AlBase ADC-Al- S300

Operation & Installation Guide

LOW ENERGY AUTOMATIC SWING DOOR OPERATOR



These installation instructions are solely for use by professional installers and are not intended to be handed over to the end user.

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1. Pre-Installation Information

1.1. Parts List



• NOTE: Mounting hardware for the header unit IS NOT INCLUDED

Figure 1-1 Part Identification

1.2. Required Tools





2. S300 Installation Process



2.1. Unpack and Remove Cover

- Use 1/8" Allen key to remove cover screws.
- Remove cover (Figure 2-1)



Figure 2-1 Remove Cover

2.1.1. Door Operator Direction Determine

- Only decide installing the ADO inside or outside (Safe Side)
- Spindle always the same side as the door hinge
- Operator and Door are on the different side = PUSH (Encoder facing down)
- Operator and Door are on the same side = PULL (Encoder facing up)





2.1.2. Operator Universal Installation

Hand swaps the motor spindle when using other door handing.

Step 1: Take out the shaft mounting screw on top of the gearbox and disengage the shaft from the hub

Step 2: Flip the gearbox 180°

Step 3: Screw the shaft on the gearbox from the bottom



2.2. Mount Header Unit

- Mark the positions of the gearbox and controller mounting plates edges on the Header Unit. These marks will be used for reassembly.
- Use 1/4" Allen key to remove the gearbox unit and the controller unit from the header unit.



Figure 2-2 Unit Disassembly

 Using the appropriate drill bit for the fasteners to be used. Drill at least 6 mounting holes on the motor side of the Header Unit, and 4 holes on the controller side. DRILL HOLES BETWEEN THE CHANNELS as highlighted in yellow below (Figure 2-3).



Figure 2-3 Recommended Mounting Holes

2.2.1. Determine Header Unit Position

The position of the header unit in relation to the door and frame is determined by the operator's function.

For PULL applications: mount the bottom of the unit above the frame (2" above the top of the door).
 Figure 2-4 illustrates a PULL application header position.



Figure 2-4 Header Unit Position (Pull Application)

• For PUSH applications: mount the header unit bottom flush with the bottom of the frame. Figure 2-5 illustrates a PUSH application header unit position with the components reinstalled.



Figure 2-5 Header Unit Position (Push Application)

- After the position of Header Unit is determined, BEFORE physical mounting, ensure that a hole for the wire pass-through is made on the Header Unit that corresponds with the wire hole on the surface. Recommend 1-inch or 2-inch hole, please use your discretion on and follow all local codes. See Figure 2-5 for an example.
- Fasten the header to the surface using appropriate fasteners and mounting techniques. **NOTE:** It is recommended that the header be mounted securely to solid structural surfaces such as wood wall studs or masonry.

2.2.2. Reinstall Components

The gearbox and controller units can be reinstalled onto the Header Unit once the Header Unit is secured.

• Using the marks made in 2.2 as a guide, reinstall the gearbox unit using the appropriate fasteners. Ensure the marks align.

• With the gearbox unit installed, proceed with installing the controller unit using the appropriate fasteners. Figure 2-5 illustrates a PUSH application with components installed.

2.3. Installation Examples

- Ensure there is solid structural support in the mounting surface (wall) behind the header unit for the appropriate mounting hardware to be secured to.
- A spacer or filler plate made of solid material may be required to compensate for any gap between the door frame/header unit and mounting surface.
- Before mounting the header unit, ensure that access holes for the power supply cables are aligned and properly prepared.
- Shown below are examples ONLY. Use your discretion, follow all local building and security codes.
- On composite or hollow wood doors we recommend the use of thru bolts when securing the arm shoe or slider.
- Standard push arm can accommodate reveals up to 12in (30.5 cm)
- Standard pull arm can accommodate reveals up to 6in (15 cm) Other arms are available for deeper reveals – please contact your local reseller for details.



2.4. Motor and Control Board Wiring

- ▲ Unit must be grounded.
- Connect 120VAC wire to transformer via L16 connector and distribution block.
- M Use Minimum of No. 14 AWG with copper connectors.
- A Permanent wiring is to be employed as required by local codes.
- Connect motor wire to motor connector on controller.
- Connect magnet sensor wire to connector on controller.
- Connect power switch wire to power switch on header.
- Have a qualified electrician connect the 120VC armored wire to L16 connector.



Figure 2-6 Unit Wiring

2.5. Arm Installation

S300 arms can be installed in either a PUSH or PULL configuration. Regardless of configuration, the gearbox must be loaded to hard stop.

2.5.1. Gearbox Pre-loading

- Ensure unit is connected to power (but power switch remains OFF).
- Gearbox will need to be pre-loaded. This can be done AUTOMATICALLY or MANUALLY.

2.5.1.1. Automatic Gearbox Loading to Hard Stop



- Turn POWER ON. Screen will display 2 options as in image above.
- Press SEL button to enter the Open/Close menu. Screen display will change.



- Press SEL button again to activate motor loading. Observe the spindle until it reaches hard stop.
- Install the arm as per instructions on page 15,16.
- Pres SEL to close the door.

2.5.1.2. Manual Gearbox Pre-loading

- With the door open, preload the gearbox manually by attaching the arm to the spindle like a wrench, then turn the arm towards the hinges until the hard stop is reached.
- Lock the gearbox with metal rod or screwdriver through one of the 1/2" diameter holes at bottom of the gearbox. Skip to section 4.5.2 for the next step.
- If you do not reach the hard stop, lock the gearbox temporarily then re-attach the arm to the spindle. While holding the arm, remove the metal rod or screwdriver and continue to preload until the hard stop is reached.

2.5.2. PUSH Arm Installation

- Attach or re-adjust the push arm to be approximately 45° from parallel to the door frame as shown in Figure 2-7. Lock position using 3/16 socket screw included.
- With the door still held in position, attach the forearm and block to the door 14-1/2" from the hinge side door edge, in the high or low mount position as shown in Figure 4-9. Use your discretion: The forearm must be level with the operator arm, adjust accordingly.



Figure 2-7 Push Arm Positioning

Figure 2-8 Push Arm Positioning Vertical Section

- Fix the arm to the operator spindle using supplied PH3 screw. 4-1/8" Low Mount
- Push the door slightly to release the metal rod or screwdriver from the gearbox. If the gearbox was preloaded using the motor, remove the jumper wire between COM and ACT2 on the control board.
- With the rod removed, the door should close as if it had a manual door closer installed.
- The door operator is now ready for programming.



Figure 2-9 Push Arm Installation

2.5.3. PULL Arm Installation

- With the door closed, install main arm and mark the location of the main arm's tip on the closed door (A).
- Remove the arm and open the door to the desired opening angle and hold it in place. Re-attach main arm and mark the location of the main arm's tip on the open door (B).
- Remove the arm and close the door. Locate and mark the center line between A and B shown in Figure 2 10.
- Center sliding track on the marked centerline, 3 ½" below the bottom of the header as shown in Figure 2 12. Use appropriate mounting screws to fix sliding track to the door.



Figure 2-10 Pull Arm Positioning



Figure 2-11 Pull Arm Positioning Vertical Section



Figure 2-12 Slide Track Installation

• Slide the arm roller into the track, then push the arm onto the operator's spindle. Secure arm to spindle using supplier screw and washer.



Figure 2-13 Pull Arm Installation

- Push the door slightly to release the metal rod or screwdriver from the gearbox. If the gearbox was preloaded using the motor, remove the jumper wire between COM and ACT2 on the control board.
- With the rod removed, the door should close as if it had a manual door closer installed.
- The door operator is now ready for programming.

3. Terminal Wiring

3.1. Terminal Description / Legend

LOCK		Lock relay used for operating electric locking hardware.
+24		24VDC power terminal used to power device and looking hardware.
COM		Shared input for all dry device and as 0VDC output for power devices.
RYL1a	ן ו	RLY 1 is used: in Normal Mode as end switch when input is maintained to ACT2 and
RYL1b	1	common; in Washroom Mode for occupied indicator; and to inhibit swing sensor in Safety Sensor installations.
RYL2a	ן רן	
RYL2b		
OUT1	ן ו	
OUT2		Used in Normal Mode in conjunction with overhead safety sensors.
OUT3		
ACT1		Primary activation input.
ACT2		Secondary activation input used for fire alarm, washroom, access control.
ACT3	→	Input used in washroom, access control and safety sensor setup.
ACT4	 → [Input used safety sensor setup.

3.2. Wiring Example: Regular Push-Button Activation

The following diagram is only an example, use only as a reference.





Use AiBase Washroom Kit for Washroom Application.



3.3. Wiring Example: Card Access Integration

The following diagram is only an example, use only as a reference.



3.4. Wiring Example: Washroom Application

The following diagram is only an example, use only as a reference.



4. Programming

4.1. Change Operating Parameter Settings

The S300 default operating parameter settings can be adjusted to better suit the installation. See Section 4.1.2 for a full list of basic and advanced parameters.

- Ensure the door is fully closed the door operator control display should read "DOOR CLOSED."
- Press the MENU button on the control Board to enter the Main Menu.



- Using the UP and DN buttons, scroll up or down until "[Settings]" is displayed.
- Press the SEL button to enter the Settings menu.



- Using the UP and DN buttons, scroll up or down until the required parameter and its current value is displayed.
- Press the SEL button again to edit the parameter.
- Using the UP and DN buttons, scroll up or down until the required parameter value is achieved.
- Press the SEL button again to set/confirm the new parameter value.
- Press BACK to return to the Basic Settings menu in order to select another basic parameter.
- Press BACK a second time to return to the Main Menu.

4.1.1. Parameter List & Descriptions

All values and settings must comply with applicable national and provincial/state standards, including local building codes and accessibility regulations.

Index	Parameter	Description	Function Behavior / Effect of Adjustment	Value	Default
01	Overload	Obstacle Detection Sensitivity	Lower values increase sensitivity, making the door stop or reverse more easily when resistance is detected during the opening cycle. Higher values decrease sensitivity, better handling wind or pressure but may delay obstacle detection.	60-80	70
02	Act Delay	Delay between trigger and activation of ADO (10 th of Second)	Shorter delays cause the door to activate more quickly after receiving a trigger. Longer delays introduce a pause before activation. Increase delay if activation button is far from the door.	0-99	0
03	Backcheck Speed	Speed of the door at last 20 degrees	Controls the door speed during the final 20° of opening. The higher the value, the faster the speed.	1-60	25
04	Holding Time	Time (in seconds) that the door will stay open when reaching the backcheck zone	Longer times accommodate slower users or equipment.	0-99	10
05	Opening Speed	Door opening speed	Adjusts the speed at which the door opens. The higher the value the faster the speed.	1-99	50
06	Closing Speed	Door closing speed	Adjusts the speed at which the door closes. The higher the value the faster the speed.	1-99	30
07	Latch Speed	Door latching speed	Controls door speed during the final latching phase. The higher the value the faster the speed.	1-99	10
08	Control Mode	1 = Regular, 2 = Unlocked washroom, 3 = Access control, 4 = Locked washroom	Selects the door's operational logic. Each mode alters how the door responds to inputs and security features.	1-4	1
09	Sensor Cfg.	Safety sensor configuration selection	Specifies the number of connected safety sensors . A setting of 0 means no sensor is used.	0-8	0
10	Stop Speed	The speed of the door once presence detected via sensor on swing side	Works only if additional sensors are being used.	1-60	10
11	Power Close	Powered closing of door to positive latch (toggle) 0 = OFF, 1 = ON	Enables powered closing to fully latch the door. Useful in high-pressure environments or where positive latching is required.	0-1	0
12	Power Cls Spd	Power closing force adjustment	Adjusts the force applied during power closing. Higher values provide stronger force to overcome resistance.	1-35	20
13	Powr Cls Angle	Power Closing engage angle	Sets the door angle at which power closing begins. Larger angles start power closing earlier in the cycle.	10-45	15
14	Closing Time	Countown (in seconds) to full close	Sets the countdown duration for the door to fully close.	0-50	50
15	Opening Time	Countdown (in seconds) to full open	Sets the countdown duration for the door to fully open.	0-50	50
16	Latch Time	Countdown (in seconds) in latch cycle	Sets the countdown duration during the latch phase. When value is 0, allows for instant locking, use 2-8 for normal door functions, lower the value the earlier the locking.	1-8	2

17	Latch Angle	Latch cycle angle	Sets the angle at which the door will begin to slow before fully closing the door. Wider angles provide more control and adjustment in the final closing phase.	1-45	20
18	Decel Angle	Backcheck start angle	Sets the angle at which backcheck (deceleration) begins. Higher angles trigger deceleration earlier to soften impact.	20-110	80
19	Preload Time	Pull time door before opening to release pressure (10th of second)	Sets the duration the door pulls in before opening to relieve pressure. Adjust the value if there's trouble with an electric strike.	0-50	0
20	Preload Spd	Pull force of door before opening to release pressure	Adjusts the force of the preload pull before opening. Higher values increase pulling force to overcome pressure seals.	Fixed	50
21	Wind Brake	Turn ON/OFF wind break feature 0 = OFF, 1 = ON	When enabled, the wind brake helps resist wind pressure during door opening , improving stability in windy environments. Usage Note: When manually opening the door with wind brake enabled, continue pushing the door until it is fully open. Avoid a quick push-and-release action, as this may cause the system to detect a false obstruction due to the encoder stopping abruptly.	0-1	0
22	Wbrake Speed	Wind buffer force	Sets the strength of the wind buffer. Lower values apply greater resistance against wind.	1-99	10
23	Wbrake Angle	Wind buffer engage angle	Defines the door angle where wind buffer engages. Adjust to tailor wind resistance response timing.	25-110	60
24	Wbrake Sens	Wind buffer engage sensitivity	Adjusts the sensitivity for wind buffer activation. Higher values increase responsiveness to light wind force.	1-99	20
25	Fire Al Mode	0 = Smoke evacuation mode (door opens), 1 = NFPA80 standard (disables ADO on fire alarm)	Sets behavior in fire alarm situations.	0-1	0
26	Easy Open	0 = Heavy, 1 = Standard 15lbs, 2 = Light 5lbs	This refers to pounds of force needed to push the door manually.	0-2	1
27	Quick Open	0 = Slow ramp from full closed, 1 = Standard ramp, 2 = Quick "kick-out" for fast opening	Sets acceleration profile from closed position.	0-2	1
28	Reactivate	 0 = No reactivation until fully closed, 1 = Allows reopening during closing, 2 = Touch-reverse on closing obstruction 	Sets door behavior when a second open signal is received during the closing cycle.	0-2	1
29	Factory Test	0 = Normal operating state, no reset action performed, 1 & 2 = Developer use only (for testing and debugging), 3 = Perform factory reset	Set the value to 3 to clear all user parameters and reboot the system.	0-3	0

4.1.2. Recommended Parameter Settings by Door Size

All values and settings must comply with ANSI/BHMA A156.19 Standard for Power Assist and Low Energy Power Operated Swing Doors.

	Parameter	For 7ft to 8ft Door	For 8ft to 12ft Door
01	Overload 70-85		75-90
02	Act Delay	0-2	0-2
03	Backcheck speed	20-22	20-24
04	Holding time	>5	>5
05	Opening speed	50-55	50-55
06	Closing speed	35-50	35-50
07	Latch speed	1-5	1-5

See 4.1.1 Parameter List & Descriptions for more details.

4.2. Operator Initialize Programing

Install the operator based on the following instructions and use the required tools.

- Ensure the door is fully closed and no obstacles are in the doorway.
- Turn Power ON. Screen will display 2 options as in image below.



- Press ACT. Door will run 2 cycles. First cycle the operator learns door position. Second cycle the operator learns door speeds.
- Once proper learn is complete, screen will display DOOR CLOSED.



5. Safety Signage and Access Control Placement

- Always apply supplied stickers on both sides of the door at locations stipulated by local codes.
- See ANSI standard A156.19 requirements for additional safety decal information
- Safety signage included with S300 are double-sided labels intended for application on clear glass. A second set of labels will be required if labels are applied on an opaque or non-transparent surface.
- AAADM (American Association of Automatic Door Manufacturers) Safety Checklist Sticker is single sided and must be applied to side of the door frame where the operator is installed.

