arms into place for normal operation. If the battery backup option is used, please see the "Optional Configuration" description above.

## 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 end (or both ends) 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) from the turnstile control board are provided below:

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

Output Signal	Entry / Exit
Rotational Signal	√

## AVAILABLE RELATED APPLICATIONS

### EDM Utility

This included utility provides a convenient way to adjust the configurable features of EDM turnstiles using a laptop.

## OPTIONS

### 220VAC

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

### ALTERNATIVE CABINET STYLES

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

### BACKUP BATTERY-POWERED

A trickle charge battery system is installed in one of the turnstile legs. Upon loss of power the turnstile continues to function normally for approximately three hours on a full charge.

### 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.



## CUSTOM INTEGRATION

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

## EXPEDITED MANUFACTURING TIMES

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

## 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 move the turnstile. Wheels are raised to secure the turnstile in place. A Neutrik style power connector is located on the platform to provide power to the turnstile.

## PUSH BUTTON ASSEMBLY

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

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

A three-position key switch is provided that allows the turnstile to be placed in one of the three available passage 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 three-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 flush mounted under the lid on one end or both ends of the turnstiles; depending on customer requirements. The light array functions as follows:

**YELLOW / GREEN / RED SELECTION**

<b>Yellow Light</b>	Normal “ready” state; indicates the turnstile is locked and ready for card presentation.
<b>Green Light</b>	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.
<b>Red Light</b>	Illuminates when the access control system provides an “unauthorized” input, in which case the turnstile remains locked. Also illuminates (flashes) if the moving arms encounter resistance during rotation.

**OPEN / CLOSE STATUS LIGHTS**

An LED array is flush mounted in the upper end “leg” on each side of the turnstile. The lights function similar to toll booth lights, and perform in the following manner:

<b>Green Light</b>	Illuminates green when the turnstile is open for use. The bar remains green when a valid card input is received.
<b>Red Light</b>	Illuminates red when the turnstile is closed for use. Activation inputs are ignored. Also illuminates solid if the moving arms encounter resistance during rotation.

## SHIPPING AND SITE PREPARATION

### SHIPPING

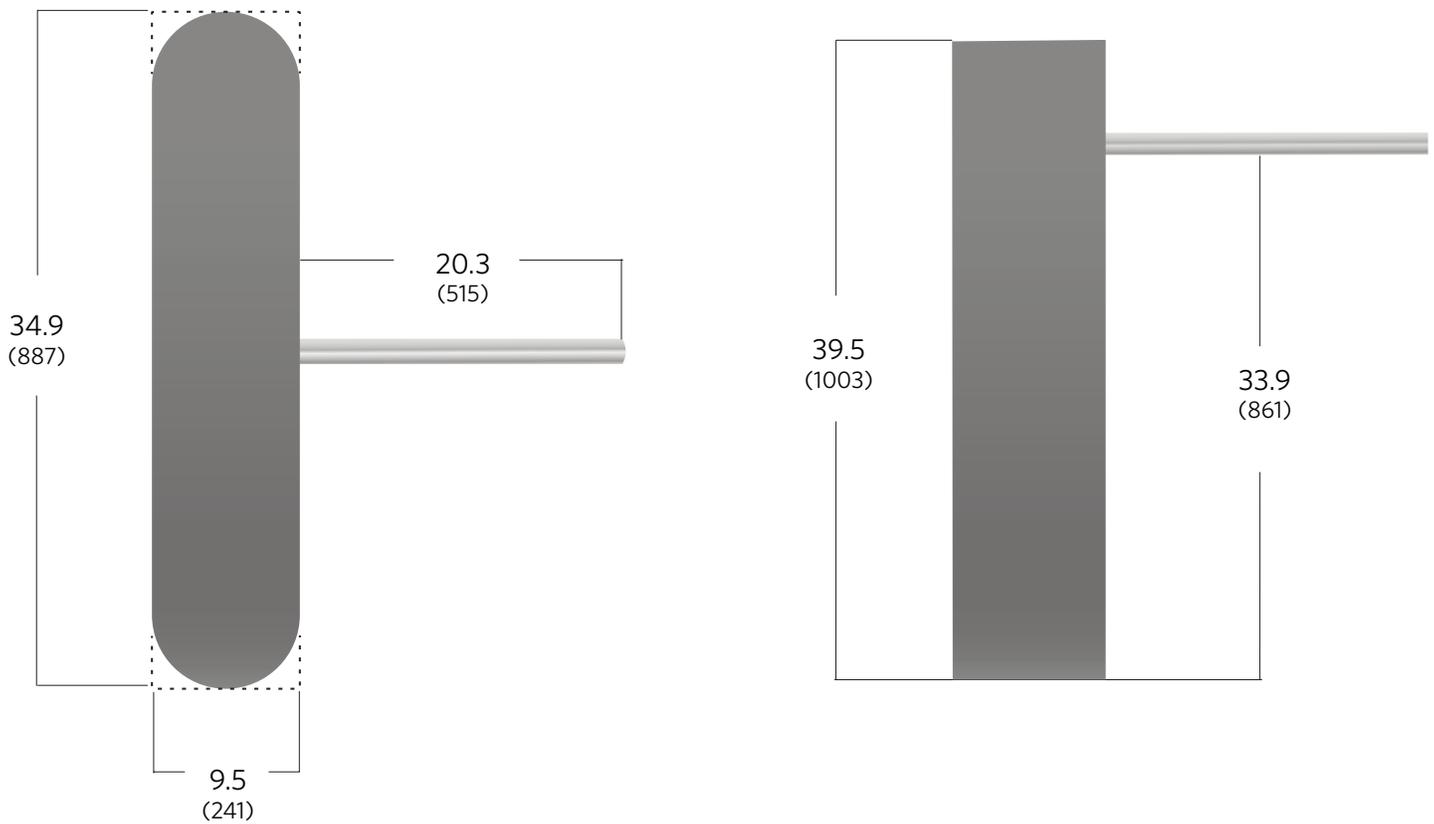
EDM turnstiles are shipped assembled.

### 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 four inch 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	-10 to 46° C
Storage Temperature	30° to 160° F	-34 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.

