

The Leader in Pedestrian Control Systems Waist & Full Height Turnstiles and Matching Gates

Service & Installation Manual for the

## FP500-ADA-M



## FastPass Series Waist High Motorized ADA Swing Gate



Important Note: Please keep this service manual after installation. If an installation is done by a construction company or outside installer, please pass this book along to the end user.

## Pre-installation Tips for the FP500-ADA-M

Installation of the FP500-ADA-M-M is fairly simple. Once the unit is opened up, the cabinet itself can be used as a template for anchor holes and conduit access. Once anchored to the concrete, connect any access control systems to the board and plug the unit in (if applicable).

Before installation, if pouring a new concrete pad, ensure it is level within 1/16". If an existing pad is being used and it is not level, you must shim the cabinet. Otherwise, inconsistent issues may occur with operation.

Should you decide not to utilize the cabinet as a template, use the below diagram that indicates concrete anchor hole patterns and conduit access for installation.



Note: Failure to install the cabinet on level ground can result in inconsistent operation.

## Disassembly Instructions for the FP500-ADA-M

In order to install the FP500-ADA-M, the cabinet needs to be opened up. Once opened, anchor holes for concrete mounting as well as conduit access for electrical work can be accessed. The FP500-ADA-M has two removable front panels and a lid that need to be removed in order to install.

The first front panel to remove is a V-shaped cover which is fastened onto an aluminum housing for the arm assembly. It is held into place with two 10-24 stainless steel button heads (shown below).



After the V-shaped plate is removed, the lid must be taken off of the cabinet. The lid is held in the front with a key lock and fits into two clips in the back. To remove the lid, first unlock the key, then pull the lid forward and lift up to unhook the clips in the back.



## Disassembly Instructions for the FP500-ADA-M

Once the lid has been removed, access to the main front panel is given. This panel is held in place with two selftapping screws (which are not bottomed out) on the sides as well as two button heads on a bracket attached to the support strap inside of the cabinet. Although you could remove the nuts on the threaded rod attached to the front panel itself, removal of the button head screws from the support strap is recommended. Doing so allows for a much easier re-installation of the lid, as the nuts are spaced to assist with alignment of the lock's hook. In other words, remove the front panel with the bracket attached to it.

Below is a diagram of an overhead view of the cabinet with the lid removed.



#### **Concrete Anchor Instructions**

#### Instructions for Using Wedge Anchors

Determine the appropriate wedge anchor length for your project.

- 1. 1. Add:
  - The thickness of material to be fastened
  - -to-
    - The minimum embedment required
    - -to-
  - The thickness of the nut and washer (about one anchor diameter).
- Once you have determined the appropriate wedge-type-anchor length, drill your hole using a bit with 2. the same diameter, 1/2" deeper than the anticipated anchor embedment.
- 3. Clean the drilled hole of any debris.
- Thread the nut and washer until the nut is flush with the top of the anchor. 4.
- Hammer it into position (nut and washer flush with the surface of the material). 5.
- Tighten finger completely and then take an additional 3-5 turns with the wrench. 6.
- 7. If the anchor spins in the hole, force it up using a screwdriver until the clip binds into the concrete.

#### **Thunderstud® Wedge Anchor Technical Information**

Diam. & Length	Min. Embedment	Thread Length	
1/4″	1-1/8″	3/4"	
3/8″	1-1/2″	7/8"	
3/8″	1-1/2″	1-1/8"	
1/2″	2-1/4"	1-1/4"	
1/2″	2-1/4"	1-1/4"	
5/8″	2-3/4"	2″	
5/8″	2-3/4"	2"	
5/8″	2-3/4"	2"	
3/4″	3-1/4"	2"	
3/4″	3-1/4"	2"	
3/4″	3-1/4"	2"	
7/8″	3-7/8″	2-1/4"	
1″	4-1/2"	2-1/4"	
1-1/4"	5-1/2"	3-1/4"	







hammer into position.

turns with wrench.

## Installation Instructions for the FP500-ADA-M

- 1. Floor should be level +/- 1/16". If not, cabinet must be shimmed. **Caution:** bolting cabinet to an unlevel floor could cause inconsistent operation.
- 2. Disassemble the cabinet by removing the front panel and lid as described earlier in this manual.
- 3. Place cabinet in the exact location you are going to install it. Utilizing the floor plate as a template, center punch the four anchor holes in the corners. Move the cabinet out of the way.
- 4. Drill four 3/8" holes with a concrete bit and a hammer drill approximately 4" deep. Clean concrete dust from the holes.
- 5. Replace the cabinet in its installation position. Install wedge type anchors into the holes as directed on the previous page of this manual. Torque the nuts with a minimum of 50 foot pounds.
- 6. Make electrical connections as described in the electrical connection section later in the service manual.
- 7. Provide this service manual to end user for service and maintainence purposes.



#### FP500-ADA-M Operation

Like all of our other turnstile models, the FP500-ADA-M operates with a 6500 series control head. In the case of this particular model, there is an additional series of components that make up the arm assembly. In order to preserve the enclosed look of the FastPass series, the arm pivots with a chain drive. The control head and the arm assembly both have a 15 tooth sprocket and an extra strength #40 double chain which allows the control head to physically move the U-shaped arm.

The arm assembly is comprised of a 1" stainless steel shaft, two arm adaptors with a U-arm welded within, a sprocket, two bearing plates and a plate spacer. The 1" shaft is pinned into place with taper pins to ensure the arm will never dislodge from alignment.

The control itself simply has an added 15 tooth sprocket which allows it to drive the arm assembly (shown below).



## **FP500-ADA-M Operation (Continued)**

The FP500-ADA-M also has two additional components for the motorization of the arm. A DC gearbox type motor physically drives the cam to turn the arm while a safety clutch allows the arm to slip in case of obstructions. The motor rotates clockwise by applying positive voltage to the red wire and negative voltage to the black wire. To rotate counter clockwise, the voltage is reversed.

Essentially, when access is granted, the arm will swing in the appropriate direction. Before the arm moves, a slight delay (which is adjustable) ensures that the locking bar has time to open. This feature also prevents any scenario from inadvertently applying commands to rotate both directions at the same time, protecting the motor from damage. After an adjustable timer has expired, the arm will swing back to the home position.

While open, additional access control requests from either side will reset the timer, allowing more time to pass for the new user. There is no need to wait for it to close before trying to pass in the opposite direction.

At any time, an input can be triggered to close the gate immediately. This feature allows integration into alarm / security systems to give some added security.

A fire alarm input is also integrated into the system. While active, the arm will swing open and will remain open until the signal is diminished. If using indicator lights, both directions will show green during this scenario.

#### Some final notes on the motorized gate:

- Our motorized gates are the only models we make that do not utilize a hydraulic shock. Since a motor is driving the arm, there is no need for this part.
- The index springs used on the motorized gates are very light. If you ever need to order replacement springs, please contact us for a special part number.
- Motorized gates require an alternate logic program as well as an expansion module to the logic controller. Be sure to specify you require a board for a motorized gate for a special part number.

## **6500 Series Control Head Information**

All of our turnstiles and ADA gates operate with a mechanism called the 6500 series control head. This sturdy and easy to maintain drive for the turnstile has replaced all previous model control heads. It is adaptable to any existing turnstile and comes with each new turnstile purchase. This control head can be configured in multiple ways to accommodate the security requirements of each individual job site.



#### An internal view of an electronically controlled two-way 6500 series control head.

While the head can be configured for mechanical (no electronics) operation, the turnstile's security potential is reached in the case of an electronic two way control head. In this instance, each rotational direction is independently unlocked. Configured properly, this control head will allow for one rotation per valid entry request. Our anti-backup cams are designed so that it is impossible to become trapped within the turnstile when properly installed.

Each control head comes pre-configured to your specific needs based off of a directional sheet that is filled out before shipment. The heads are delivered pre-wired, tested, and adjusted to our factory recommendations. Installation is simple: connect inputs from access control devices into the logic controller and plug the unit's power supply into a 110-240VAC receptacle. The power supply will automatically set itself to function on your local voltage and convert it to 24VDC.

# Note: Proper turnstile operation requires a dry, normally open momentary contact closure (of one second or less).

#### FP500-ADA-M Installation Manual



FP500-ADA-M Installation Manual

Controlled Access, Inc. The Leader In Pedestrian Control Systems Waist High, Full Height, and Matching Gates	Controlle 1636 W. Brunswic www.cont sales@cc	d Access, Inc. 130th Street k, Ohio 44212 rolledaccess.com ntrolledaccess.com	330-2 330-2 800-9 800-9	273-6185 273-4468 942-0829 942-0828	Phone Complete control heads Fax are available. Contact us USA Toll Free Fax USA Toll Free Fax
Index Pin Assembly All Models 6532	\$108.19		Index Pin Tubing All Models 6520	\$26.90	Index Spring WH Models: 1106 \$5.31 FH Models: 1108 \$5.31 ADA Gates: 1107 \$5.31
Control Head Casting Top Casting: 0372 Bottom Casting: 0373	\$179.10 \$179.10	$\bigcirc$	Top Casting Bearing All Models 1641 (1641—2RSNR)	\$24.81	Bottom Casting Bearing All Models 7208 (6007RSNR) \$23.22
Hydraulic Shock Absorber 427/430/T80/WH/ADA 6560 (ACE MA225) 439/448/P60 6561 (ACE MA600)	\$149.72 \$224.90		Shock Housing 427/430/T80/WH/ADA 6535 439/448 6541	\$154.26 \$162.00	WH Arm Adapter Proximity Sensor Cam 2030 \$57.74
Solenoid All Models 6051 (Deltrol D4A53717-83)	\$59.59		Locking Bar Linkage Fail Lock: 6518 Fail Open: 6519	\$10.00 \$10.00	Locking Bar All Models 0381 \$34.23
Solenoid Springs Fail Open: 6510 Fail Lock: 6016	\$ \$7.35 \$7.35		Limit Switch Cam Standard: 2267 ADA Gate: 2268 One—Way: 2269	\$25.00 \$27.87 \$58.92	Limit Switch Standard: 2180 \$24.72 OMRON Z-15GW2-B7-K One-Way: 1700 \$58.92 OMRON BZ2RW825-A2
Logic Controller 6789 (KEYENCE KV16DR)	\$210.00	Cam A limit/p 427/4 Hex	ssembly (specify rox) 30/T80/WH: 0401 7/8"	\$215.77	Power Supply100-240VAC 24VDC 2.1 AMP 0781 (KEYENCE M52-H50) \$150.00
Proximity Sensor(PNP)	\$150.83	439/4 Hex ADA G 0402	48/P60: 040/ 1-1/4" ate (specify model): 7/8" Hex	\$238.05 \$190.75	Proximity Sensor Bracket 6589 \$10.00
All pricing subject to change without notice. All parts orders are shipped via UPS. Expedited shipping available upon request. The above prices do not include shipping. All parts orders under \$500.00 require credit card payment before shipment.					

Date: 10/19/12 11

## 6500 Series Control Head Configuration Information

The 6500 series can be configured in a number of different ways. All turnstiles operating with the 6500 series control head self center and hydraulically shock to the home position to prevent damage or injury.

Manual both ways: Turnstile rotates freely in both directions. This unsecure configuration is used as a means to direct traffic through one area. Full height turnstiles can be purchased with a lockout bar which would allow end user to lock the turnstile with a standard pad lock.

Manual one way: Turnstile rotates in one direction but not the other. This configuration is great for an exit way.

Electronic one way with free exit: Turnstile rotates freely in one direction and requires access credentials for the other. This configuration is suitable for secure entry and unsecure exit.

Electronic one way with no exit: Turnstile requires access credentials for one direction and allows no passage in the other. This configuration is suitable for a secured entryway with an alternate means of exit.

Electronic two way: Turnstile requires access credentials for both directions. This configuration is perfect for locations requiring secured entry and exit passage.

Fail lock: Upon power failure, turnstile will remain locked in one or both directions. This is convertible to fail open by ordering an alternate linkage. This can also be known as fail secure.

Fail open: Upon power failure, turnstile will remain unlocked in one or both directions. This is convertible to fail lock by ordering an alternate linkage. This can also be known as fail safe.

Key override: This option is for a location that the security requirements may change. The key override option is not intended for everyday use.

## **6500 Series Control Head Locking Bar Information**

Any number of configurations is possible on the 6500 series control head. In the case of an electronic two way head, two independent locking mechanisms are in place. The following diagram indicates which direction unlocks from which locking mechanism. A logic controller or key override is needed to unlock the control head in each direction it is configured to lock in.



If removing the locking bar becomes necessary for any reason, two methods can be used. The easiest method is to punch the  $\frac{1}{2}$ " dowel pin out from the bottom side of the control head. This releases the locking bar from the casting. An alternate approach would be to remove the (4)  $\frac{1}{2}$ -20 socket head cap screws from the casting and remove the lid.

When installing or replacing the locking bars into the control head, be sure to take special care to align the solenoid spring (shown below) or it will not pivot properly.



## Power Failure State Configuration (Fail Lock / Fail Open)

Each direction on a control head can be independently configured to open or lock upon power failure. The fail status configuration is based on the pivot point used on the locking bar as well as the linkage and solenoid spring used. Control heads are preconfigured in our factory before shipment based on a direction sheet filled out by the end user. In the event a fail status field change is needed, a different linkage and spring will be required (the part numbers are noted in a table below). Control heads can also be returned to the factory for reconfiguration for a fee of parts plus approximately 1 hour of labor if desired.

Description	Part Number		
Fail open linkage	6518		
Fail lock linkage	6519		
Fail open solenoid spring	6510		
Fail lock solenoid spring	6016		



Note: As a reference, it may be important to know that some vendors use different terms for fail status. Fail open is also known as fail safe, while fail lock is also known as fail secure.

## **6500 Series Control Head Electrical Information**

Each motorized gate control head comes with a power supply, a programmable logic controller (PLC), proximity sensors and solenoids. For safety purposes, it is recommended that you read all literature on the electrical components before attempting to install the control head into a turnstile.



Note: Access control devices need to provide a momentary, normally open dry contact of one second or less. A longer signal can cause more than one person to be able to pass through the turnstile. If you are unable to provide a contact of one second or less, an onboard signal converter will automatically change the signal length to .1 seconds. However, the ability to hold the relay open is lost while that feature is active.

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#### Motorized Gate Wiring Legend

Inputs are triggered with a 24VDC+ (Sourcing/PNP) signal. Run 24V+ voltage through a Form C relay's common port and connect the normally open port to the desired input.

Direction 1 swings the arm outward with the cabinet on the right. Direction 2 swings the arm outward with the cabinet on the left.

The cancel and return input can be integrated into an alarm system to force the arm to return to the locked position.

The fire alarm input should have a contact closure for the duration of the alarm.

Be sure to disconnect power before wiring

#### <u>KV16-DR</u>

#### Input Side:

C1: To 24VDC - (Must be jumped or inputs will not trigger)

- 000: Direction 1 Input (Activates the gate with cabinet on the right) 001: Unused
- 002: Direction 2 Input (Activates the gate with cabinet on the left)
- 003: Unused
- 004: Direction 1 Max Travel Prox (Stops the motor with the arm open right hand)
- 005: Unused
- 006: Home Position Prox (Arm in center, locked position)
- 007: Return Input (Sends the arm back to home, cancels direction timer)
- 008: Direction 2 Max Travel Prox (Stops the motor with the arm open left hand)
- 009: Fire Alarm Input (Unlocks both directions, swings arm open)

#### Output Side:

#### \*: Unused

24V-IN-0V: Input Voltage (24VDC+ and -)

- C3: Common for 500 & 501 Outputs (Should be jumped to 24VDC+)
- C4: Common for 502-505 Outputs (Common for solenoid status, can be +, or dry)
- 500: Direction 1 Solenoid (Energizes to lock or unlock direction 1)
- 501: Direction 2 Solenoid (Energizes to lock or unlock direction 2)
- 502: Direction 1 Status Locked (Follows direction 1 solenoid state)
- 503: Direction 1 Status Unlocked (Follows direction 1 solenoid state)
- 504: Direction 2 Status Locked (Follows direction 2 solenoid state)
- 505: Direction 2 Status Unlocked (Follows direction 2 solenoid state)

#### <u>KV-E8R</u>

Top Side Ports:	Bottom Side Ports:
C1: To Motor Controller Negative Output	C2: To Motor Controller Positive Output
D: Motor Black (Black lead to motor for clockwise rotation)	4: Motor White (White lead to motor for clockwise rotation)
I: Motor White (White lead to motor for counter clockwise rotation)	5: Motor Black (Black lead to motor for counter clockwise rotation)
2: Unused	6: Unused
3: Unused	7: Unused
V1: Terminal Block - Connected to V2	V3: Terminal Block - Connected to V4
V2: Terminal Block - Connected to V1	V4: Terminal Block - Connected to V3

## **Overview of the Access Window**

On the logic controller, an access window is available to change and adjust many different values. Each value is referred to as a "device". The window comprises of 3 primary areas: The device selector window, operation keys, and the main display window.



Although the logic controller is capable of many functions, all of the devices that the control head operates from are accessed in "Device Mode". When device mode is active, the display screen will show DM in the top left corner.



That being said, it is possible to stray from the device mode settings. In the selected device type section of the access window, DM, TM, T/C, CTC, TRM, and RLY are all possible selections to load. Again, we are only using DM (device mode) with the 6500 series control head.

Should you find that you accidently have loaded any other selected device type, simply press  $\Leftrightarrow$  to scroll until you have once again loaded the DM type.

In addition to the device mode window, system mode can be accessed as well.



Although under normal circumstances you should never encounter this window, if by accident you should happen to come across it, simply press the up or down arrow until the window reads "run". Press and hold the C button for 3 seconds, and the display will return to device mode.

Additionally, should for any reason the display lettering become red instead of green, you will need to access system mode to run the program in this fashion. Holding the  $\clubsuit$  key while pressing up and down allows you to change between system mode and device mode. A third mode, which will display TRM on the left side of the screen, can also be accessed. Cycle through until the appropriate mode is displayed.

Finally, it is possible to lock the keypad. Should you inadvertently do so, press and hold the  $\Leftrightarrow$  button and an arrow key together for 3 seconds to unlock the keypad again.

## **Device Settings of the Motorized ADA Gate**

As of PLC software version 1.30

While working within device mode, two primary values should be considered. On the top of the display, the selected device is shown. The motorized gate settings can be adjusted with devices 0 - 6.

Pressing the up or down arrows allow you to select which device you wish to modify. Pressing and holding the C key for 3 seconds loads the modification window. While modifying, the digits on the window begin to flash. Pressing  $\clubsuit$  will move the cursor in a digit. Select the correct digit to modify, then use the arrows to change the value. Once finished, hold the C button for 3 seconds and your adjustment will save.

Should a value inputted not fall within the specified range of the device being modified, the value will automatically adjust to the highest possible value. A description of each device setting is:

- **DMO:** Timer value for Direction 1. The range of this setting is 1 60 seconds. This is how long the direction will remain open for if a user does not pass through the direction. The default setting is 7 seconds.
- **DM1:** Timer value for Direction 2. The range of this setting is 1 60 seconds. This is how long the direction will remain open for if a user does not pass through the direction. The default setting is 7 seconds.
- **DM2:** Direction 1 fail status. This determines when the solenoid receives power and is preconfigured based on each individual order. 0 means the direction is fail lock & 1 means the direction is fail open. This setting is not affected by factory reset.
- **DM3:** Direction 2 fail status. This determines when the solenoid receives power and is preconfigured based on each individual order. 0 means the direction is fail lock & 1 means the direction is fail open. This setting is not affected by factory reset.
- **DM4:** Direction 1 one-shot timer: This setting determines whether or not the access control input length is ignored and converted to a .1 second pulse internally. Enabling this allows the turnstile to ignore access control from allowing too many users pass through the turnstile. Disabling it allows access control to hold the direction open. 0 means the one-shot timer is inactive & 1 means the one-shot timer is active.
- **DM5:** Direction 2 one-shot timer: This setting determines whether or not the access control input length is ignored and converted to a .1 second pulse internally. Enabling this allows the turnstile to ignore access control from allowing too many users pass through the turnstile. Disabling it allows access control to hold the direction open. 0 means the one-shot timer is inactive & 1 means the one-shot timer is active.
- **DM6:** Fire Alarm Swing: This setting determines which direction the arm will swing while the fire alarm input is held. For direction 1, the value should be 0. For direction 2, the value should be 1.

Additionally, scrolling downward past DMO will allow you access to **DM1999**, which resets all settings to factory defaults (except for solenoid fail status settings). Choose any value greater than 0 to perform the factory reset.

Scrolling downward to DM1998 will read the version number. For example, a value of 130 will indicate version 1.3.

There may be some additional modifications that can be made beyond the scope of the settings described above. Please contact technical support if you need to adjust any functionality not listed.

# Controlled A c c e s s

#### The Leader in Pedestrian Control Systems Waist & Full Height Turnstiles and Matching Gates

## **Warranty Information**

Seller warrants the goods against defective workmanship and materials provided that Buyer notify Seller within one (1) year after receipt by Buyer of the goods of any claim under this Warranty. The liability of Seller shall be limited to replacing or repairing defective goods returned by Buyer and delivered to the factory of the Seller, transportation charges prepaid.

Replaced or repaired goods will be redelivered freight repaid to the address of Buyer shown hereon. Except for the Warranty contained herein, there shall be no other warranties, such as warranties of fitness and merchantability or otherwise express or implied, written or verbal, and Seller shall not be liable for consequential damages in any event.