

SHEAR ALIGNING MAGNALOCK MODEL SAM INSTALLATION AND OPERATING INSTRUCTIONS

1 INTRODUCTION

Securitron’s Shear Aligning Magnalock “SAM” is intended for installations where concealed mounting in the door and frame is desired. The operating features allow self-alignment while securing the door when it closes. The SAM is designed to operate with one-way swing, bi-directional swing or sliding type doors. The lock is also capable of securing bi-parting motorized sliding doors. On swing type doors the lock installs horizontally in the top or bottom of the door frame or may be installed vertically in the door frame side. For slider type door applications the locks must be installed horizontally for proper operation. These units have also been designed to unlock even if a preload is applied to the door.

The SAM *BondSTAT* “B” Series, Bond Sensor, monitors the magnetic field. An internal sensor activates a SPDT dry contact relay connection designed for interface to access control and/or alarm systems for reporting the status of the Magnalock. (See **Section 5.6.6**)

The *DPS* “D” Series, Door Position Sensor, is activated by a special magnetic strike armature assembly. The isolated SPDT reed switch, with an internal resettable protection device, is designed for interface to access control and/or alarm system for door status. (See **Section 5.6.6**)

2 SPECIFICATIONS

MODEL	SAM
Holding Force	1200 Lbs [544kg]
Dimensions: Length	10.85" [275mm]
Height	1.5" [38mm]
Depth	1.19" [30mm]
Dual Voltage	12/24 Volts DC
Current: @ 12 VDC	320mA
@ 24 VDC	170mA
Capacitance: @ 12 VDC	6.8mF
@ 24 VDC	6.8mF
BondSTAT Rating	Voltage: 30 VDC (Maximum) Current: 1 Amp (Maximum)
DPS Rating	Voltage: 30 VDC (Maximum) Current: 125 mA (Maximum)

3 PRODUCT OVERVIEW

Upon unpacking this product, an inventory should be made to ensure that all the required components and hardware have been included. Along with these instructions and the installation template, each product should include the following items:

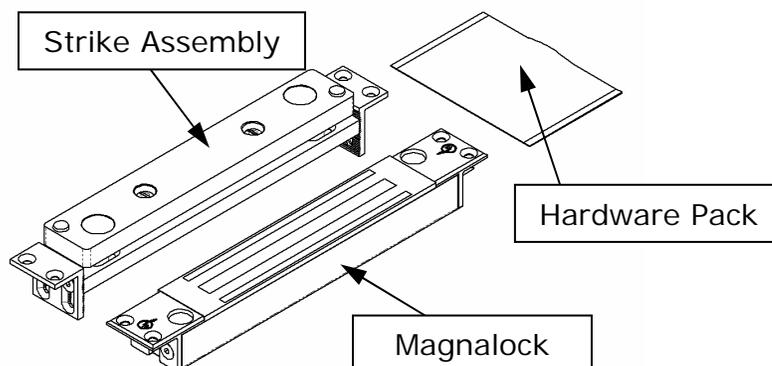
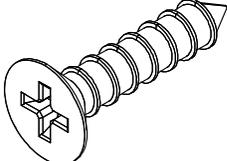
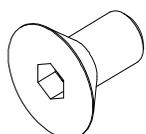
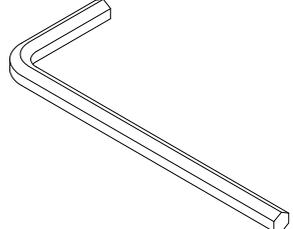
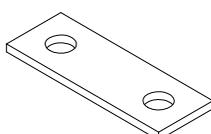
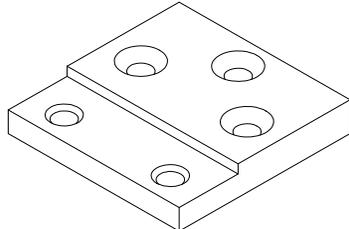
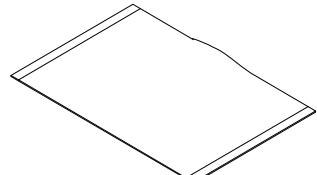
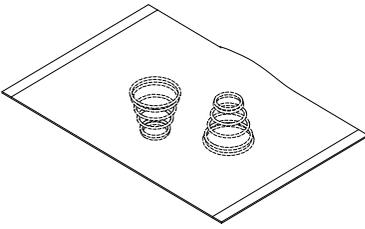


Figure 1 - SAM Series Magnalock

3.1 HARDWARE

10X		20X		1X	
					
Phillips Flat Head #10 X 3/4" Type "A"		Socket Flat Head 10-32 X 3/8"		Hex Wrench 1/8"	
8X		4X		1X	
					
Shim Plate		Flush Mount Bracket		Thread Locking Compound Pack	
1X					
Floor Install Replacement Spring Pack (2 Springs)					

4 RECOMMENDED TOOLS

- | | |
|-------------------------------------|---|
| Router or Saber Saw | 1/8" Hex Key (Allen Wrench) - included |
| Hammer | Measuring Instrument (Ruler/Tape Measure) |
| Chisel | Masking Tape |
| Center Punch | Fish Tape or Lead Wire |
| Power Drill | Wire Strippers/Cutter |
| 9/64", 13/64" & 5/16" Drill Bits | Crimp Wire Connectors |
| 3/8" Diameter X 82° Countersink Bit | Crimp Tool |
| Phillips and Standard Screwdrivers | Multimeter |

5 INSTALLATION INSTRUCTIONS

5.1 Pre-Installation Survey

It is recommended that an initial on sight survey be performed. A method of mounting should be determined and an installation plan should be reviewed as follows:

- Physical strength of mounting areas should be strong enough to meet or exceed the holding force of the required Magnalock.
- Placement of the Magnalock wiring and protection from potential damage due to intruders or vandals external attack should be considered during the survey.
- Accessibility should be considered for prevention of any potential safety hazard.

The door and frame areas additionally need to be examined for mortising capabilities, sufficient size and should be free of any internal obstructions. The top-of-door installation is recommended as the most suitable location for protection from impact attacks.

5.2 Swinging Door

The illustrations in **Figure 2** demonstrate a SAM installed in a swinging door. This is a common configuration where the Magnalock is recessed into the door frame header near the corner opposite the hinge side and the strike assembly is flush mounted into the top edge of the door. The Magnalock may be mounted horizontally or vertically depending on the installation required. The flush mount brackets shown are inserted into hollow metal door frame to provide a recessed installation.

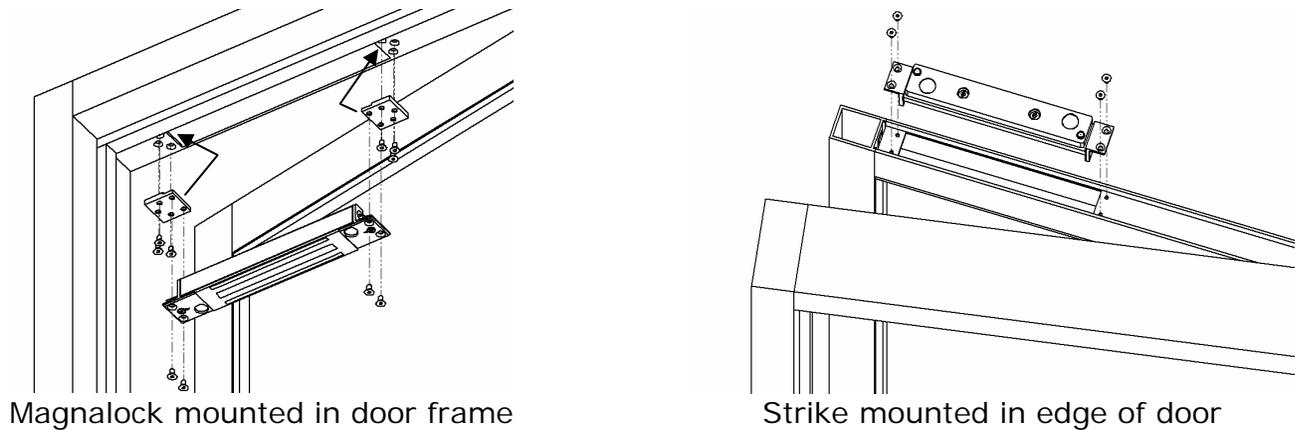


Figure 2 - Swinging door configuration

5.3 Sliding Door

The illustrations in **Figure 3** demonstrate a SAM installed in a sliding door. The Magnalock mounts recessed into the door frame header and the strike assembly is mounted into the top edge of the sliding door.

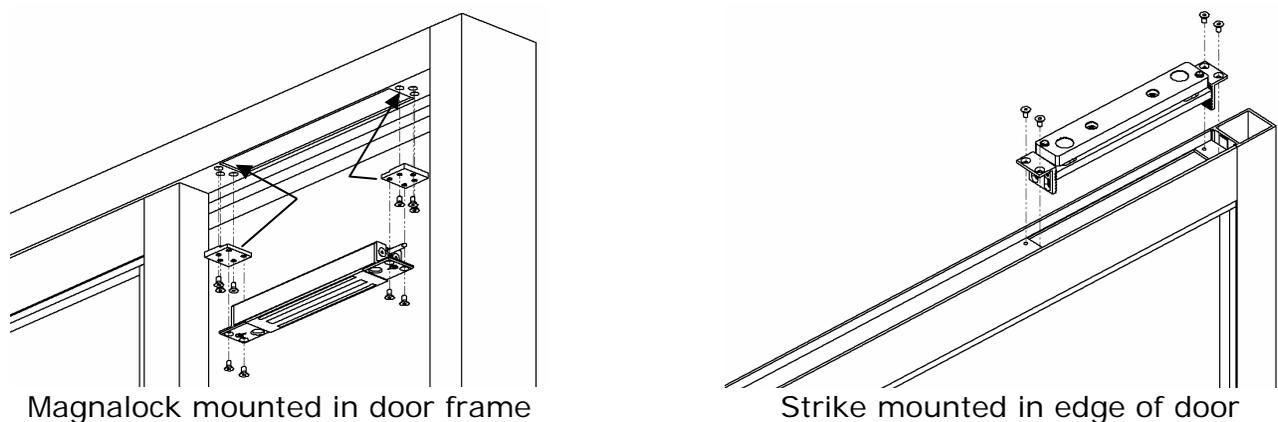


Figure 3 - Sliding door mounting configuration

5.4 Frame and Door Preparation

5.4.1 Frame Preparation

Select a mounting location for the Magnalock and strike assembly as mentioned in **Section 5.1**. The following general guideline should be used for consideration during the installation review:

- **Read and follow the directions on the template provided which includes drilling and mounting instructions.**
- An approximated 2" [51mm] clearance distance should be allowed between the Magnalock (mounting bracket) and the inside corner of the door frame. This will provide adequate access for the mounting locations and for drilling and tool access.

ALWAYS CHECK THE STRIKE MOUNTING AREA IN THE EDGE OF THE DOOR FOR OBSTACLES WHEN DETERMINING WHERE TO LOCATE THE MAGNALOCK. MAKE CERTAIN THAT THE STRIKE MOUNTING AREA DOES NOT HAVE ANY OBSTRUCTIONS (I.E. DOOR ADJUSTMENT SCREWS OR DOOR CLOSER OPERATORS) THAT MIGHT HINDER INSTALLATION - BEFORE CUTTING OR DRILLING ANY HOLES.

Locate and mark the desired lateral centerline position for the Magnalock/strike assembly on the face of the door. Using this door mark as reference, mark the same lateral center location of the Magnalock onto the door frame.

- Setting the depth center position of the Magnalock is more critical because there is not a lot of free depth in the door frame or door to accommodate any centering error. To locate the centerline in the door frame:
 - For a one-way swing door: Make sure the door is closed completely and measure the distance between the face of the door and the frame stop (usually about 1/8"). Open the door and measure the thickness of the door. Divide the thickness of the door in half (this will be the center of door) and add the distance measured between the door and stop. Measure the total distance out from the face of the stop and mark the centerline for the Magnalock.
 - For a bi-directional swing door: Ensure the door is in the centered at-rest position. (A door closer may require adjustment). Using a pencil, trace the inside and outside edges of the door onto the frame. Measure half the distance between these two marked door silhouette lines and mark the centerline for the Magnalock.
- Using the Magnalock mounting information in **Section 5.5** and the lock template provided, align the appropriate template into position on the frame and mark the mortise cutout area.
- Using a router or saber saw, or chisel (for wood) cut out the area for the Magnalock mounting. Insert the Magnalock into the frame and mark the bracket locations for the mounting holes.
- Using the drill size information on the template and a power drill, bore the holes required.

5.4.2 Door Preparation

- Locate the previously marked lateral centerline position for the strike assembly on the face of the door.
- Open the door and measure the total depth distance (thickness) of the door. Divide this distance in half to locate the depth centerline of the strike assembly.
- Using the strike assembly mounting information in **Section 5.6** and the strike template provided, center the template into position on the door and mark the mortise cutout area.
- Using a router, saber saw or chisel (for wood) cut out the area for the strike assembly mounting. Insert the strike assembly into the door and mark the bracket locations for the mounting holes.
- Using the drill size information on the template and a power drill, bore the holes required.

IF MOUNTING THE STRIKE AT THE BOTTOM OF THE DOOR (FLOOR MOUNT) IS CHOSEN, THE TWO (2) IDLE PLATE SPRINGS IN THE STRIKE ASSEMBLY NEED TO BE REPLACED WITH THE ALTERNATE SET OF IDLE SPRINGS PROVIDED IN THE HARDWARE PACK.

5.5 Mounting the Magnalock

The desired cable exit location should be determined prior to installing the Magnalock. The Magnalock is symmetrical which allows the cable exit from either end into the door frame. There are many different techniques for mounting the Magnalock depending on the type or style of doors and frames. The following sections describe installation methods for use on hollow aluminum, steel and wood type doors and frames.

5.5.1 Hollow Metal Door Frames

Prepare the door frame in accordance with **Section 5.4.1**.

Place the Magnalock into the cutout area to ensure proper fit. As necessary, perform any filing or cutting necessary to ensure the mortised fit. Ensure all necessary holes required to mount the Magnalock and flush mount brackets into place as indicated on the template have been provided. Install the Magnalock using a hex wrench, the listed mounting screws and the flush mount brackets as shown in **Figures 4** and **5** below.

The adaptation to variation in frame material thicknesses can be obtained by flipping the orientation of the flush mount brackets. Shim plates are also provided which may be used in conjunction with the flush mount brackets to create the desired exposed height of the Magnalock and/or to compensate for the various material thicknesses of door frames.

It is recommended that the **Magnalock face protrude approximately 1/16" [1.6mm]** beyond the surface of the frame. Both **Figures 4 and 5** show a shim plate between the lock mounting bracket and the flush mount bracket in order to raise the Magnalock above the frame surface.

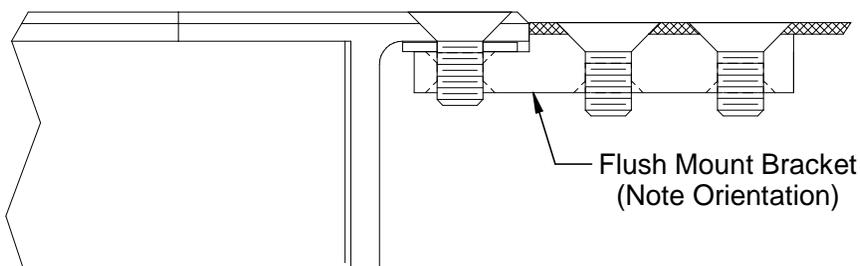


Figure 4 - Flush mount bracket mounting (thin wall frame)

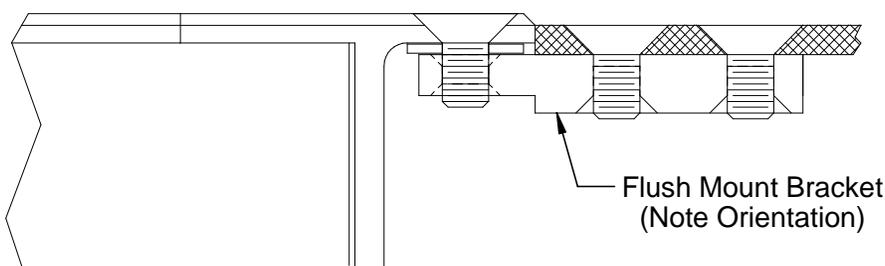


Figure 5 - Flush mount bracket mounting (thick wall frame)

APPLY THE PROVIDED THREAD LOCKING COMPOUND TO ALL MOUNTING SCREW THREADS.

5.5.2 Solid Wood Door Frames

Prepare the door frame in accordance with **Section 5.4.1**.

Place the Magnalock into the cutout area to ensure proper fit. As necessary, perform any filing or chiseling necessary to ensure the mortised fit. Ensure all necessary holes required to mount the Magnalock into place as indicated on the template have been provided. The depth of the mortise cut out is important for proper fit. The minimum depth of the cutout is noted in **Figure 6** below and includes enough distance for the required recess depth of 1/16" [1.6mm] for the mounting brackets. Install the Magnalock using the wood mounting screws as shown in **Figure 6**.

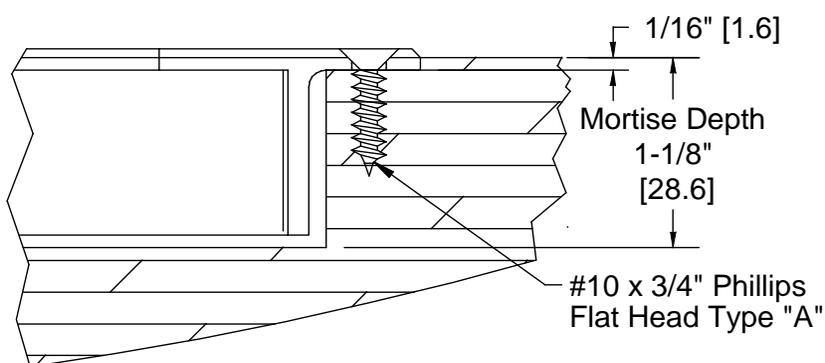


Figure 6 - Wood frame lock bracket mounting

5.6 Mounting the Strike Assembly

The strike plate mounting method varies with the type of door being used. The included template provides preparation and installation information for the various types of doors. The following sections describe the door type and installation procedures.

The strike bracket assembly has been designed with adjustment features which are intended to help accurately install and adjust the strike assembly for proper operation. The two L-shaped end brackets and the idle bracket of the assembly are serrated to provide a secure locking adjustment of the height of the strike in the door edge. The end brackets have obround slots to limit the adjustment travel and to support the structure of the assembly. By loosening the screws at each end, the brackets can be adjusted to the desired mounting height.

The serrations on the brackets are .050" [1.3mm] apart which matches the screw thread pitch distance that mounts the strike. This feature will be explained during the final adjustment in **Section 5.7**. These end brackets may also be inverted to provide for deeper mounting configurations. See **Figure 8** and **Figure 9** for adjustable ranges and mounting methods.

THE POSITION OF THE CENTERLINE OF THE STRIKE ASSEMBLY IS CRITICALLY RELATED TO THE CENTERLINE OF THE MAGNALOCK LOCATION.

5.6.1 Hollow Metal Door (Flush Top)

Prepare the door in accordance with **Section 5.4.2**.

Mounting the strike assembly into a door with flush outside surfaces utilizes the same methods as mounting the Magnalock into a hollow metal type frame. **Figure 7** below shows a typical installation in a flush type aluminum door. In this process the flush mount brackets are used to suspend the strike assembly into the door. Make the necessary adjustments to the end brackets of the strike assembly to set the initial strike height in the door installation. The flush mount brackets may be installed in either direction (see **Figures 4** and **5**) to set the appropriate flush mounting condition, and the provided shim plates may also be used to assist in further adjustment of the installation. Use a hex wrench and the provided mounting screws to complete the installation.

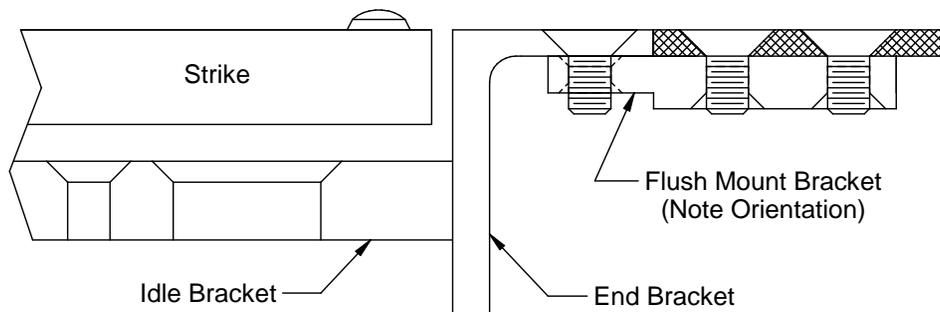


Figure 7 - Hollow frame strike assembly mounting

APPLY THE PROVIDED THREAD LOCKING COMPOUND TO ALL MOUNTING SCREW THREADS.

5.6.2 Hollow Aluminum Door (Shallow Recess Top)

Prepare the door in accordance with **Section 5.4.2**.

If the door has a shallow recess within the range indicated in **Figure 8**, a cut out area will be required to insert the strike assembly. Cut out the strike mounting area using a router or saber saw. The templates provided specify the dimensions of the cutouts and the locations of the holes for proper mounting. In this process the flush mount brackets are not required because the strike can mount suspended in the door using the door edge only. Make the necessary adjustments to the end brackets to set the initial strike height in the door installation. If necessary, the provided shim plates may be used under the bracket mounts to create the proper mount distance.

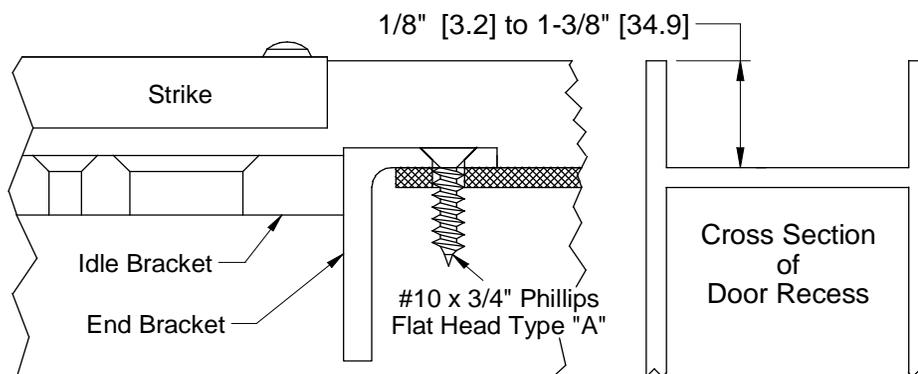


Figure 8 - Shallow recess door strike mounting

5.6.3 Hollow Aluminum Door (Deep Recess Top)

For mounting of the strike assembly into doors with deep recessed surfaces as shown in **Figure 9**, no cutout for the strike assembly is required. Remove and invert the end brackets to increase the height range of the strike bracket assembly. The strike will mount staged from the bottom of the door recess by using the frame only. Make the necessary adjustments to the end brackets to set the strike height in the door installation.

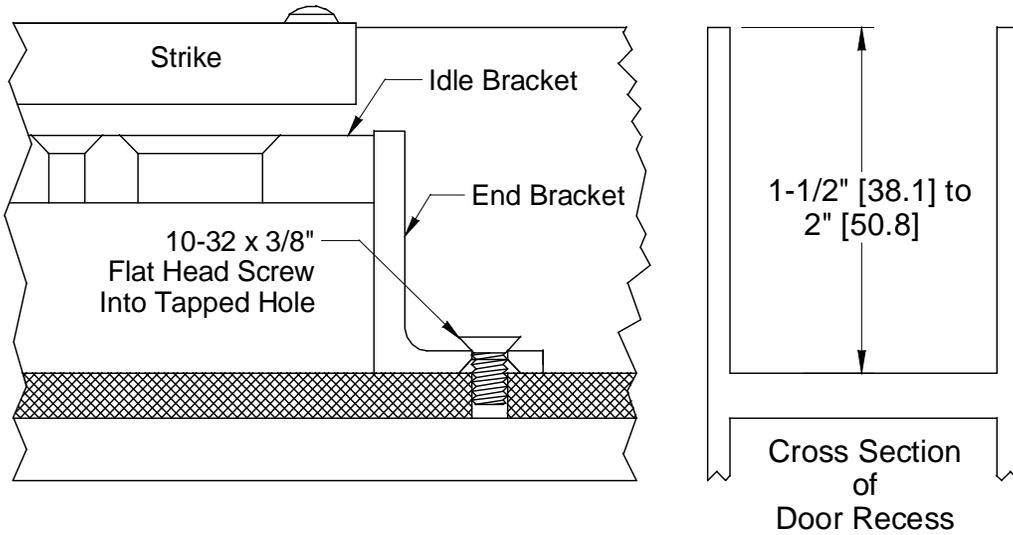


Figure 9 - Deep recess door strike mounting

APPLY THE PROVIDED THREAD LOCKING COMPOUND TO ALL MOUNTING SCREW THREADS.

5.6.4 Hard Core Wood Door

Prepare the door in accordance with **Section 5.4.2**.

For mounting into hard core (solid) wood doors the strike assembly may be mounted with or without the end brackets attached. The door cutout requires a mortise area for the strike base assembly with sizes that are dependent on whether the end brackets are used or not (see template). The depth requirements are illustrated in **Figures 10** and **11**. If the installation does not require use of the end brackets (as shown in **Figure 10**), the installer must be accurate on the depth of the cutout. (If the mortised cutout is too shallow it will not allow enough room for the strike to be adjusted down any lower and the door operation may be hindered. If the cutout is too deep, shimming may be necessary to adjust the idle bracket height in the installation). When the end brackets are used, the cutout area requires a minimum depth (shown in **Figure 11**) and because of the adjustability in the end brackets, cutting the recess too deep will not affect the installation.

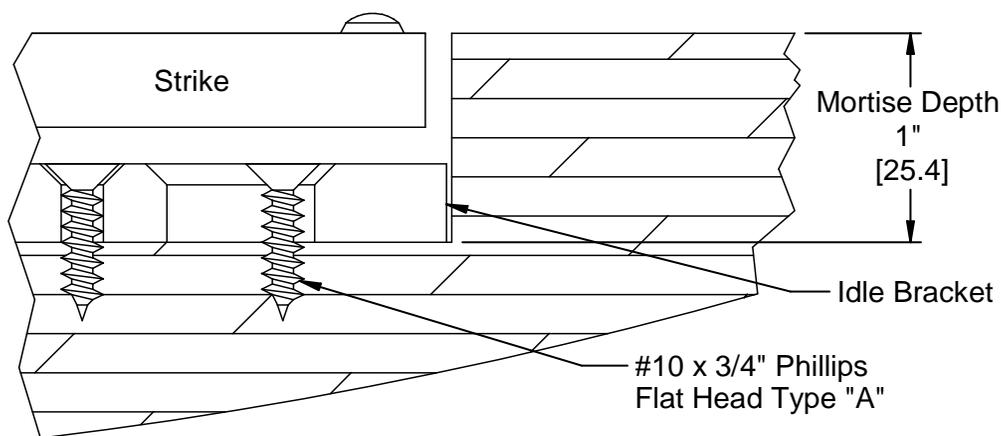


Figure 10 - Wood door strike mounting without brackets

5.6.5 Soft Core Wood Door

Use of the end brackets is recommended when installing the strike assembly on soft core wood style doors because a "pocketed" soft core door is not as strong in supporting the lateral forces applied to the strike assembly. Use of the end brackets will provide a much more sound and secure anchoring platform for the installation. Refer to **Section 5.6** for use and adjustment of the end brackets. **Figure 11** illustrates the dimensional requirements of the cutout necessary for installation into wood doors using the strike end brackets.

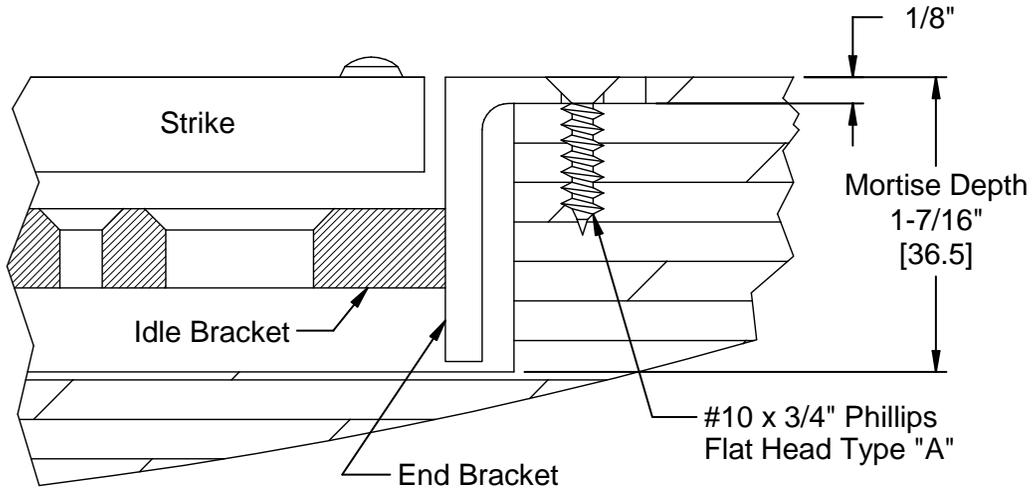


Figure 11 - Wood door strike mounting with brackets

5.6.6 Magnalock/Strike Installation for "B" and "D" SAM Locks

IMPORTANT!
PLEASE READ AND APPLY THIS INFORMATION WHEN ALIGNING/INSTALLING THE LOCK AND STRIKE. THE ALIGNMENT TOLERANCES INDICATED FOR THE SAM LOCK MODEL ARE CONSIDERED CRITICAL FOR THE PROPER OPERATION OF BOTH THE MAGNETIC BOND SENSING (MBS) AND DOOR POSITION SENSING (DPS) SYSTEMS!

SENSOR RANGES (PHYSICAL POSITIONING):

The *BondSTAT* "B" and DPS "D" Magnalock "Secure Zone" sensing range for the SAM lock model is as follows:

Secure Sensor Indication Range (Dimensions from Center)		
Model	"X" (+/-)	"Y" (+/-)
SAM	5/32" [4.0]	5/64" [2.0]

Table A

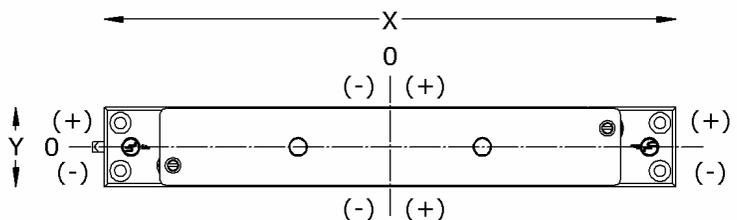


Figure 12

(The **Figure 12** illustration is a visual reference to the sensing range outlined in **Table A**).

*****SPECIAL NOTE FOR SAM "D" MAGNALOCK (DOUBLE TRIGGER NOTIFICATION)*****

The Magnalock mounting direction in slider doors should be considered critical for proper operation.

For SAM "D" units, the Magnalock position should be installed with the cable furthest from the door closing face as shown in **Figure 13**. This allows proper sensing of the door operation. If the Magnalock direction is reversed the reed switch will be triggered by both actuator magnets in the face of the strike assembly. Double triggering may cause inaccurate signals to access/alarm control devices attached.

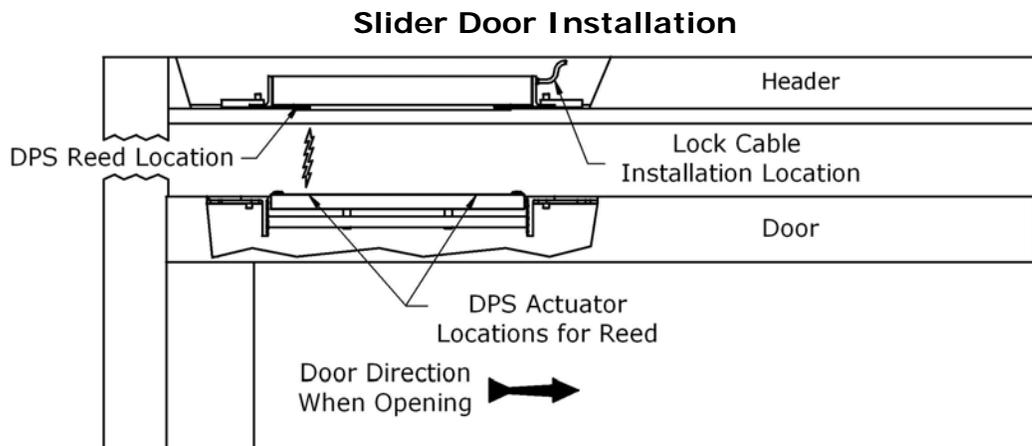


Figure 13

5.7 Strike Assembly Final Adjustments

5.7.1 Strike Level Adjustment (De-energized)

De-energized adjustment of the strike height is important for proper door/lock operations. The example in **Figure 14** illustrates the Magnalock with the proper adjustment. Without power applied to the Magnalock, both of the (conical) interference buttons should just clear the lock brackets. Check this by opening and closing the door. To adjust the clearance to be closer, turn each of the strike adjustment (shoulder) screws (located in the center of the strike) counter-clockwise 1/4 turn, one at a time and recheck the clearances. (Both screws do not have to be adjusted the same amount of turns). The adjustments should be made independently so that the strike level is uniform to the door frame and Magnalock installation. **The strike screws are allowed up to two (2) full turns of adjustment each.** If the adjustment required is two (2) full turns or greater, then tighten the screws clockwise back to the down position, loosen the end bracket screws and adjust the end brackets the amount of notches necessary to enable the final adjustments. Repeat adjustments as necessary until a properly functioning gap setting is achieved.

THE INITIAL SETTING OF THE STRIKE ADJUSTMENT (SHOULDER) SCREWS SHOULD BE NO MORE THAN TWO (2) TURNS OUT. THIS WILL ALLOW A LARGER ADJUSTMENT RANGE TO ACCOMMODATE POTENTIAL FUTURE DOOR SAG.

THE CONICAL INTERFERENCE BUTTONS ON THE STRIKE PLATE SHOULD JUST CLEAR THE LOCK BRACKET SURFACES TO INSURE THE CORRECT GAP.

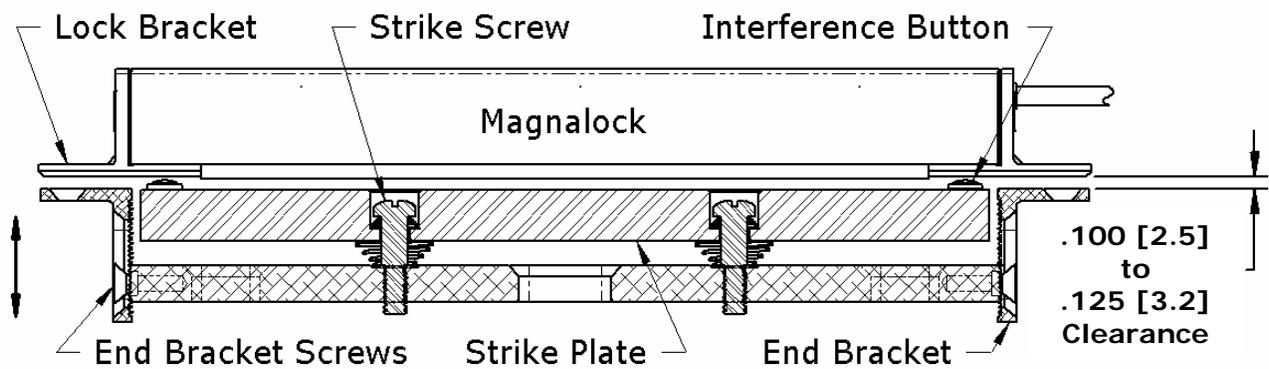


Figure 14 - Magnalock and strike assembly (side view)

5.7.2 Strike Level Adjustment Testing (Energized)

Energized adjustment testing of the strike height is important for proper door/lock operations. This adjustment should be performed after the de-energized adjustment, illustrated in **Section 5.7.1**. With the door closed and the Magnalock de-energized, apply power to the Magnalock. The strike should be pulled up against the Magnalock face. De-energize the Magnalock and the strike should return to the previously adjusted height. This function should be tested several times to insure that the strike level adjustment is correct. If the strike is not pulled up to the face of the Magnalock, the strike is too far away from the Magnalock. Make small 1/4 turn adjustments to the strike screws until the correct level and clearances are obtained for proper function.

A second test should be performed with the door starting from the opened position. Apply power to the Magnalock and then close the door under normal operations. The strike should be

attracted to the Magnalock, but the strike and the interference buttons should pass completely into the locking position to secure the door. Test this operation several times to ensure consistent operation of the Magnalock/strike installation.

WHEN THE MAGNALOCK IS ENERGIZED FOR A CONTINUOUS DUTY MODE, THE ADJUSTMENTS MADE MAKE IT A POSITIVE LOCKING MODE FOR CONTROLLED ACCESS. IF THE MAGNALOCK IS SET FOR CONTINUOUS DUTY, THE EXIT REQUEST ALLOWS THE STRIKE TO DROP AWAY AND CLEAR FOR SMOOTH EGRESS. WHEN THE MAGNALOCK BECOMES ENERGIZED, WHILE THE DOOR IS STILL IN THE OPENED POSITION, THE DOOR CLOSING AND LOCKING FEATURES WILL STILL FUNCTION, WHEN THE DOOR CLOSES, THE STRIKE REALIGNS BACK TO THE LOCKING POSITION TO SECURE. THERE SHOULD BE NO INTERFERENCES THAT PREVENT THE DOOR FROM CLOSING OR BECOMING SECURE.

5.8 Mounting on Motorized Bi-Parting Doors

Bi-Parting Motorized Doors are commonly found on the perimeters of large retail stores or supermarkets. One (1) or two (2) doors electrically slide open for entering or exiting purposes. They are typically activated by either a motion detector or pressure sensitive type mat. The doors are also designed to allow emergency egress in the event of a fire. The emergency egress is allowed by a fail safe condition to the door. This is used to turn off any lock peripherals or motor devices that operate or secure the door. The door is designed with a secondary directional movement to swing open which is called "breakaway".

Doors that are set to remain locked, after the establishment has closed, have the possibility of accessing the breakaway feature by prying the door open. Installing a SAM Magnalock in the door for access control will help resist the possibility to enter through the breakaway feature.

6 ELECTRICAL INSTALLATION

6.1 General Characteristics

The Magnalock is a low current load device using specialized internal circuitry. The normal characteristic of an inductive load, such as inductive kick-back, is not present. See **Section 2** for more information.

6.2 Electrical Standards

DC voltage, full-wave rectified, must be provided for proper operation of the Magnalock. The red wire receives +12VDC or +24VDC, and the black wire, 0 Volts (negative). If the Magnalock is connected with reverse polarity, it will not operate. The SAM Series Magnalocks are auto sensing dual voltage locks. The Magnalock circuit design will automatically select the proper operational conditions for the applied voltage.

6.3 Poor Release Characteristics

The SAM Magnalock is designed with quick release operation. Wiring errors may cause a Magnalock to release slowly. **Figure 15** illustrates a parallel installation of a resistive load (correct). **Figure 16** illustrates a parallel reverse diode (incorrect).

SLOW RELEASE PREVENTION (WIRING CONSIDERATION)

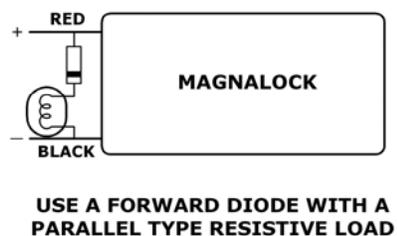


Figure 15

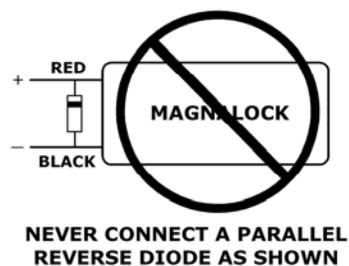


Figure 16

6.4 Sensor Ranges (ELECTRICAL)

The SAM "B" version monitoring system is also voltage sensitive. The specified voltage ranges must be properly applied. Refer to **Section 2** for the recommended operating voltage ranges.

6.5 Electrical Wiring

The following diagrams, **Figures 17, 18, 19 and 20** represent the proper electrical wiring connections required for SAM Magnalock Standard, and for SAM BondSTAT "B", DPS "D" and "BD" versions.

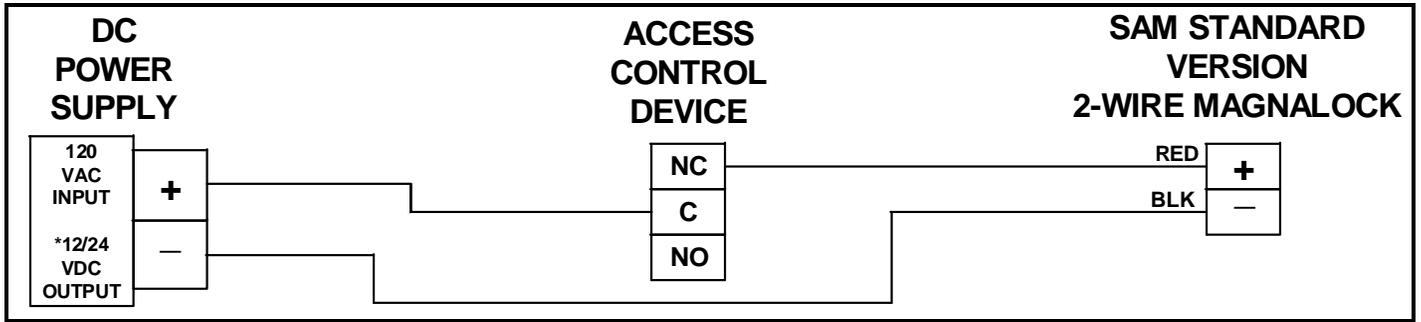


Figure 17

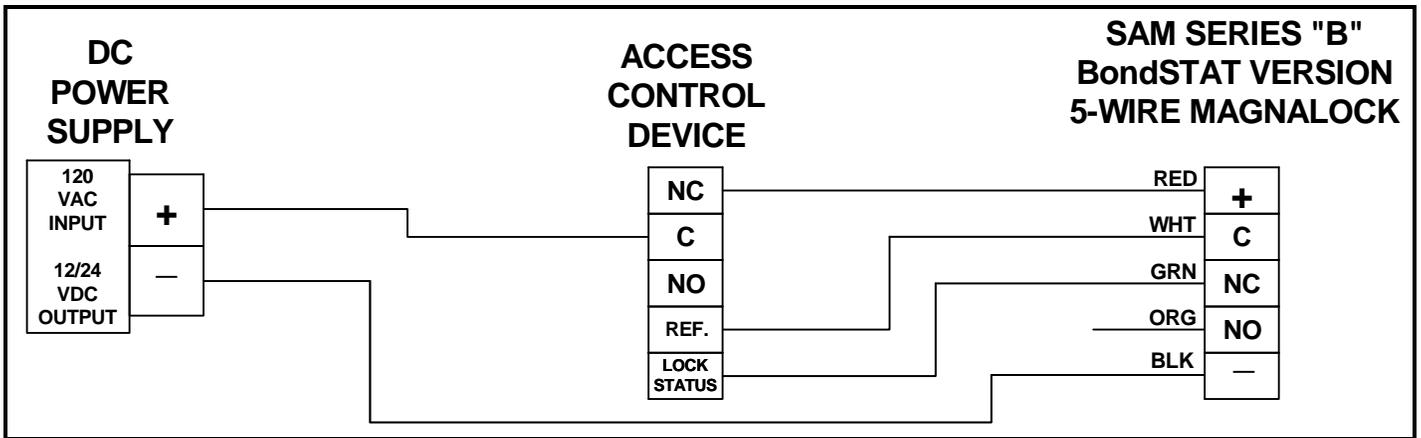


Figure 18

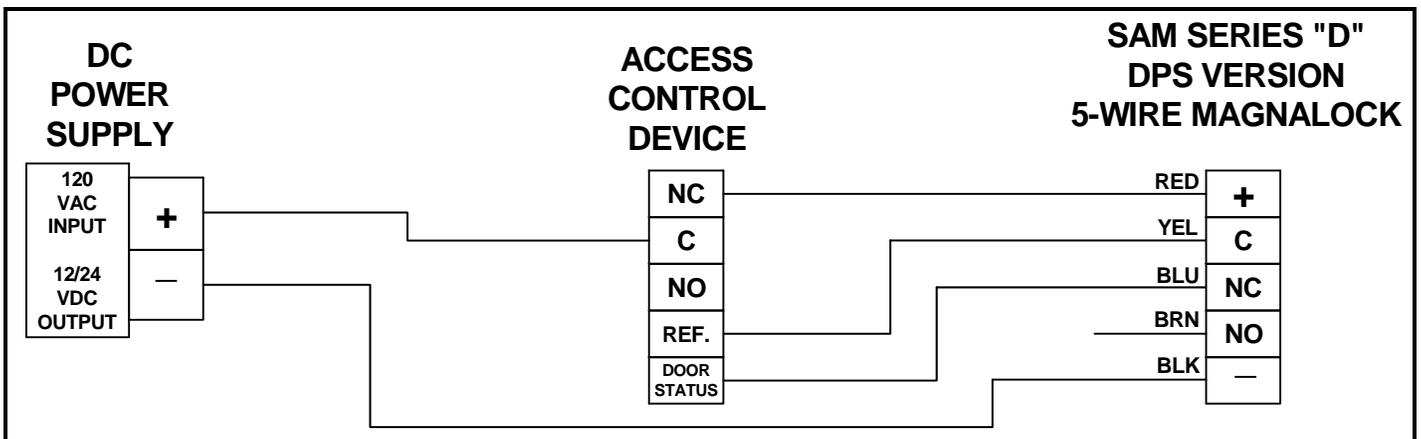


Figure 19

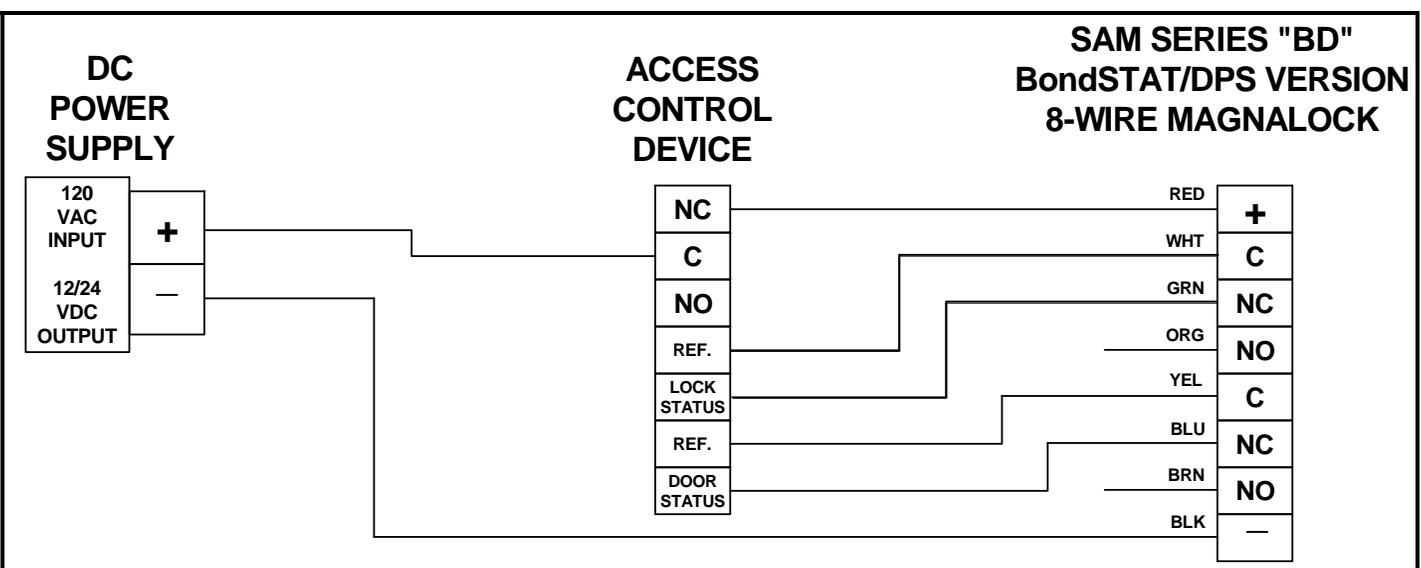


Figure 20

6.6 BondSTAT Sensor status wiring description

- The green and white wires supply electrical connection when the lock is ON and secure.
- The orange and white wires supply electrical connection when the lock is OFF or unsecure.

6.7 DPS – Door Position Sensor status wiring description

- The blue and yellow wires supply electrical connection when the door condition is closed.
- The brown and yellow wires supply electrical connection when the door condition is open.

6.8 Double Door Status Wiring - BondSTAT

When two Magnalocks are used for double door installation the *BondSTAT* contacts should be wired in series for proper reporting. Connect the green wire of one lock to the white wire of the other as shown below in **Figure 21**.

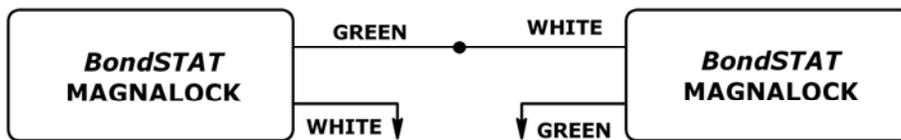


Figure 21

6.9 Double Door Status Wiring - DPS

When two Magnalocks are used for double door installation the *DPS* contacts should be wired in series for proper reporting. Connect the blue wire of one lock to the yellow wire of the other as shown below in **Figure 22**.



Figure 22

6.10 Emergency Release

Magnalocks are often wired into a system for quick release in case of emergency. Manual switching or automatic triggering from a fire alarm system is practical. It is the user's responsibility to correctly hookup the Magnalock according to the instructions. It is recommended to use a switch or relay to perform break of power. Securitron power supplies have terminals for the interconnection of such emergency release switches.

THE END USER AND INSTALLER ARE LIABLE FOR ALL FIRE AND BUILDING CODE COMPLIANCE.

7 SPECIALIZED MOUNTING BRACKETS AND STRIKES

- **SMLS – Surface Mount Lock Housing** is a brushed stainless steel bracket/housing for surface mounting the SAM Magnalock in installations where mortising the lock is not possible.
- **SMSS – Surface Mount Strike Housing** is a brushed stainless steel bracket/housing for surface mounting the SAM strike assembly in installations where mortising the strike is not possible.
- **SWB – SAM Wood Bracket** is a U-shaped (wrap style) reinforcement bracket used when mortising the SAM strike assembly into the edge of a 1-3/4" thick wooden door. The bracket is available in three different architectural finishes (US3, US10B and US26D).
- **SAMN - Narrow Strike** – The SAMN is a standard SAM Magnalock with a narrow strike assembly provided for installations where the standard width strike will not fit. (The narrow strike is not available in the "B" or "D" versions of the SAM series Magnalock).

8 MAGNALOCK MAINTENANCE

8.1 Visual Inspection

- Check the strike assembly for proper gap, suspension and free movement. Tighten strike adjustment screws as required.
- Check for build-up of debris on the Magnalock and strike armature. Clean as required.
- Check for rust on the Magnalock and strike assembly. Clean as required.

8.2 Cleaning Methods

- Cleaning once a year is recommended.
- Clean every six months where minor rusting occurs.
- Clean every three months if rust conditions are severe.
- Use a plastic dishwashing scrub pad to aid in the removal of rust.

**DO NOT USE PETROLEUM BASED PRODUCTS FOR CLEANING
DO NOT USE STEEL WOOL BASED SCRUB PAD OR SANDPAPER**

8.2.1 Indoor Applications

- Apply rubbing alcohol onto a clean cloth and thoroughly wipe down the Magnalock and strike plate armature.

8.2.2 Outdoor Applications

- Apply a silicone based cleaner/lubricant onto a clean cloth and thoroughly wipe down Magnalock and strike plate armature.

Example: Super Lube® Aerosol with SYNCOLON® (PTFE)
Part No.: 31040 ~ 6oz. / 31110 ~ 11 oz. / 32015 ~ 14 oz.
Phone: (631) 567-5300 / Website: www.super-lube.com

APPENDIX A

Troubleshooting

Problem	Lock Does Not Generate a Magnetic Field	Points of Reference
Solution	Check for specified voltage at Magnalock	Section 2
	Check for specified current draw at Magnalock	Section 2

Problem	Reduced Holding Force	Points of Reference
Solution	Check DC power source is Full-Wave Rectified (Half-wave Rectifier or AC Power unacceptable)	Section 6.2
	Check for specified voltage at Magnalock	Section 2
	Check for specified current draw at Magnalock	Section 2
	Check strike mounting for proper installation	Sections 5.6-5.7
	Check the Magnalock and strike for obstructions and that contact surfaces are properly cleaned	Section 8

Problem	BondSTAT Does Not Report Secure	Points of Reference
Solution	Check for specified voltage at Magnalock	Section 2
	Check for specified current draw at Magnalock	Section 2
	Check strike mounting for proper alignment and pivoting for proper closure to Magnalock	Table A / Section 5.6.6
	Check the Magnalock and strike for obstructions and that contact surfaces are properly cleaned	Section 8

Problem	DPS Does Not Report Door Status	Points of Reference
Solution	Check strike mounting for proper alignment	Table A / Section 5.6.6
	Check for proper door closure	Section 8.1
	Check for proper voltage/current on switch	Section 2
	Check resettable protection device	Section 1

Problem	The Magnalock Does Not Release	Points of Reference
Solution	Make sure no voltage is present at Magnalock	Section 2
	Make sure the Magnalock is not drawing current	Section 2
	Check if the strike is sticky and hard to release	Section 8
	Check the Magnalock and strike for obstructions and that contact surfaces are properly cleaned	Section 8

Problem	The Magnalock is Dirty or Rusty	Points of Reference
Solution	Improper cleaning – Maintenance Equipment	Section 8

Problem	Electronic Noise Interference with Access Control System	Points of Reference
Solution	Check for voltage from Magnalock to door frame. There should be no voltage present.	Section 2

**IF PROBLEMS PERSIST CALL SECURITRON TOLL FREE
(800) MAG-LOCK
(800) 624-5625**

Appendix B

Wire Gauge Factoring

1.1 Remote Power Supply

- The Magnalock requires adequate voltage and current for proper operation.
- Resistance is created by the length and gauge (size) of the wire being used.
- An accurate estimated distance from the power supply to the opening is crucial.
- For superior operation the correct size gauge wire must be used.
- The devices used operate the best with the least amount of resistance on the source.
- Using the correct gauge wires protects against large voltage and current (load) losses.
- The gauge is determined by the wire distance, voltage and current of all devices.

1.2 Determining Wire Gauge

- Follow **Example A** (12VDC system) and **Example B** (24VDC system) below.
- Use **Tables 1** and **Table 2** to choose the correct wire gauge for the application.

1.2.1 Example A: (12VDC system)

Devices Used	Amps (12VDC)
SAM Magnalock	0.320
DK-26 Access	0.160
XMS Motion Detector	0.050
EEB2 Timer	0.025
Total Current (0.555A) Rounded Up =	0.600A

Using **Table 1** (12VDC) Find: - Current Draw .600 Amps
- Wire Distance 200 Feet [61m] (One-Way)

Solution: 18 Gauge is indicated for proper installation

1.2.2 Example B: (24VDC system)

Devices Used	24VDC Amps
SAM Magnalock	0.320
DK-11 Access	0.070
XDT-24 Delay	0.050
Total Current (0.440A) Rounded Up =	0.600A

Using **Table 2 (24VDC)** Find: - Current Draw .600 Amps
 - Wire Distance 1000 Feet [305m] (One-Way)

Solution: 14 Gauge is indicated for proper installation

TO SOLVE: INTERSECT ROW (Total Current Draw) and INTERSECTING COLUMN (One-Way Wire Distance).

CURRENT	1.00A	20 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge	12 Gauge	10 Gauge	10 Gauge	8 Gauge
	.800A	22 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge	12 Gauge	10 Gauge	10 Gauge	8 Gauge
	.600A	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge	12 Gauge	10 Gauge
	.400A	22 Gauge	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge	12 Gauge
	.300A	24 Gauge	22 Gauge	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge
	.200A	24 Gauge	22 Gauge	22 Gauge	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge
12VDC		50' [15m]	100' [30m]	150' [46m]	200' [61m]	300' [91m]	400' [122m]	500' [152m]	750' [229m]	1000' [305m]
		WIRE DISTANCE								

Table 1

CURRENT	1.00A	22 Gauge	20 Gauge	20 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge	12 Gauge	10 Gauge
	.800A	22 Gauge	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge	12 Gauge
	.600A	24 Gauge	22 Gauge	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge	14 Gauge
	.400A	24 Gauge	22 Gauge	22 Gauge	22 Gauge	20 Gauge	18 Gauge	18 Gauge	16 Gauge	14 Gauge
	.300A	24 Gauge	24 Gauge	22 Gauge	22 Gauge	22 Gauge	20 Gauge	20 Gauge	18 Gauge	16 Gauge
	.200A	24 Gauge	24 Gauge	24 Gauge	22 Gauge	22 Gauge	22 Gauge	20 Gauge	20 Gauge	18 Gauge
24VDC		50' [15m]	100' [30m]	150' [46m]	200' [61m]	300' [91m]	400' [122m]	500' [152m]	750' [229m]	1000' [305m]
		WIRE DISTANCE								

Table 2

- The Wire Distance indicated on the table above represents a 2-wire "One-Way" length from the power supply source to entryway installation area.
- The Gauge values specified on the table above represent a 2-wire "Round Trip" length from the power supply source to entryway installation and returning back to the power supply source.

IMPORTANT

THE 200' [61m] WIRE RUN IN EACH TABLE FACTORS A 400' [122m] ROUND TRIP

MAGNACARE® LIFETIME REPLACEMENT WARRANTY

For warranty information visit www.securitron.com/en/site/securitron/About/MagnaCare-Warranty/

PATENTS

The Securitron Shear Aligning Magnalock is listed under U.S. patent #4,516,114 and 6,007,119.

Additional patents pending