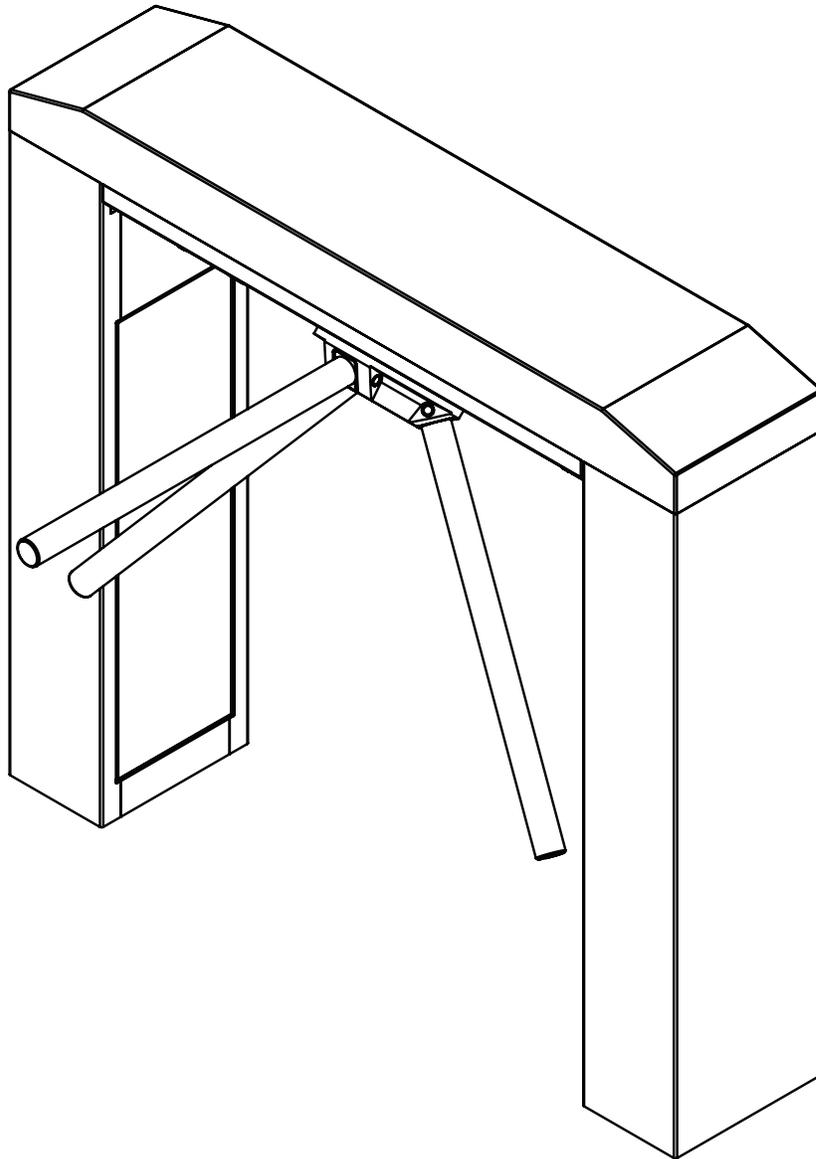




EDM
Motorized Waist High Turnstile



Installation and Maintenance Instructions

Alvarado Manufacturing Company, Inc.

PUD4146R1-0

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Please read this entire manual before installing or operating the product.

Safety Icons

The following symbols are used throughout the manual to highlight important information and potential risks when installing, servicing or using the turnstiles covered in this manual.



WARNING

This symbol is used in this manual to warn installers and operators of potential harm. Please read these instructions very carefully.



CAUTION

This symbol is used in this manual to designate potential conditions that may pose a risk to pedestrians, personnel, property and equipment. Please read these instructions very carefully.

NOTE

This symbol is used in this manual to designate useful information for the installer and operator. Please read these instructions.



For further assistance, please contact Alvarado's Technical Support Department at +1(909) 591 - 8431 or visit www.alvaradomfg.com and select the "Support" tab. Support hours are Monday - Friday 6am - 4pm Pacific Time (excluding USA holidays). Be prepared to accurately describe the problem and provide the serial number of the turnstile; this is printed on a tag attached to the inner "leg" of the turnstile.

Safety Precautions



WARNING

- Use only skilled individuals to install and service the turnstile.
- The turnstile is not a toy. Do not allow children to play on or near the turnstile.
- Follow a proper maintenance schedule using skilled individuals.
- Do not operate the turnstile if it has been damaged, or is functioning incorrectly, in any manner. Have the turnstile repaired by a skilled service person before placing back in use.
- Do not modify or alter the turnstile.
- Use only Alvarado parts when repairing or maintaining the turnstile.
- Ensure that patrons are supervised when using the turnstiles.

SAVE THESE INSTRUCTIONS

Upon completion of the installation process, it is the installer's responsibility to provide the project or site manager with this Installation and Maintenance Instruction manual.

Tools Required

- Socket Wrench
- 9/16" Socket
- Hammer Drill
- 5/8" Concrete Drill Bit
- Shop Vac
- #2 Phillips Head Screwdriver
- Precision Flat Head Screwdriver
- Torque Wrench (ft.-lbs.)
- Hammer
- Tape Measure
- Clear RTV Silicone

NOTE

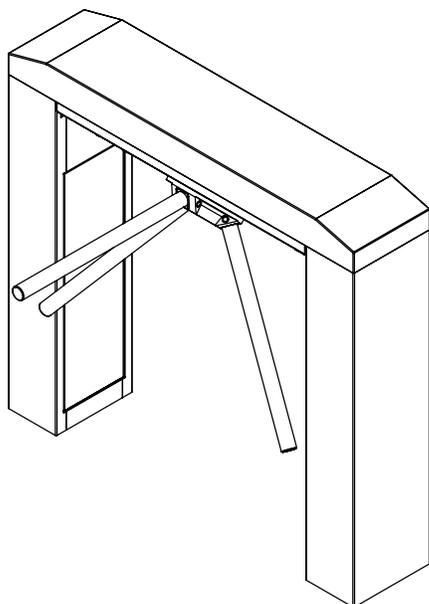
Tools required for Portable Base Turnstile installations are located in Appendix B - Portable Base Turnstile on page 26.

Uncrating

The EDM has been packed for shipping to prevent damage to the unit. Two or more installers are required to unload the EDM at the installation site. Once the turnstile cabinet has been placed in the installation location, carefully remove the protective packing material from the sides of the cabinet.

Parts List

This product is shipped with installation hardware. Make sure that no parts are missing or damaged before beginning installation. If parts are missing or damaged, please stop the installation and contact Alvarado. Additional copies of this installation manual can be found at www.alvaradomfg.com.



(EDM-Square cabinet shown)

Turnstile
(Qty 1)

Anchoring Hardware

- Concrete Anchor Kit (Qty 1)
- Shim Kit (Qty 1)

Keys (per turnstile)

- Turnstile Lid Keys (Qty 2)
- Override Keys (Qty 2)

Cables

- RS232 Programming cable (Qty 1)

NOTE

Keys are taped to the turnstile arm. Make sure to locate these keys prior to discarding product packaging. RS232 programming cable is located within the cabinet.

Introduction

This manual covers the physical installation process for the EDM Motorized Waist High Turnstile. At the end of this process, you will be able to power up the turnstile and perform a functions check to validate operation.

Before you Begin

Depending on whether you are installing fixed or portable turnstiles, certain sections of this manual may not be applicable to your installation.

- For fixed turnstile installations, proceed to the Installation Instructions beginning on page 9.
- For portable turnstile installations, proceed to Appendix B - Portable Base Turnstile on page 26.

Slab Requirements

- Use a level, solid concrete pad with minimum size of 4' x 4' and a minimum thickness of 4" (101.5mm).
- Ensure concrete pad extends a minimum 5" from all sides of the turnstile footprint.
- Do not install the turnstile on asphalt.

Space & Conduit Requirements

- There must be 2" (50.8mm) of clearance between the turnstile arm and the adjacent turnstile or barrier [Fig. 1].
- Stub up conduit in accordance with local electrical codes [Fig. 2].
- Always verify the layout of the turnstile(s) before anchor installation.

Fig. 1

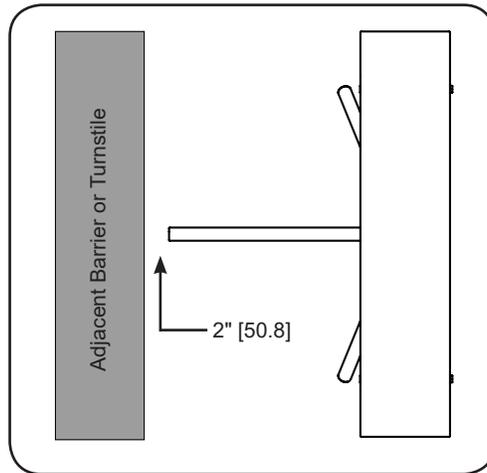
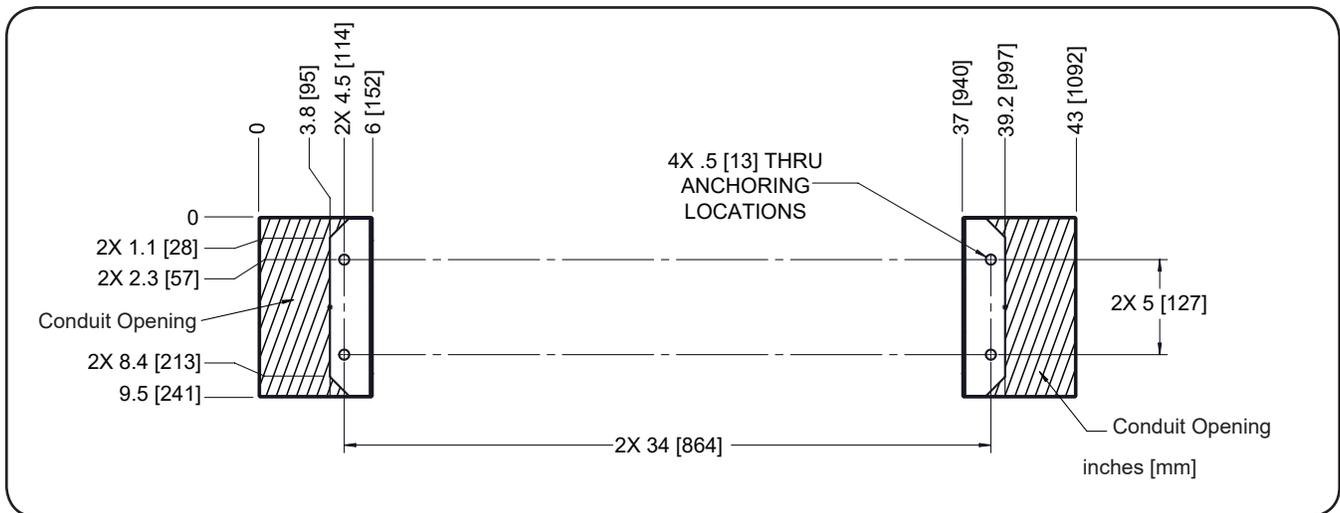


Fig. 2



Space & Conduit Requirements (Cont.)

NOTE EDM-Square cabinet shown. Refer to Appendix C on page 30 for the EDM-Bullnose cabinet.

Fig. 3a

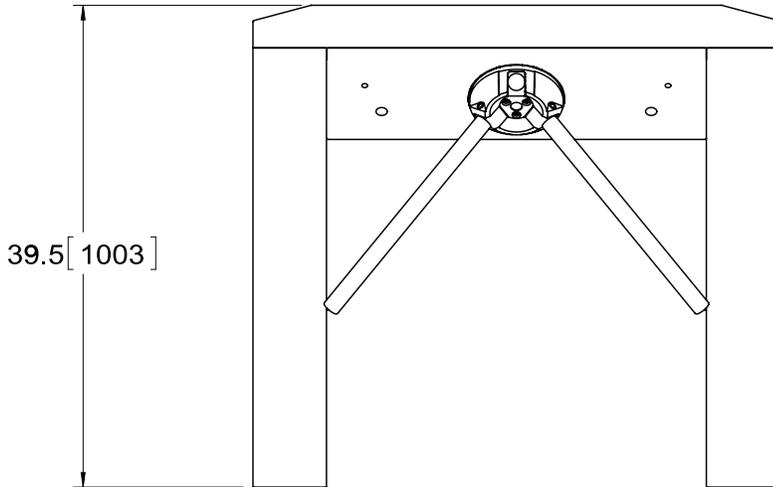


Fig. 3b

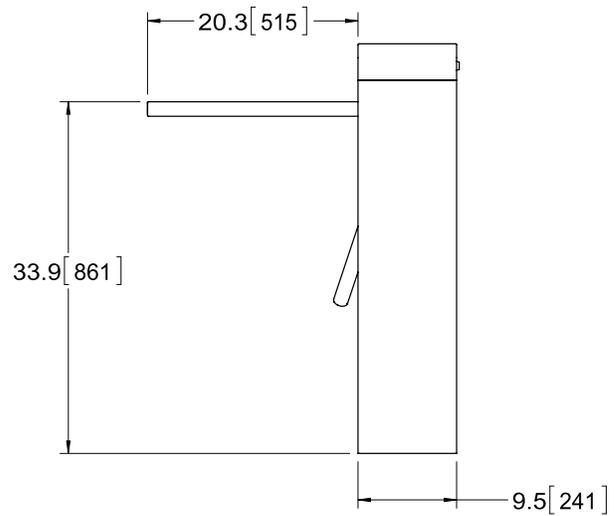
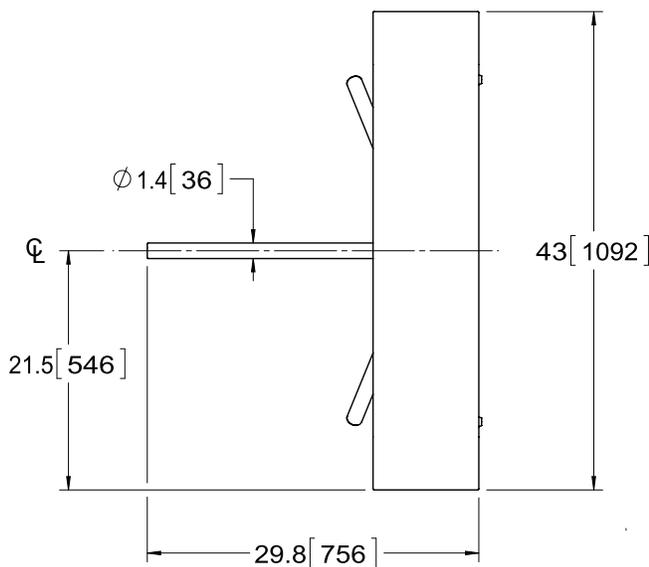


Fig. 3c



Electrical Specifications

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	Primary power is fuse protected (3A/250VAC, slo-blo) 24VDC, 12VDC and 5VDC is fuse protected. The 24VDC power supply is rated for lightning and industrial surges/per IEC 61000-4-2-5, 6, 8, 11)

Environmental Specifications

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)	--

Pre-Installation Checklist

It is the installer's responsibility to ensure the following steps are completed before beginning the installation.

- 1) All components and hardware to be installed have been unpacked, correctly identified, and moved to the installation location.
- 2) The turnstile configuration and layout has been confirmed with the site manager.
- 3) Slab, Space, and Conduit requirements have been met.

Anchoring the Turnstile

1. Using a turnstile leg key, open the turnstile leg access panels [Fig. 4].
2. Using a 9/16" socket wrench, remove the four (4) bolts that secure the temporary wood plate to the turnstile. Discard the wood plate.
3. Place the turnstile in the desired location.

NOTE

For fixed installations, primary power terminal block and power button are always located on the secured or internal side of the facility. Keep this in mind when placing primary power conduit and turnstiles according to the project layout.

4. Transfer four (4) anchor locations to the floor [Fig. 5].
5. Move the turnstile to the side.
6. Using a hammer drill fitted with a 5/8" concrete bit, drill each anchor hole to a depth of 3" (76.2mm).
7. Using a shop vac, vacuum debris from the anchor holes before installing the anchors. If the holes are not clear of debris, the anchors may not tighten properly.
8. Insert anchors into the drilled holes with the threaded ends down. If needed, use a hammer to tap the anchors into place. Ensure that the anchors are flush with the concrete floor [Fig. 6].
9. Return the turnstile to the install location, ensuring the anchors holes are aligned.
10. Insert anchor bolts.
11. Using a torque wrench (ft.-lbs.) and 9/16" socket, torque the bolts to 20 ft.-lbs.

NOTE

Use included Shim Kit as necessary to level turnstile and prevent rocking.

12. Route primary power and access control wiring through the appropriate conduit opening into the turnstile [Fig.5]. Primary power wiring will be connected in later steps.
13. For outdoor installations, apply a thick bead of clear RTV silicone around the base of turnstile legs to seal.

Fig. 4

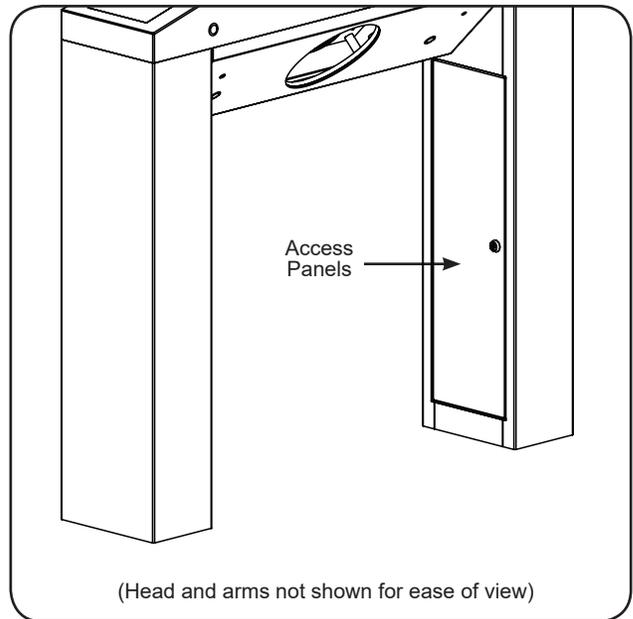


Fig. 5

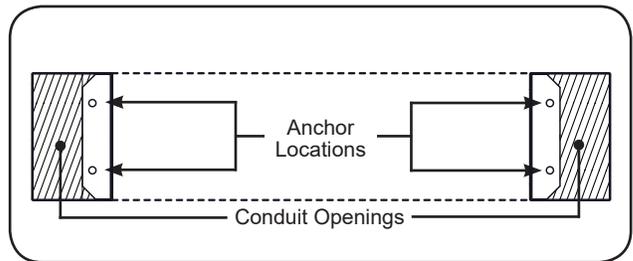
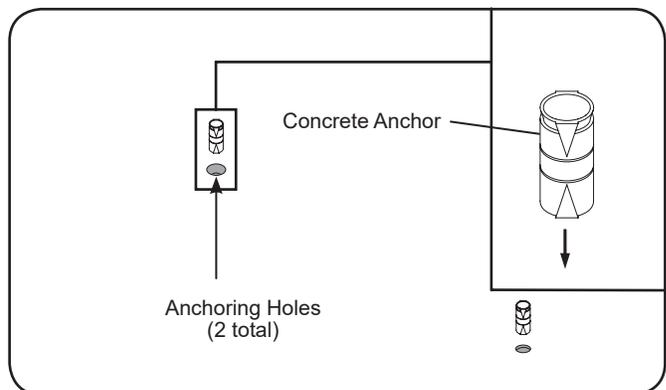


Fig. 6



Primary Power Wiring Instructions

NOTE

The following instructions are for fixed turnstile installations only. If you are installing a portable AC-powered or battery-powered unit, please refer to Appendix B - Portable Base Turnstile instructions on page 26.

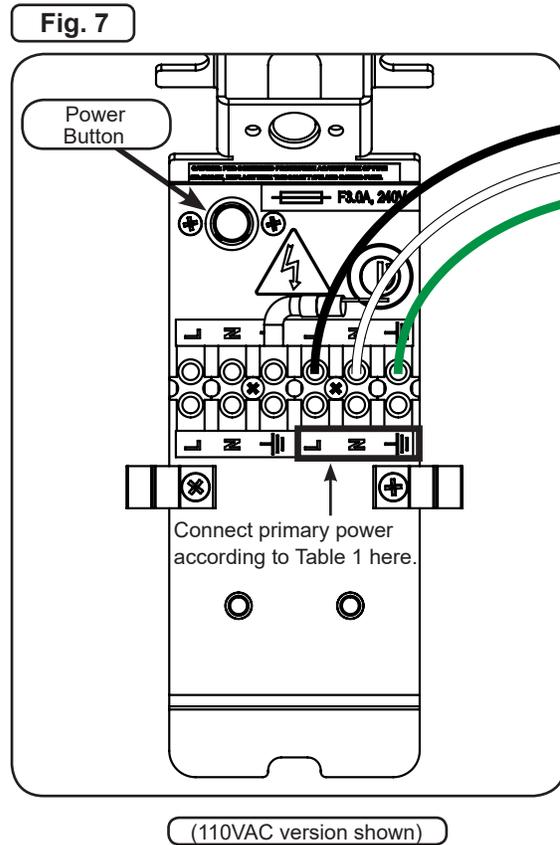
WARNING

- Use a licensed electrician for the following steps and adhere to all applicable local codes.
- **MAKE SURE PRIMARY POWER IS TURNED OFF AT THE BREAKER.**

1. Using a turnstile lid key, open the cabinet lid.
2. Locate the six-pole primary power terminal block [Fig. 7].
3. Using a precision flat-head screwdriver, connect primary power wires to the appropriate terminals according to Table 1 [Fig. 7].

Table 1

Terminal	110V	220V
<u>L</u> ine	Black	Brown
<u>N</u> eutral	White	Blue
<u>G</u> round	Green	Green/Yellow



Control Board Description

Fig. 8

Signal Inputs and Outputs To / From Access Control System

Inputs - J4 Terminal Block

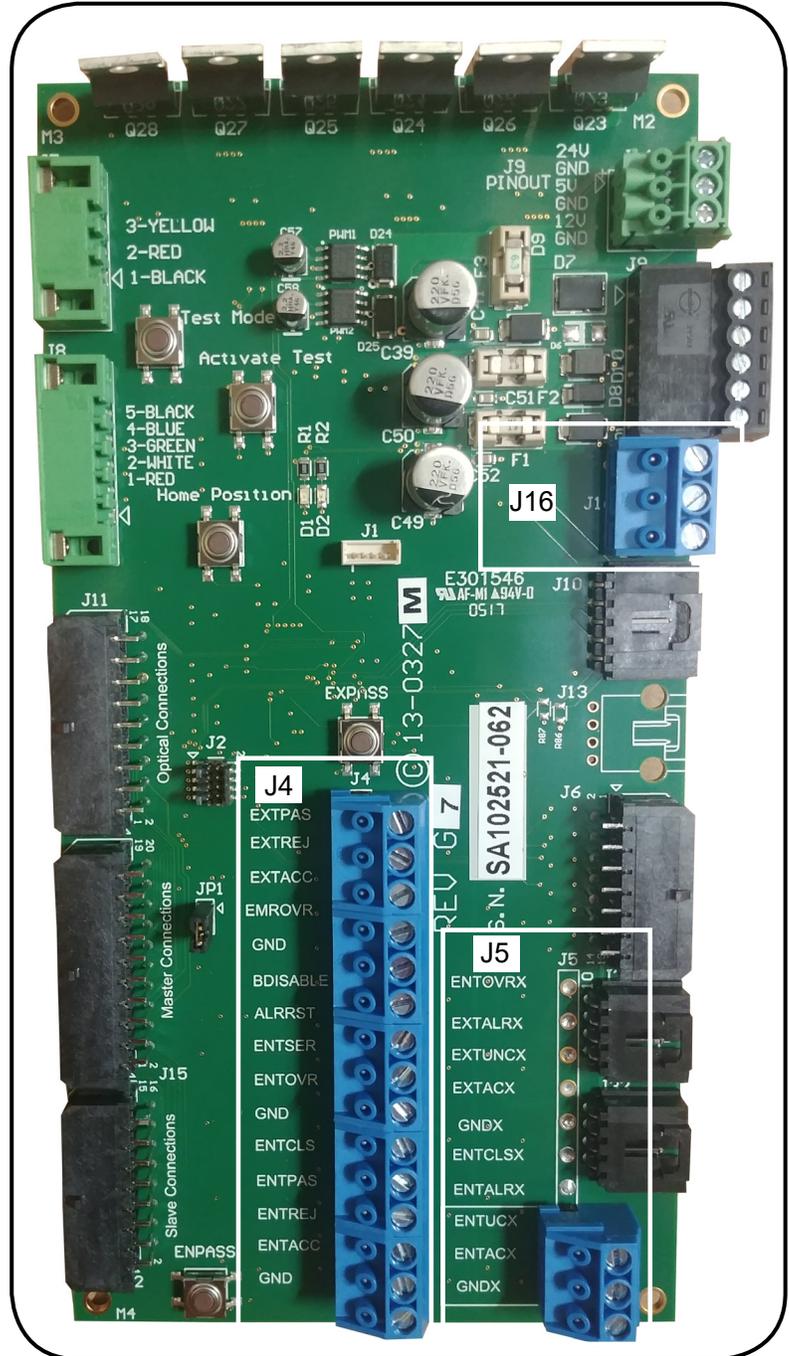
Signal inputs from access control systems are wired into the EDM's I/O input terminal block. There are two types of input signals, momentary dry contacts (MDC) and sustained dry contacts (SDC). All input signals must be normally open (N.O.), voltage-free, dry contacts. MDC's must be greater than 100ms in duration to register. The suggested MDC input duration is 1 second or less to support rapid throughput in high volume applications.

Outputs - J5 Terminal Block

Signal outputs are available from the EDM's I/O output terminal block. Outputs are normally open, voltage-free, momentary dry contacts. The output signal length is 500ms in duration.

NOTE

NEVER connect signal lines containing voltage directly to the I/O terminal strips. This will damage the circuit board.



Using the Test Buttons

The test buttons on the control board, ENPASS and EXPAS, are used to simulate a valid credential activation [Fig. 9].

- ENPASS is used to simulate an activation in the CW direction. It is located in the bottom left corner.
- EXPASS is used to simulate an activation in the CCW direction. It is located above the J4 terminal block.

Fig. 9A



Fig. 9B



Control Board Description (Cont.)

J4 Terminal Block Input Contacts				
Pin #	Pin Name	Function Description	Contact Type	Function & Behavior Description
1	EXTPAS	Free Passage CCW	SDC	Sets the turnstile to Free Passage mode in the CCW direction.
2	EXTREJ	Bad Card CCW	MDC	Illuminates the CCW direction RED User Status Icon for 2 seconds.
3	EXTACC	Good Card CCW	MDC	Opens the turnstile for one authorized passage until passage occurs or timeout.
4	EMROVR	Emergency Override	SDC (N.O. or N.C.)	Drops the arms for free egress. Arms remain down and turnstile is inactive until SDC is removed, or contact is reestablished if N.C. setting is enabled. (Typically used for fire alarm or life safety systems.)
5	GND	Ground	SDC	Common input ground signal.
6	BARDISABLE	Barrier Disable Mode	MDC	Arm drops to allow for barrier free operation.
7	ALRRST	Emergency Override State	SDC	Changes the EMROVR contact from N.O to N.C.
8	ENTSER	No Passage Mode CCW	SDC	Sets the turnstile to No Passage mode in the CCW direction.
9	ENTOVR	N/A	N/A	Not available in the EDM.
10	GND	Ground	N/A	Common input ground signal
11	ENTCLS	No Passage Mode CW	SDC	Sets the turnstile to No Passage mode in the CW direction.
12	ENTPAS	Free Passage Mode CW	SDC	Sets the turnstile to Free Passage mode in the CW direction.
13	ENTREJ	Bad Card CW	MDC	Illuminates the CW side RED User Status Icon for 2 seconds.
14	ENTACC	Good Card CW	MDC	Opens the turnstile for one authorized passage until passage occurs or timeout.
15	GND	Ground	N/A	Common input ground signal.

J5 Terminal Block Output Contacts				
Pin #	Pin Name	Function Description	Contact Type	Function & Behavior Description
1	ENTUCX	CCW Passage Count	MDC	Outputs a dry-contact closure for each rotation in the CCW direction.
2	ENTACX	CW Passage Count	MDC	Outputs a dry-contact closure for each rotation in the CW direction.
3	GNDX	Ground	N/A	Common input ground signal.

Identifying Rotation Direction

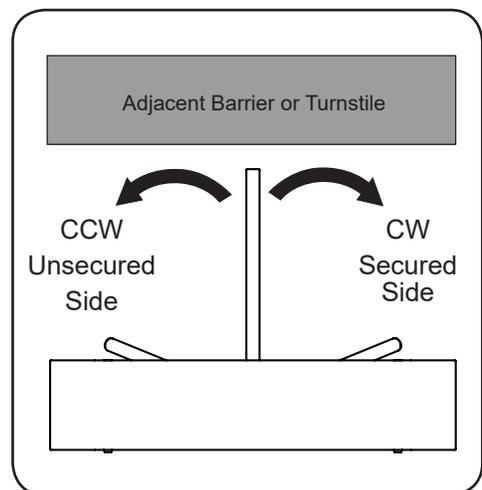
Clockwise (CW):

Turnstile arms rotate in a clockwise direction when viewed looking down from behind the cabinet.

Counter-Clockwise (CCW):

Turnstile arms rotate in a counter-clockwise direction when viewed looking down from behind the cabinet.

Fig. 10



Orientation shown for a right-handed cabinet.

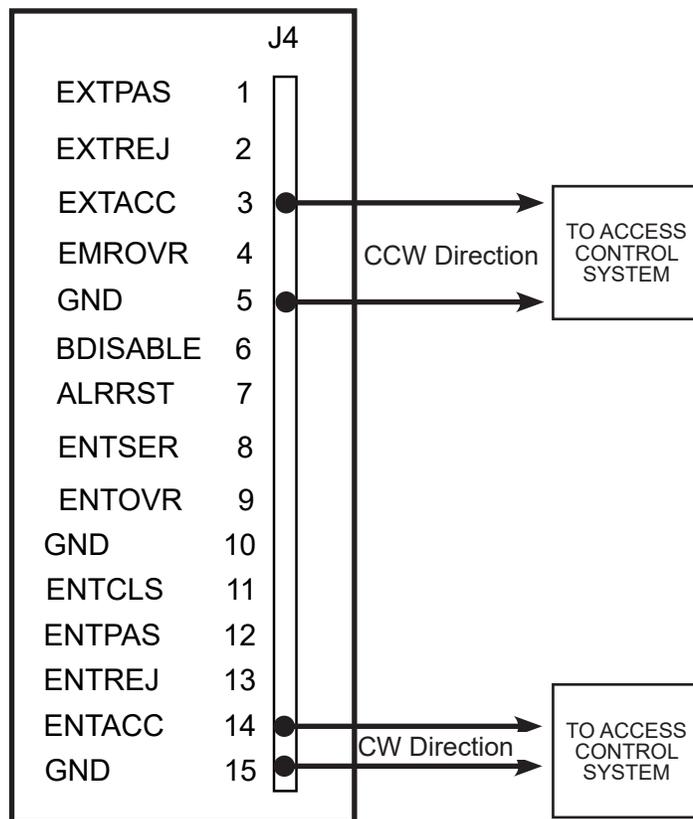
Wiring the Control Board

The EDM provides bidirectional access control in conjunction with the facility access control system. For bidirectional applications, the CW and CCW directions can be individually configured to different passage modes to suit facility requirements. For example, a turnstile can be configured for Controlled Passage in the CW direction, and Free Passage mode in the CCW direction.

Passage modes are set by two methods: wiring access control leads to the appropriate I/O input terminal or the key override. Instructions for wiring to the I/O input terminal block are provided below. Instructions on using the key override is provided on page 18.

NOTE Ensure power to the turnstile is OFF when wiring the I/O Terminal Blocks.

Setting Controlled Passage Mode (I/O Input - J4 Terminal Block)



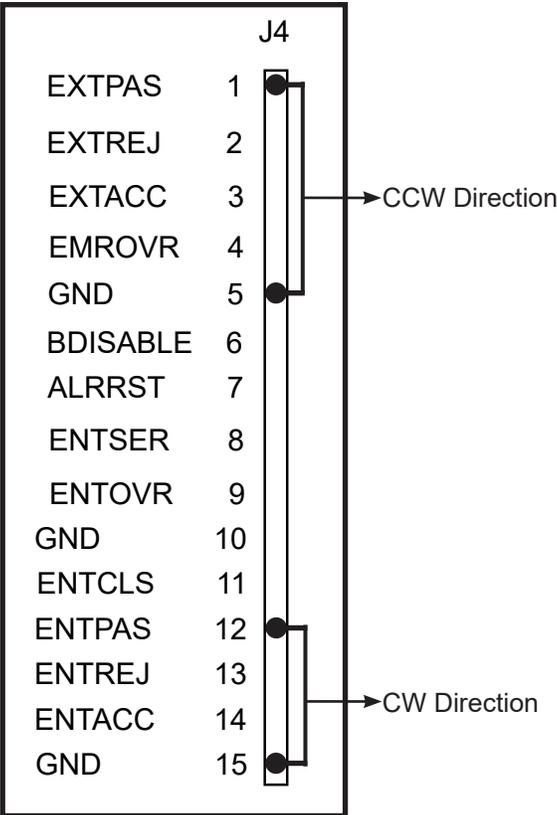
Counterclockwise Direction (CCW)

1. Locate the EXTACC and GND terminals on the I/O J4 terminal block.
2. Connect the leads used to indicate an authorized passage in the CCW direction to the EXTACC and GND terminals.

Clockwise Direction (CW)

1. Locate the ENTACC and GND terminals on the I/O J4 terminal block.
2. Connect the leads used to indicate an authorized passage in the CW direction to the ENTACC and GND terminals.

Setting Free Passage Mode (I/O Input - J4 Terminal Block)



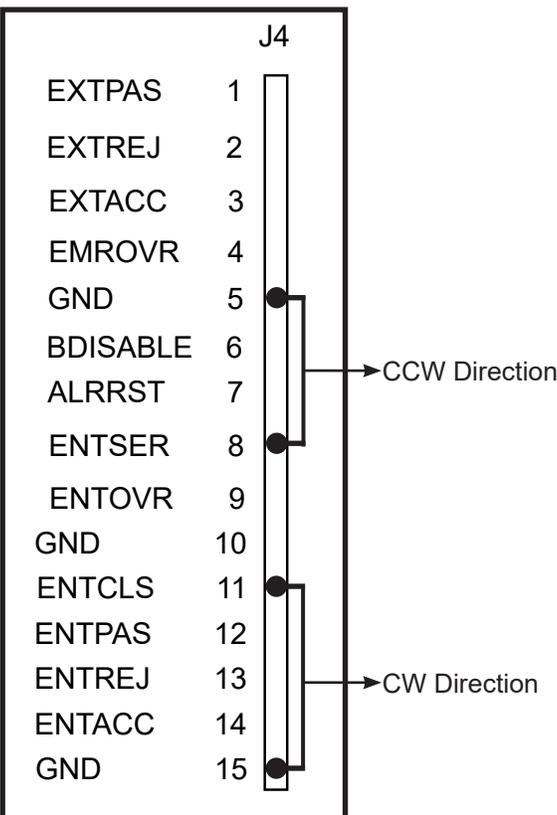
Counterclockwise Direction (CCW)

1. Locate the EXTPAS and GND terminals on the I/O J4 terminal block.
2. Using a wire jumper, connect the EXTPAS and GND terminals.

Clockwise Direction (CW)

1. Locate the ENTPAS and GND terminals on the I/O J4 terminal block.
2. Using a wire jumper, connect the ENTPAS and GND terminals.

Setting No Passage Mode (I/O Input - J4 Terminal Block)



Counterclockwise Direction (CCW)

1. Locate the ENTSER and GND terminals on the I/O J4 terminal block.
2. Using a wire jumper, connect the ENTSER and GND terminals.

Clockwise Direction (CW)

1. Locate the ENTCLS and GND terminals on the I/O J4 terminal block.
2. Using a wire jumper, connect the ENTCLS and GND terminals.

Post-Installation Inspection

NOTE Perform this post-installation inspection **BEFORE** powering on the turnstile for the first time.

1. Anchoring (fixed installations only): Verify the anchor bolts are tensioned to 20 ft-lbs. Tighten if necessary.
2. Dust, Dirt, & Debris: While the unit is powered down, open the lid to reveal the interior electronics. Blow any dirt, dust, and small debris out of the turnstile with low-pressure compressed air such as Dust-Off.
3. Wiring: Inspect all wires and contacts for exposure to any metal parts that may lead to a short.

Powering On



CAUTION

The arms will rotate for the duration of the boot up sequence. Before powering on, ensure area is clear of people and property.

Press the Power Button located on the primary power terminal block [Fig. 7].

Post-Installation Functions Check

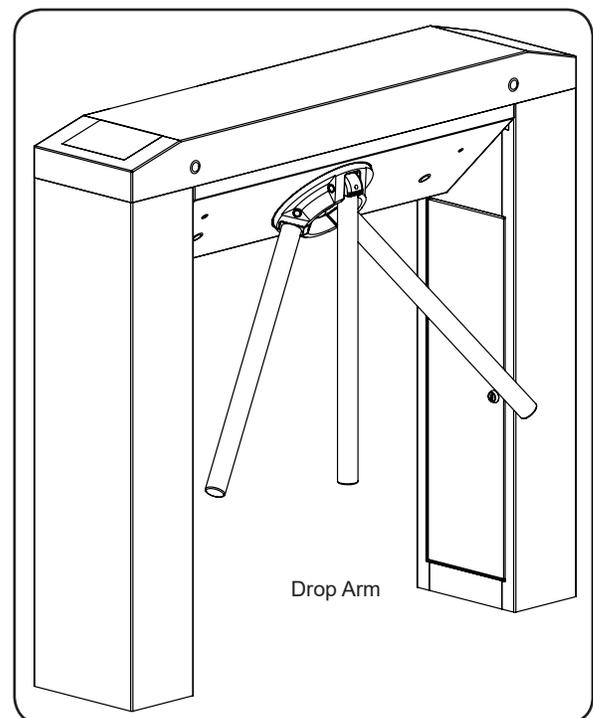
Perform the following checks to verify the turnstile is performing properly. Function checks are included for optional accessories (i.e. User Status lights, Open / Close lights, Local Counters, etc.) and may not be applicable to your installation. See page 19-20 for details on optional accessories. If any problems are encountered, refer to the Troubleshooting section on page 24.

Loss of Power Operation

Perform the following steps to confirm turnstile power-loss configuration:

1. Power OFF the turnstile.
2. Verify the horizontal drop arm falls [Fig. 11].
3. Power ON the turnstile and verify the dropped arm rotates and locks back into the home position.

Fig. 11



Testing Turnstile Functionality

Perform the following turnstile functionality tests to validate basic turnstile operation.

The following is assumed (Controlled Passage mode tests only):

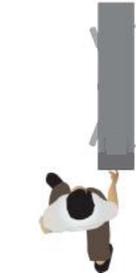
- The access control system is operational and all access control wiring to the turnstile is connected.
- Valid access control cards are on hand for activating the turnstile.

If valid access control cards are not available, use the test buttons located on the control board to simulate an activation. See page 11 for button location.

See page 20 for location of optional User Status and Open / Close lights.

Test	Procedure	Turnstile Response
<p>Breakaway</p> 	<ul style="list-style-type: none"> • Without providing an activation, push arms in the direction of passage. 	<ul style="list-style-type: none"> • Arms will rotate small amount in the direction of passage and then lock. • Buzzer will sound. • Arms reset in two seconds. <p><u>Optional Accessories:</u></p> <ul style="list-style-type: none"> • User Status lights change from yellow to flashing red. • Open / Close lights change from green to red. • Lights reset after two seconds.
<p>Valid Passage</p> 	<ul style="list-style-type: none"> • Provide an activation. • Rotate the arms in the direction of passage. 	<ul style="list-style-type: none"> • Arms will move a small amount in the direction of passage. • Arms will complete rotation as patron walks through. • Arms will reset to home position after passage. <p><u>Optional Accessories:</u></p> <ul style="list-style-type: none"> • User Status lights change from yellow to green. • Lights reset after passage.
<p>Access Time-out</p> 	<ul style="list-style-type: none"> • Provide an activation. • Do not enter the turnstile • Wait for the turnstile to time out (default is 20 seconds.) 	<ul style="list-style-type: none"> • Arms will move a small amount in the direction of passage. • Arms reset to home position after the time-out period expires. <p><u>Optional Accessories:</u></p> <ul style="list-style-type: none"> • User Status lights change from yellow to green. • Lights reset after time-out period.

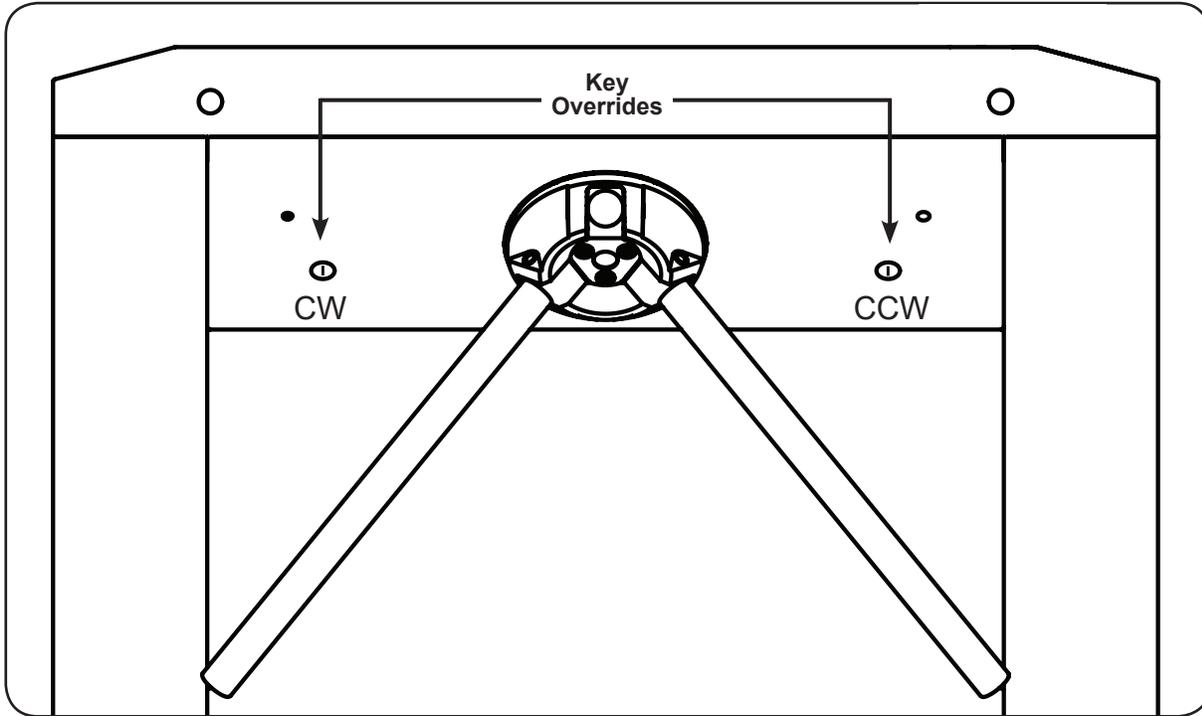
Testing Turnstile Functionality (Cont.)

Test	Procedure	Turnstile Response
<p>Drop Arm</p> 	<ul style="list-style-type: none"> Place a jumper across Pins 4 & 5, EMROVR and GND, respectively. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> Place a jumper across Pins 5 & 6, GND and BDISABLE, respectively. 	<p style="text-align: center;"><u>EMROVR/GND</u></p> <ul style="list-style-type: none"> Arms drop allowing passage in emergency situations. Performs boot up sequence and returns to normal operation once jumper is removed. <p style="text-align: center;"><u>Optional Accessories:</u></p> <ul style="list-style-type: none"> User Status and Open / Close lights turn off. <hr/> <p style="text-align: center;"><u>GND/BDISABLE</u></p> <ul style="list-style-type: none"> Arms drop allowing barrier free operation. Returns to normal function once jumper is removed.
<p>Impact</p> 	<ul style="list-style-type: none"> Provide an activation. Begin to rotate the arms in the passage direction and block with either your hand or leg. 	<ul style="list-style-type: none"> Buzzer sounds Arms reset two seconds after obstruction has cleared. <p style="text-align: center;"><u>Optional Accessories:</u></p> <ul style="list-style-type: none"> User Status lights change from yellow to flashing red. Open / Close lights change from green to red. All lights reset 2 seconds after obstruction is clear.

Test Key Override Operation

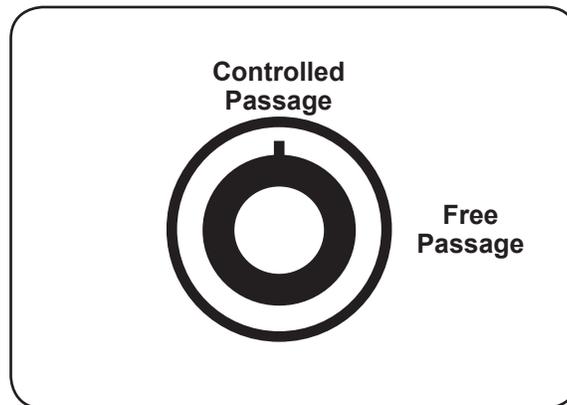
Key Override switches are provided to manually place the turnstile into Controlled Passage or Free Passage. There is one key override switch for each rotation direction. The key switches are located on the underside of the turnstile adjacent to the head and arms [Fig. 12].

Fig. 12



1. Default position - CENTER sets turnstile to Controlled Passage mode: Verify the arms are locked in the appropriate direction and unlock with valid credentials. If you have User Status lights installed, verify the YELLOW light is illuminated until activation occurs in which it turns GREEN.
2. The RIGHT position sets the turnstile to Free Passage mode: Verify the arms rotate freely in the appropriate direction. If you have User Status lights installed, verify the GREEN light is flashing.

Fig.12a



Test the Local Counter (Optional)

The battery-powered LCD counter is used to count turnstile rotations. Each rotation of the turnstile arm generates a count. One counter is required per rotation direction.

1. Place the turnstile in Free Passage Mode using the Key Override.
2. Rotate the turnstile arms several times. Verify that the counter is registering each rotation.
3. To reset the counter, use the counter reset key and turn 90°. The counter reset lock is located next to the counter display on the turnstile lid. [Figure 13]

Fig. 13

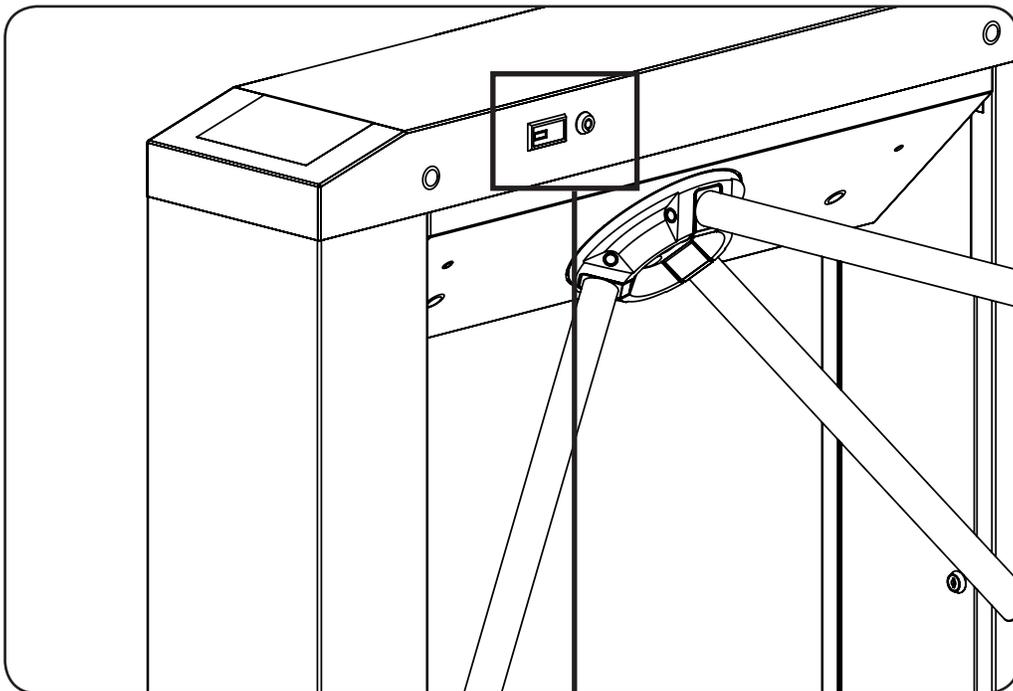
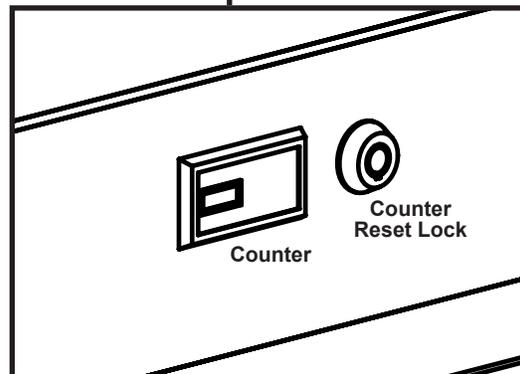


Fig. 13a



Remote 3-Way Switch (Optional)

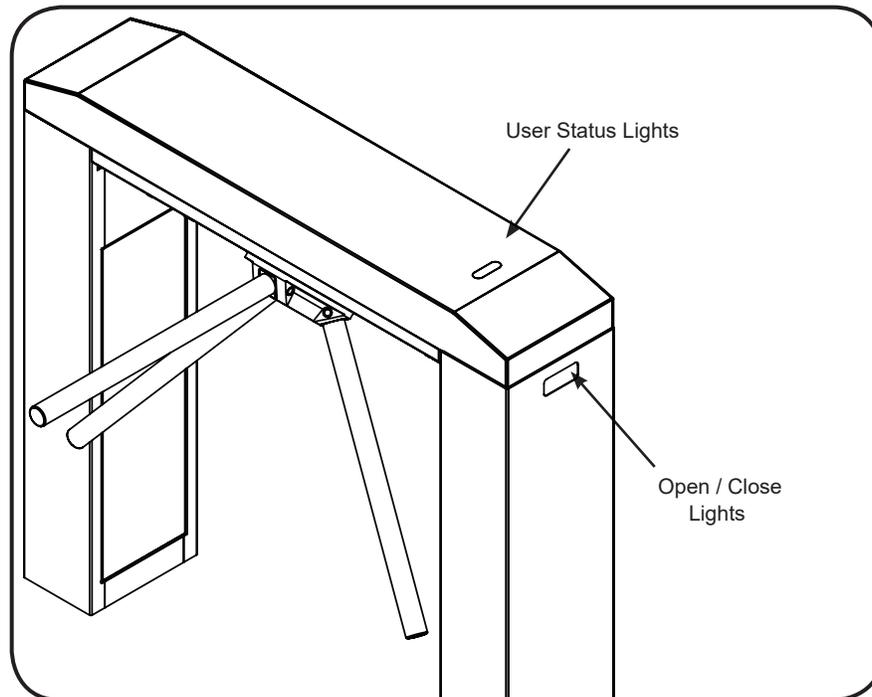
A three-position key switch can be provided that allows the turnstile to be placed in one of the three available passage modes: Controlled, Free, or No Passage. A key switch is required for each direction of operation. RKO-3 key switches are provided loose, for installation in a location remote from the turnstile. This option is separate from the two-position key override that is installed in the turnstile cabinet.

User Status and Open / Close Lights (Optional)

The EDM can be equipped with User Status lights. The User Status lights are installed flush under the turnstile lid and are configured to function in the following manner [Fig. 14]:

- Yellow - The turnstile is locked in Controlled Mode ready for a valid card presentation.
- Green - When the green light illuminates, the turnstile is unlocked and ready for passage. The access control system has provided the turnstile control board with an "authorized" input. This light flashes when in Free Passage Mode.
- Red - The access control system provided the turnstile control board an "unauthorized" input, in which case the turnstile remains locked. This light is solid when in No Passage Mode. This light also flashes if the moving arms impact an object during rotation or if the arm is forced to move without an activation, called "breakaway".

Fig. 14



The EDM can also be equipped with Open / Close lights. The lights are installed on the upper "leg" of the cabinet and perform in the following manner [Fig. 14]:

- Green - Illuminates when the turnstile is open for use.
- Red - Illuminates when the turnstile is closed for use and activation inputs are ignored. It also illuminates solid if the moving arms encounter an impact or a breakaway.

EDM Utility

The EDM ships with the EDM Utility which allows adjustment of settings and tests turnstile functionality. The EDM Utility is on a USB drive included with the turnstile. Copy the file from the USB drive to your laptop. There is no installation required.

The tools required to use the EDM Utility are:

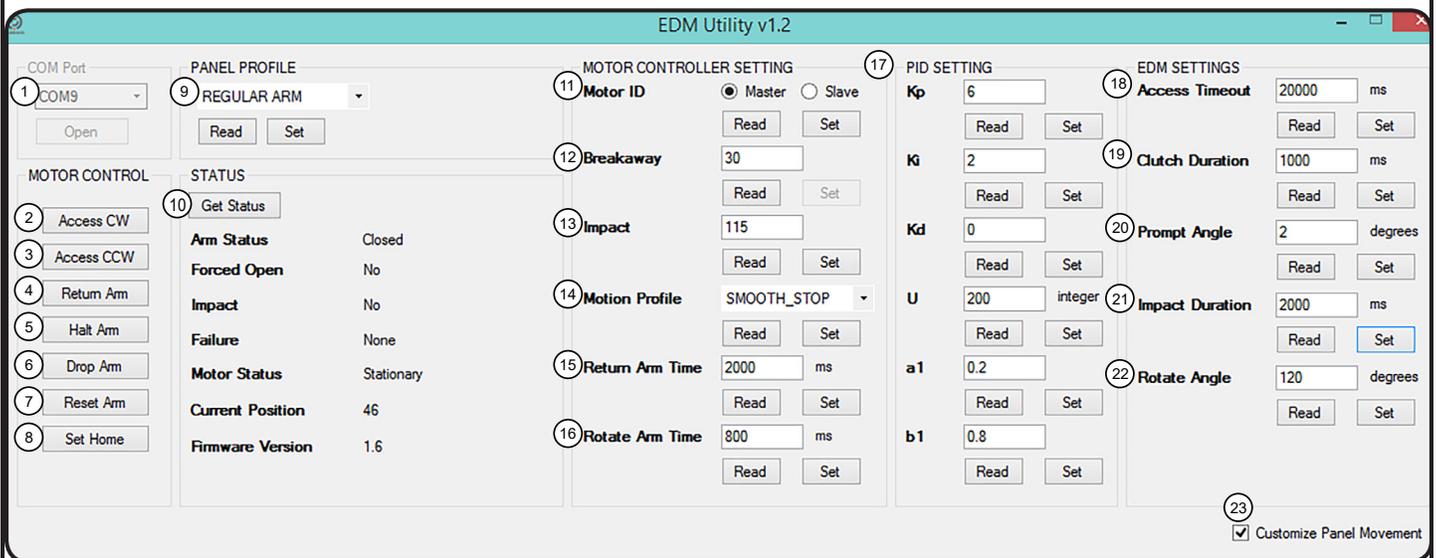
- Laptop computer
- RS-232 programming cable
- USB-to-Serial converter cable

- 1) Open the cabinet and identify the control board.
- 2) Connect the RS-232 programming cable to the J16 terminal on the control board. Refer to page 11 for location.
 - A) Use a USB-to-Serial converter cable if the laptop does not have a serial port.
- 3) Double-click the utility icon to launch the utility. This will bring up the EDM Utility main screen.
- 4) Select COM Port from the drop-down menu and click Open. [Fig. 15]
- 5) All fields are populated with current settings.

NOTE

Depending on the computer, the COM port number may differ.

Fig. 15



NOTE

Contact Alvarado technical support **BEFORE** changing settings.

- Select the check box "Customize Panel Movement" to enable modification of settings. [Fig. 15, Item#23]
- To check the current value of a parameter, click READ.
- To customize a parameter, enter a value in the text box and click SET.

See next page for setting descriptions.

EDM Utility (Cont.)		
Item #	Settings	Description
1	Com Port	Sets the communication port necessary for the EDM Utility to interface with the turnstile.
2	Access CW	Activates the turnstile in the Clockwise direction.
3	Access CCW	Activates the turnstile in the Counter-Clockwise direction.
4	Return Arm	Rotates the arms back to the home position.
5	Halt Arm	Stops the arm motor movement.
6	Drop Arm	Tests the drop arm functionality.
7	Reset Arm	Performs start up sequence and re-locks drop-arm.
8	Set Home	Sets the current arm position as the home position.
9	Panel Profile	Sets arm rotation profile: 1) Entertainment arm 2) Regular arm - Default profile.
10	Get Status	Queries turnstile for arm and motor status/position. Displays active impacts or failures.
11	Motor ID	Not applicable.
12	Breakaway	Sets current threshold before arms release when pushed. Do Not Change.
13	Impact	Sets the current threshold to identify obstructions. Default: 115.
14	Motion Profile	This is the algorithm used to control the arm movement speed. Do Not Change.
15	Return Arm Time	Sets the length of time required to return arms to home position if motor is halted or activation time-out. Default: 2000 ms.
16	Rotate Arm Time	Sets the length of time required to complete one rotation. Units are milliseconds. Default: 800 ms.
17	PID Setting	Sets motor movement characteristics. Do Not Change.
18	Access Time-out	Sets the length of time a user has to enter the turnstile after an activation before the turnstile resets. Default: 20,000 ms.
19	Clutch Duration	Designates the amount of time the clutch stays engaged when arms are pushed without an activation. Default: 1000 ms.
20	Prompt Angle	Sets the amount the arms will rotate during an activation to prompt the direction of passage. Default: 2 degrees.
21	Impact Duration	Sets the length of time turnstile will wait for obstruction to clear before arms will move again. Default: 2000 ms.
22	Rotate Angle	Sets the range of motion arms must be moved before motor engages to complete passage and generate an output count. Default: 120 degrees.
23	Customize Panel Movement	Allows modification of arm movement settings.

Maintenance

Preventative maintenance should be performed periodically after installation to ensure the product maintains its visual exterior and optimal performance. To maintain the EDM, follow the instructions below as needed.

Cleaning the Cabinet Exterior

Regular cleaning is the best way to maintain any stainless steel or finished equipment and prevent corrosion.

1. Stainless steel surfaces may be cleaned using any commercially available stainless steel cleaner or polish. If a heavier scratch mark is apparent, a metal blend and finish pad by 3M Company or equivalent may be used followed by a stainless steel cleaner. ALWAYS POLISH IN THE DIRECTION OF THE GRAIN.
2. Powder coat finishes may be cleaned using a soft damp cloth. Any deep scratch in this type of finish should be touched up to prevent rust and corrosion from forming. If left untreated, rust can spread under the powder coat finish.

Interior Maintenance

Internal maintenance should occur every year. Dust build up is the most important concern inside the cabinet. Use canned air dust remover to clean out all the dust from the inside of the cabinet and off the printed circuit boards.

Troubleshooting		
Symptoms	Possible Cause	Possible Solution
<ul style="list-style-type: none"> • Turnstile does not boot up. 	<ul style="list-style-type: none"> • No primary power to the turnstile. • Fuse has blown. • 24v power supply not functioning. 	<ul style="list-style-type: none"> • Verify the power is ON at the circuit breaker. • Inspect fuse on primary power terminal block. If blown, contact Alvarado for replacements. • Meter power supply output. If 24v is not present, replace power supply.
<ul style="list-style-type: none"> • Turnstile fans are on but no Open / Close or Status Lights and arm will not lock back into place 	<ul style="list-style-type: none"> • Fuse may have blown. 	<ul style="list-style-type: none"> • Test F3 fuse on 10-1272 board for continuity. • Test F2 fuse on 13-0327 board for continuity. If failed, contact Alvarado for replacements.
<ul style="list-style-type: none"> • Open/Close or Status Lights are dim. 	<ul style="list-style-type: none"> • Light boards are unplugged • Fuse may have blown. 	<ul style="list-style-type: none"> • Test F2 fuse on 10-1271 board for continuity. • Test F1 fuse on 13-0327 board for continuity. If failed, contact Alvarado for replacements.
<ul style="list-style-type: none"> • Arms do not rotate on boot up. 	<ul style="list-style-type: none"> • Fuse may have blown. • Connectors came loose. 	<ul style="list-style-type: none"> • Test F2 fuse on 10-1272 board for continuity. • Test F3 fuse on 13-0327 board for continuity. If failed, contact Alvarado for replacements. • Inspect the J7/J8 connectors on 13-0327 board. Ensure both are properly secured.
<ul style="list-style-type: none"> • Arm does not lock into position upon boot up. 	<ul style="list-style-type: none"> • Emergency Override activation state (N.O or N.C) is not set accordingly. 	<ul style="list-style-type: none"> • Confirm building requirements. If a N.C contact is required, insert a jumper between ALRRST and GND on the J4 input terminal.
<ul style="list-style-type: none"> • Valid credentials do not activate turnstile. 	<ul style="list-style-type: none"> • Access control leads connected to wrong terminals. 	<ul style="list-style-type: none"> • Verify access control leads connect to the appropriate terminals. See terminal listing on Page 12. • Remove access control leads and use test buttons to simulate activations. If test buttons do not activate, replace control board. See Page 11 for button location.
<ul style="list-style-type: none"> • Turnstile shakes when a passage is completed. 	<ul style="list-style-type: none"> • Anchor bolts are loose. 	<ul style="list-style-type: none"> • Check anchor bolts. If loose, tighten bolts to 20 ft-lbs using a torque wrench.
<ul style="list-style-type: none"> • Arm does not fully return to home position 	<ul style="list-style-type: none"> • Home position needs calibration. 	<ul style="list-style-type: none"> • Re-home the arms back to correct position. See Appendix A on Page 25.
<ul style="list-style-type: none"> • Arms continue to rotate after a passage. 	<ul style="list-style-type: none"> • Double activation provided. 	<ul style="list-style-type: none"> • Advise patrons to swipe their credentials only once to prevent double activations.
<ul style="list-style-type: none"> • Drop arm does not lock back into position. 	<ul style="list-style-type: none"> • Foreign matter stuck in drop-arm mechanism. • Drop arm solenoid is defective. 	<ul style="list-style-type: none"> • Ensure drop-arm mechanism is free of debris. • Power on turnstile, lift arm to lock position. If it does not lock into position, replace the drop-arm solenoid.
<p>Contact Alvarado for replacement components.</p>		

Appendix A - Setting the Home Position

NOTE Power must be on.

1. Identify the control board attached to the inside surface of the lid [Fig. 16A]. The (D2) LED will be blinking indicating normal operation mode.
2. Press and hold the 'Test Mode' button for 2 seconds. The (D2) LED will be lit solid. This indicates the turnstile is in Test Mode [Fig. 16a].
3. Hold arm and rotate 3 times in either direction.
4. Return arm to center position.
5. Press the 'Home' button to set.
6. Press and hold the 'Test Mode' button for 2 seconds. The (D2) LED will return to blinking status indicating normal operation mode.

Fig. 16a

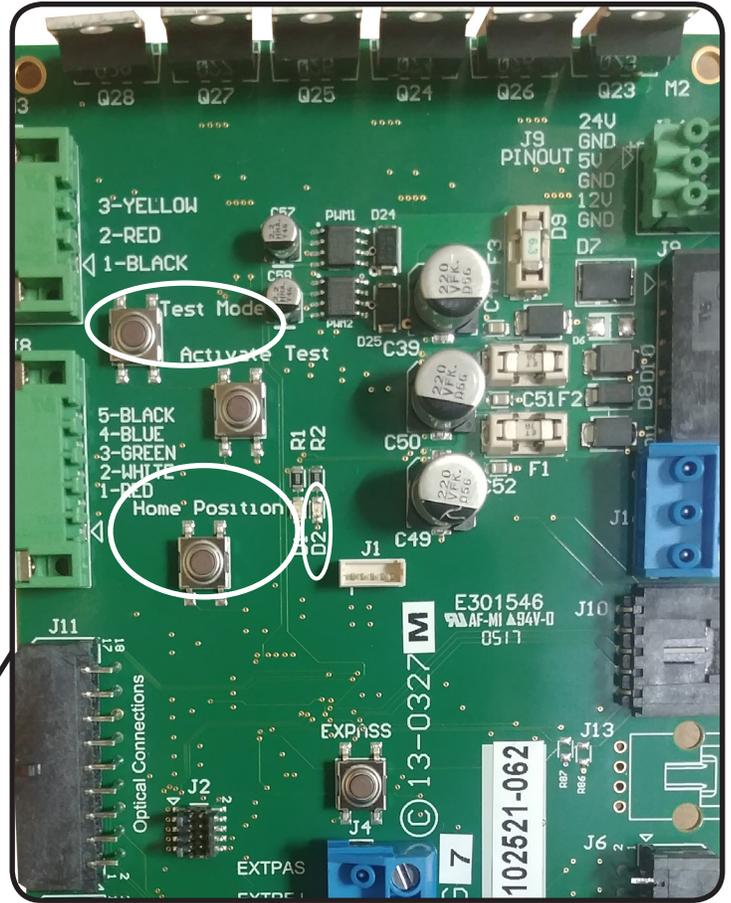
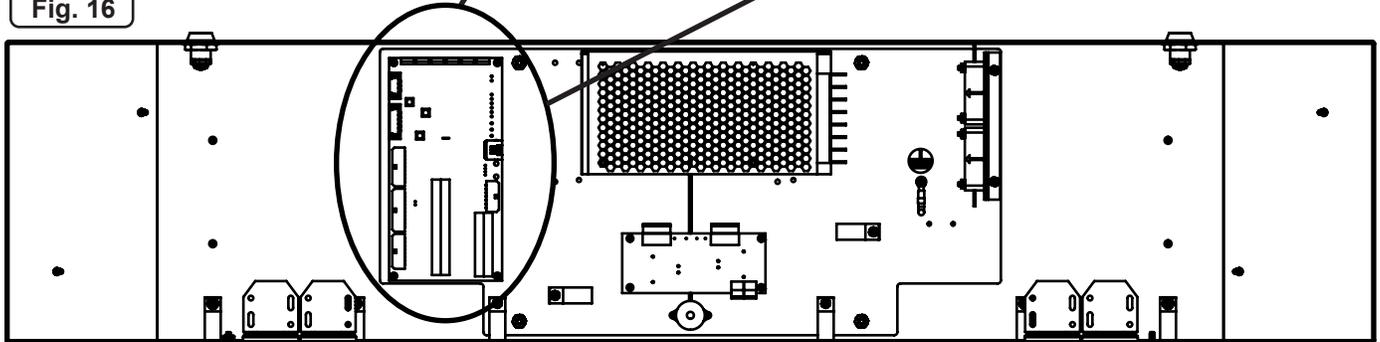


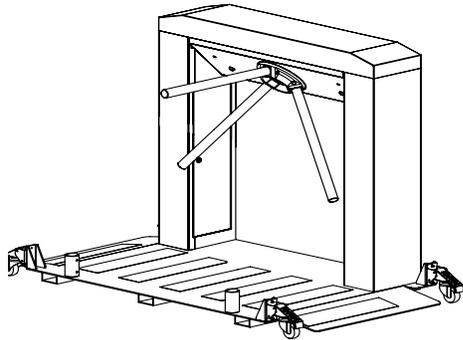
Fig. 16



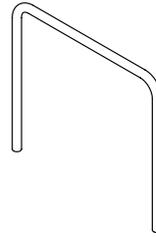
Appendix B - Portable Base Guide Rail Installation

These supplemental instructions cover installation steps specific to portable base models only. When the installation is complete, proceed to the Functions Check starting on page 16.

Portable Base Plate Illustrated Parts List



Portable Turnstile w/ Base Plate (Qty 1)



Guide Rail (Qty 1)

Also included:

Hardware

- Guide Rail Set Screws (Qty 4)

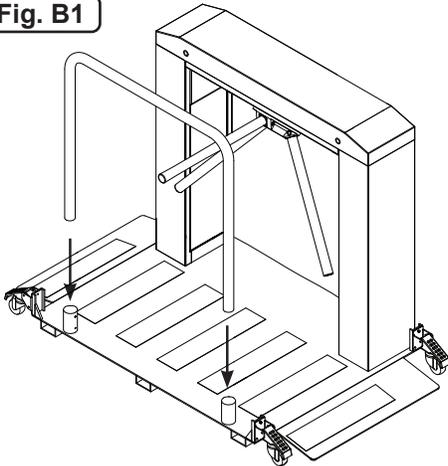
Electrical

- Neutrik Connector Kit (Qty 1)

Tools Required

- 1/8" Allen Wrench
- 7/8" Open Wrench
- POZIDRIVE #1 Bit

Fig. B1



1. Remove the turnstile from container packaging.
2. Slide the guide rail into the support posts and tighten the four (4) set screws using a 1/8" Allen wrench [Fig. B1 & B2].
3. To maneuver the turnstile:
 - Starting with the two (2) wheels on the cabinet side, place foot on the top of the wheel lever and push the lever to the down position [Fig. B3].
 - Repeat for two (2) remaining wheels on guide rail side.
 - Firmly grab the turnstile handle.
 - Roll the turnstile to the desired location.
 - Using your hands, pull the four (4) levers to the up position to lock the wheels [Fig. B4].

Fig. B2

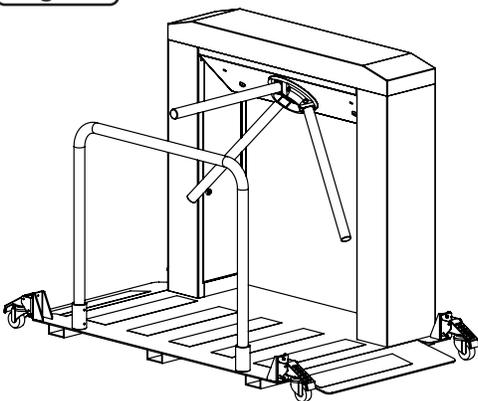
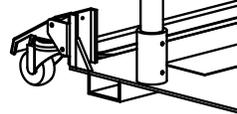
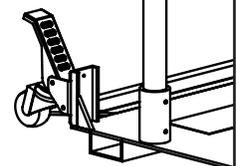


Fig. B3



Lever down to roll

Fig. B4

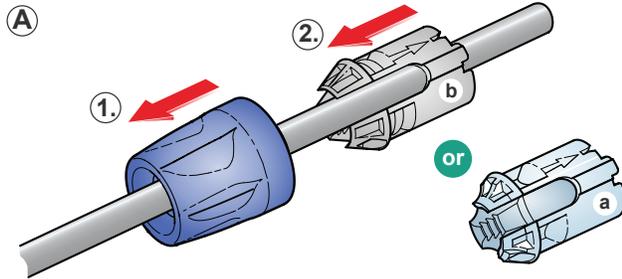


Lever up to lock

Installing Neutrik Connector to AC Cord

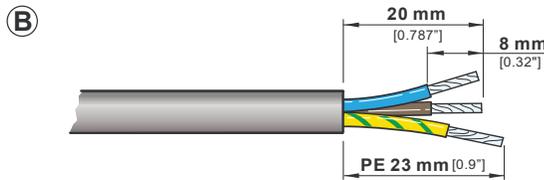
NOTE

Portable Base Turnstile units do not ship with power cables. Instead, each turnstile ships from the factory with a disassembled Neutrik connector. Use the connector to create power cables per your facility's requirements and specifications.



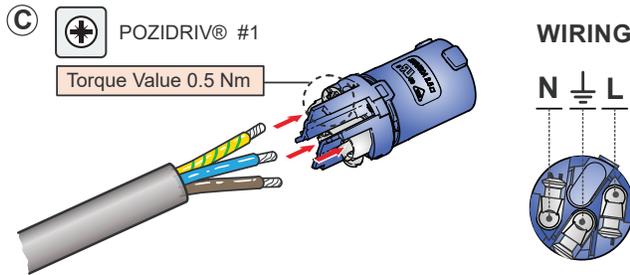
A Place the bushing (1) and the chuck (2) over the cable.

White chuck (a): 6.0 - 11.0 mm [0.236 - 0.433"]
 Black chuck (b): 9.5 - 15.0 mm [0.374 - 0.59"]
 VDE: 9.5 - 14.0 mm [0.374 - 0.551"]

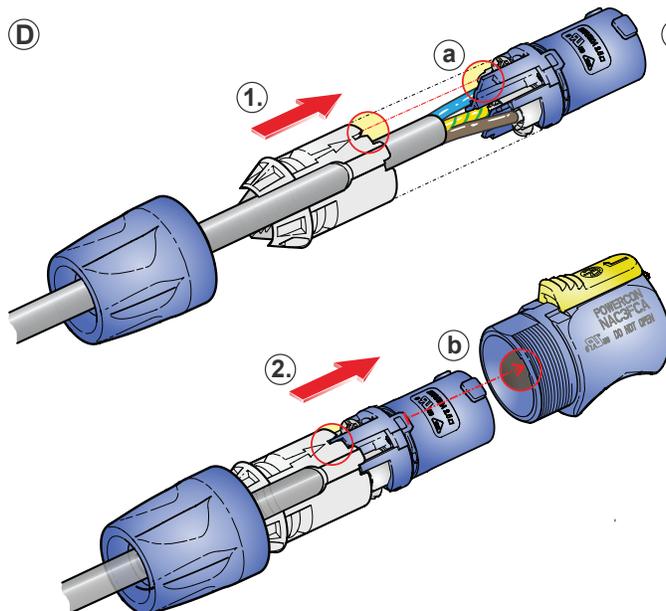


B Prepare the cable as shown.

Cable O.D.: 6.0 - 15.0 mm [0.236 - 0.59"]
 Wire size: 2.5 mm² (AWG 14)



C Insert the wire into the terminals and fasten the clamping device with a POZIDRIV® #1, max. Torque 0.5 Nm (0.37 lb-ft).



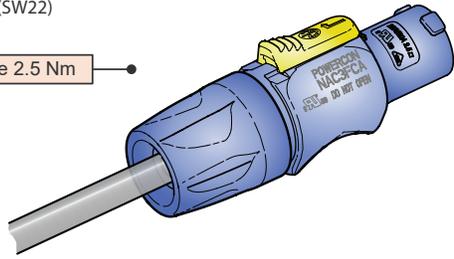
D Slide the insert and the chuck (1) into the housing (2).

Important:
 (a) Align the chuck by positioning the nose into the recess.
 (b) Pay attention to the guiding keyway!

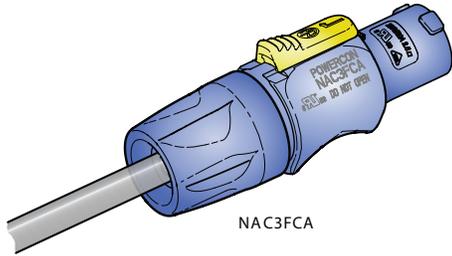
Installing Neutrik Connector to AC Cord (cont.)

Ⓔ  Wrench size
7/8" (SW22)

Torque Value 2.5 Nm



Ⓔ Fasten bushing by means of a fork wrench 7/8" (SW 22), min. Torque 2.5 Nm (1.8 lb-ft).



Finished power connector.

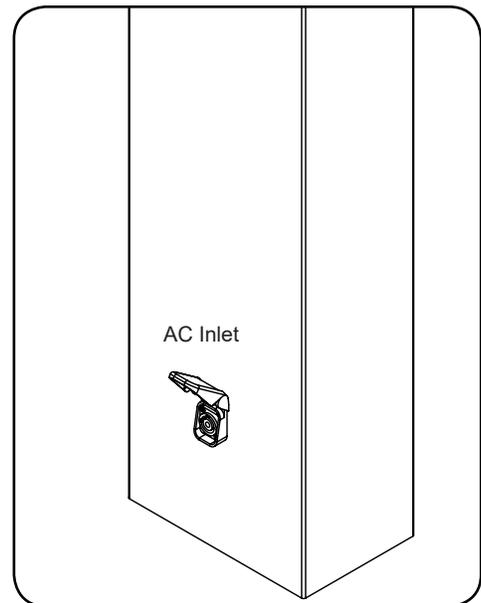
Connecting AC Power to the Portable Turnstile (AC-Powered Option Only)

To connect AC power to the turnstile [Fig. B5]:

1. Lift AC power receptacle cover.
2. Plug the extension cord into the turnstile AC inlet and twist to lock.
3. Plug other end of the extension cord into an AC power source.

This completes the installation process for Portable AC-Powered turnstiles. Proceed to the Functions Check on pg. 16 - 17.

Fig. B5



Portable Base - Plan, Elevation and Footprint Drawing - EDM-Square

Fig. B6

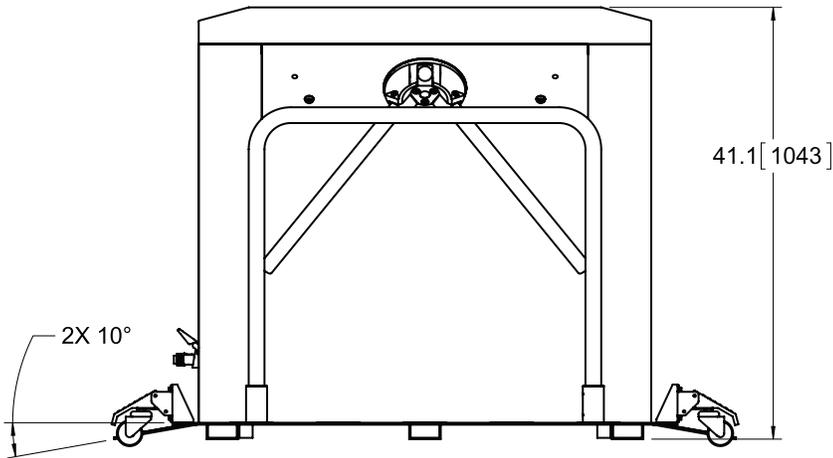


Fig. B7

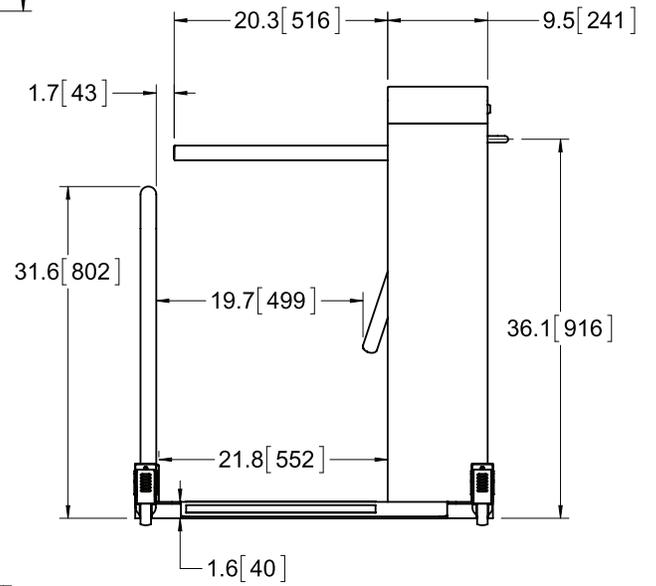
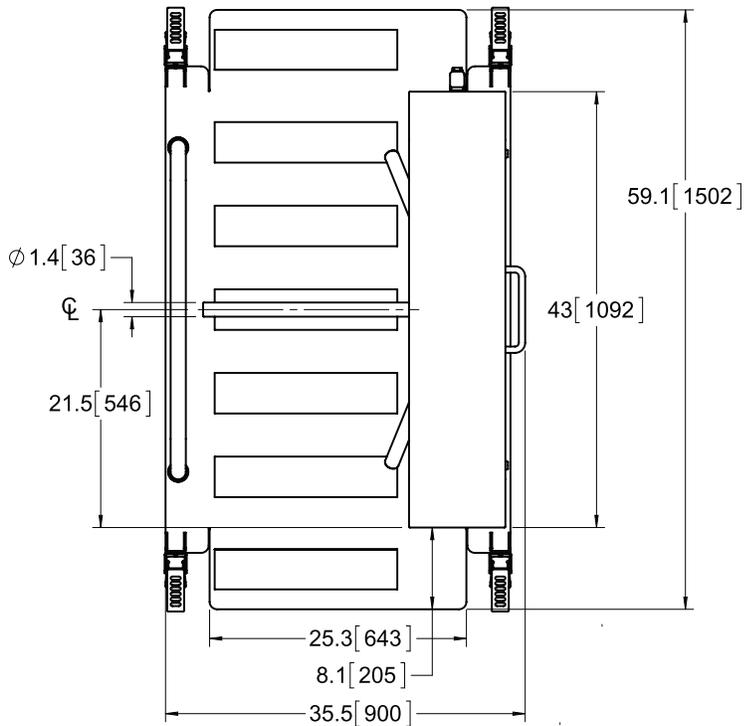


Fig. B8



Appendix - C - Plan, Elevation and Footprint Drawing - EDM Bullnose

Fig. C1

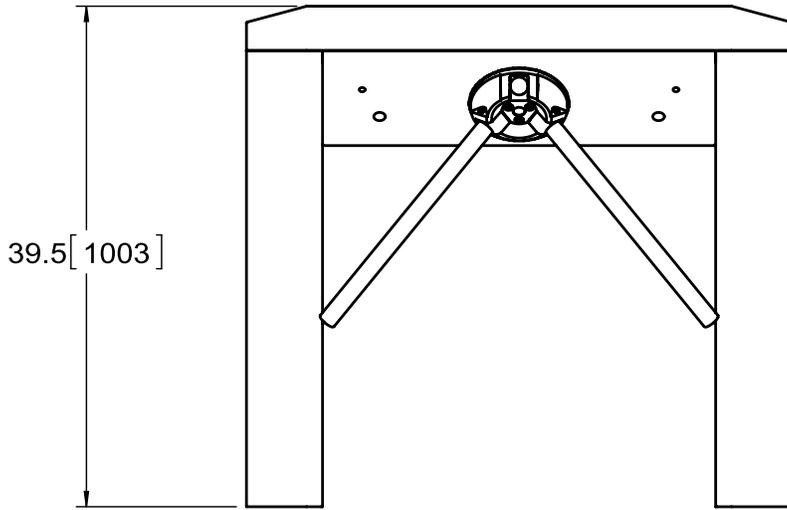


Fig. C2

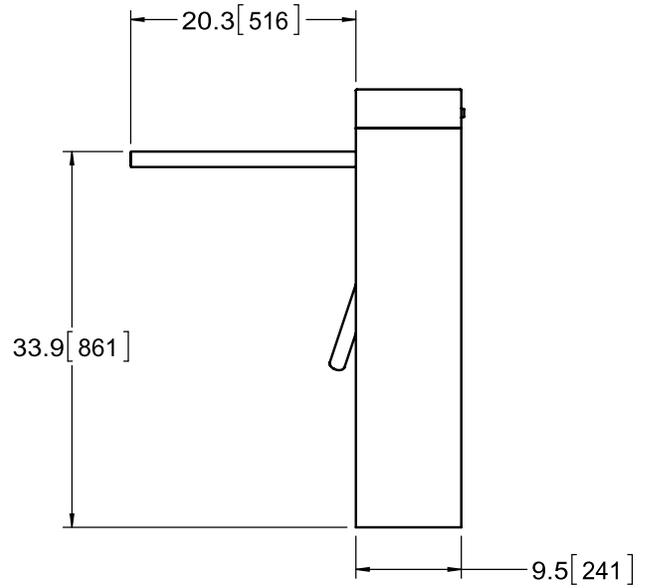
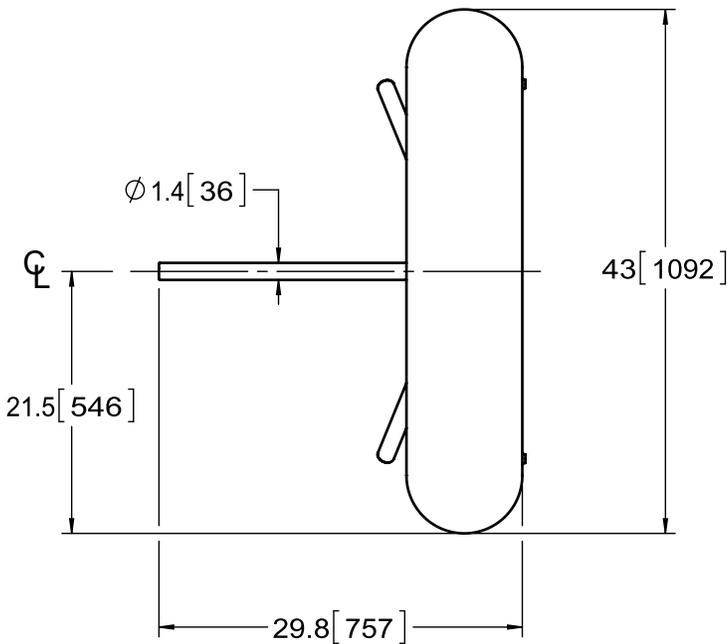


Fig. C3



Portable Base - Plan, Elevation and Footprint Drawing - EDM-Bullnose

Fig. C4

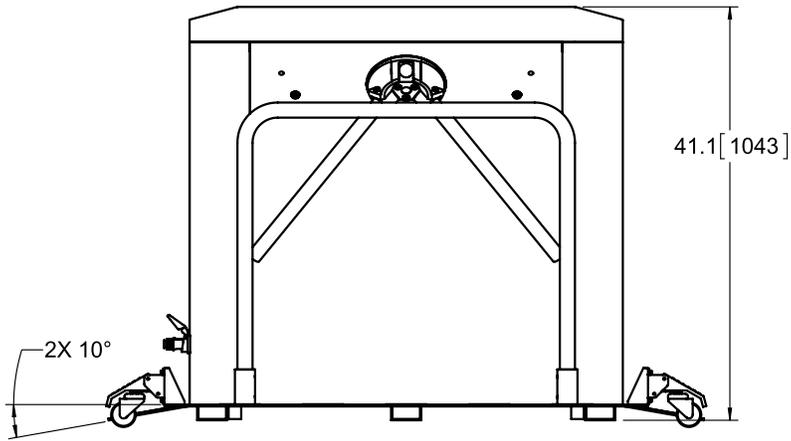


Fig. C5

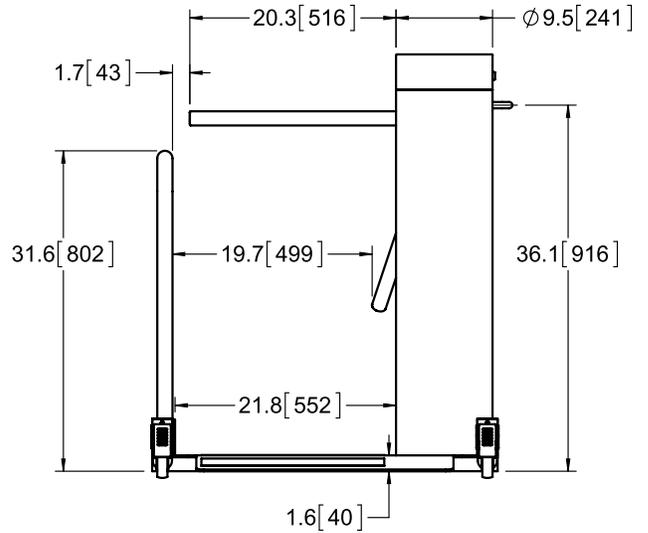
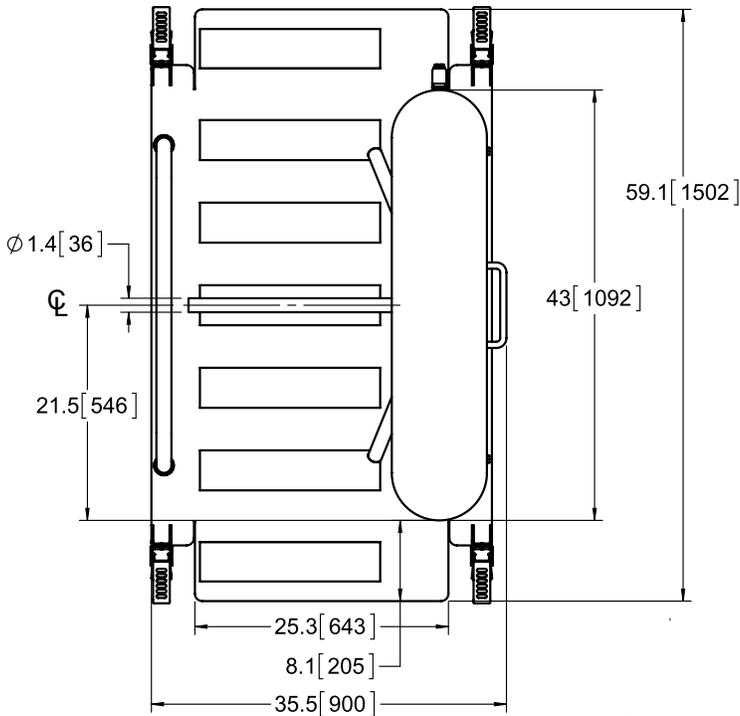


Fig. C6



Revision History

Revision	Date	Author	Description
1-0	10/25/17	C.Mayne	Original Document

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Alvarado Manufacturing Company, Inc.