SECO-LARM®

Electromagnetic Lock

E-941Sx-600 / E-941Sx-1200

Manual

SIGNALING UL LISTED 5NR4

Identification of: NFPA Standards 70 and 72



CAUTION

The electromagnet lock requires a face-to-face fitting as shown in figure otherwise, the holding force will be greatly decreased (direction of hydraulic press pull must be collinear).

CAUTION

Remove any diode installed across the magnetic lock for spike suppression. The magnet is fitted with a metal oxide varistor to prevent back EMF.

WARNING

Warnings indicate potentially hazardous conditions, which if not avoided or corrected may cause death or serious injury

CAUTION

Cautions indicate potentially hazardous conditions, which if not avoided or corrected, may cause minor or moderate injury. Cautions may also warn against unsafe practices.

NOTICE

Notices indicates a condition that may cause equipment or properly damage only.

Model	Holding Force	Material	Color
E-941SA-600	600-lb (272kg)	Anodized Aluminum	Aluminum
E-941SA-1200	1,200-lb (545kg)	Anodized Aluminum	Aluminum
E-941SB-600	600-lb (272kg)	Anodized Aluminum	Black
E-941SB-1200	1,200-lb (545kg)	Anodized Aluminum	Black
E-941SD-600	600-lb (272kg)	Anodized Aluminum	Dark Bronze
E-941SD-1200	1,200-lb (545kg)	Anodized Aluminum	Dark Bronze

Use only Hardware provided with these products for mounting. Door thickness should be 1 3/4" thick, otherwise different sex nut will be required. Door Header shall be minimum 2 3/4" thick and flat surface is needed to securely mount screws for magnet, may need filler plates or angle bracket to mount magnet correctly.

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Introduction:

The E-941Sx series of electromagnetic locks is the ideal way to secure a door against unauthorized entry. When power is applied to the electromagnetic lock, it creates an extremely strong magnetic field. The electromagnet is strongly attracted to the steel armature plate which is mounted on the secured door. Once the electromagnet is deactivated, the secured door will function normally without any residual magnetism.

Features:

- MOV surge protection.
- Adjustable mounting bracket.
- Complete mounting hardware for typical installations.
- "L" bracket and "Z" brackets available for easy mounting.
- UL294 Indoor use, UL1034 Indoor use, UL864 indoor dry use
- Detachable faceplate
- 12/24VDC selectable
- The products shall not impair the intended operation of an emergency exit or panic hardware mounted on the door
- The power for the E-941Sx-600 / E-941Sx-1200 is to be provided by a Listed (UL294, UL603, also UL864 or UL1481 for standalone power supply) Class 2 Power Supply.
- The E-941Sx-600 / E-941Sx-1200 is intended to be used in combination with access control and/or commercial fire alarm panel. which are installed in accordance with the manufacturer's Installation and operation instructions, ANSI/NFPA 70 & NFPA 72 and the local authority having jurisdiction.

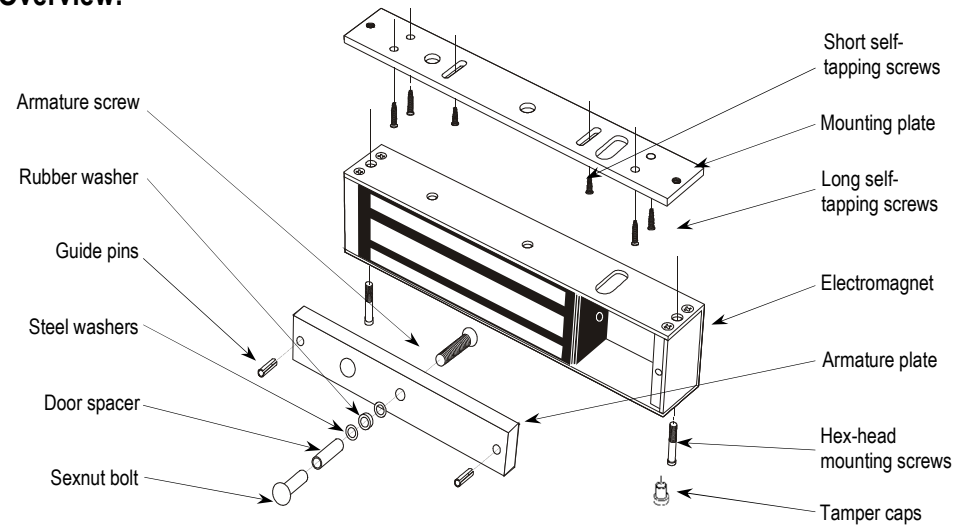
Parts List:

1x	Mounting plate	1x	Armature plate	2x	Steel washers
1x	Electromagnet	1x	Armature screw	1x	Rubber washer
1x	Door spacer	1x	Sexnut bolt	2x	Guide pins
4x	Long self-tapping screws	2x	Short self-tapping screws	2x	Tamper caps
2x	Hex-head mounting screws	2x	Hex wrenches		

Specifications:

Model		**E-941Sx-600**	**E-941Sx-1200**
Operating voltage		12 or 24 VDC	
Current draw	12VDC	500mA	
	24VDC	250mA	
Door thickness (max.)		2" (50mm)	$1\frac{13}{16}$" (46mm)
Holding force		600-lb (272kg)	1,200-lb (545kg)
Dimensions	Magnet	$9\frac{13}{16}$"x1"x$1\frac{11}{16}$" (250x25x42.5 mm)	$10\frac{1}{2}$"x$1\frac{9}{16}$"x$2\frac{5}{8}$" (267x40x67 mm)
	Mounting plate	$9\frac{13}{16}$"x1"x$\frac{3}{16}$" (250x25x5 mm)	$10\frac{1}{2}$"x$1\frac{9}{16}$"x$\frac{1}{4}$" (267x40x5.5 mm)
	Armature plate	$7\frac{1}{4}$"x$\frac{5}{8}$"x$1\frac{5}{8}$" (185x16x42 mm)	$7\frac{1}{4}$"x$\frac{5}{8}$"x$2\frac{3}{8}$" (185x16x61 mm)
Operating humidity		0~85 (non-condensing)	
Operating temperature		32°~120° F (0°~49° C)	
Lock surface temperature		≤ Ambient temperature ± 68° F (20° C)	
Destructive attack		Level I	
Line security		Level I	
Standby power		Level I	
Endurance		Level IV	
UL 1034 Rating			
Static strength		500-lb	1,000-lb
Dynamic strength		50 ft-lb	70 ft-lb
Endurance		250,000 cycles	

Overview:

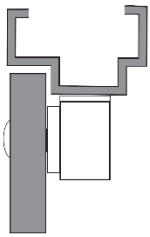


Installation Applications:

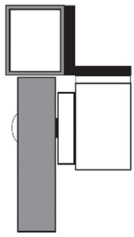
NOTE: When mounting the electromagnet, it may be necessary to use a "Z"-bracket, 1 or 2 "L"- brackets, depending on the location and the type of door and frame. Use the diagram below to help decide whether or not an optional bracket will be necessary for installation.

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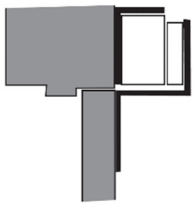
Typical Installation



"L" Bracket

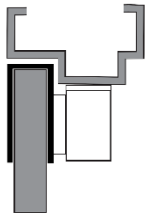


"L"-Bracket and "Z"-Bracket



"U" Bracket

(Typically for glass doors)

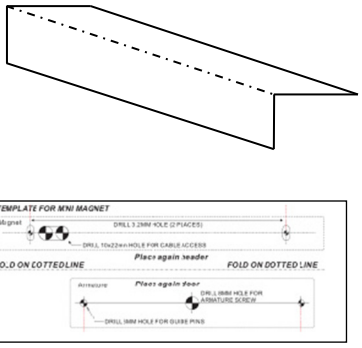


Installation Notes:

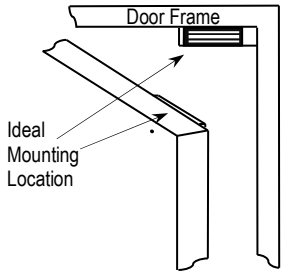
1. Read this installation manual thoroughly. A clear understanding of the product and this manual will make installation much easier.
2. The electromagnetic lock is designed for indoor use ONLY.
3. The most suitable mounting location for the electromagnetic lock may require the use of additional SECO-LARM accessories such as Z-brackets, and L-brackets. Please see the diagram on page 3 to decide if a particular application requires any mounting accessories.
4. Do not run power wires and signal wires in the same conduit as this may cause interference.
5. Do not install a diode in parallel with the electromagnetic lock as this may cause a delay when releasing the door as well as cause residual magnetism.
6. The best location to install the electromagnetic lock is on the inside of the door that is being secured with the wiring concealed in the frame to prevent tampering with the unit.

Installation:

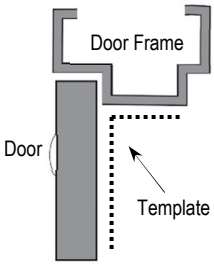
1. Fold the mounting template along the dotted line to form a 90-degree angle.



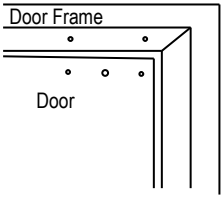
2. Close the door. Find a mounting location on the door frame near the upper free-moving corner of the door, or as close as possible to the upper corner of the door frame opposite the hinges.



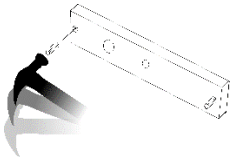
3. Place the template against the door and frame. Mark where the holes are to be drilled.



4. Drill two holes in the frame and three holes in the door as shown on the template.

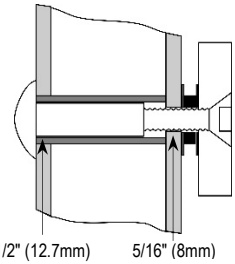


5. Use a hammer to lightly tap the guide pins into the guide pin holes on the armature plate.



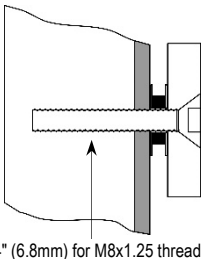
6. Depending on the type of door being protected, drill holes according to the diagrams below:

Hollow Metal Door



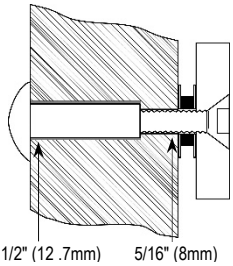
Drill a 5/16" (8mm) dia. hole through the armature-plate side of the door for the armature screw. Then drill a 1/2" (12.7mm) dia. hole for sexnut screw on the opposite side of the door.

Reinforced Door



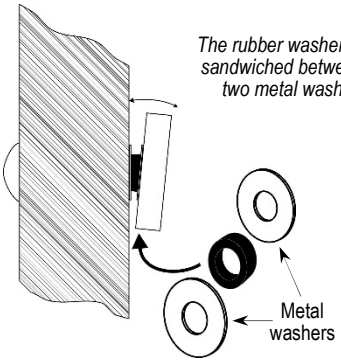
Drill a 1/4" (6.8mm) dia. and 1" (25mm) deep hole, tap for M8x1.25 thread.

Solid Core Door

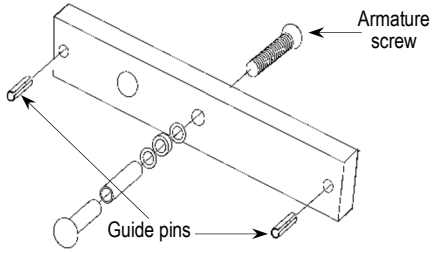


Drill an 5/16" (8mm) dia. hole on the door for the armature screw and drill a 1/2" (12.7mm) dia. and 1" (25mm) deep hole for the sexnut screw.

7. Put a rubber washer between the two metal washers and place them over the armature screw between the armature plate and the door. This allows the plate to pivot around the screw to compensate for door misalignment.

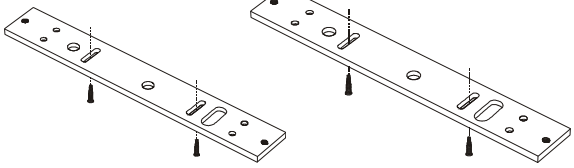


8. Tighten the armature screw enough so that the armature plate can withstand a break-in attempt, but loose enough so that the armature plate can pivot slightly. Make sure the anti-spin guide pins are in the two guide pin holes.

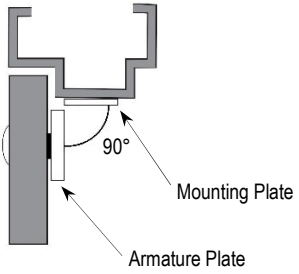


Tip: *Use a thread-locking compound on the armature screw to ensure a long-lasting installation.*

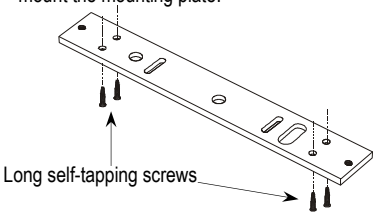
9. Screw the two short self-tapping screws through the mounting plate's slotted holes, but do not over-tighten them. Keeping them loose will allow for adjustment of the plate left or right so that the mounting plate and the armature plate form a 90-degree angle. See the diagram below.



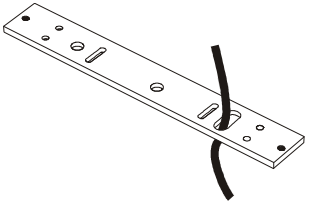
E-941Sx-600 mounting plate E-941Sx-1200 mounting plate



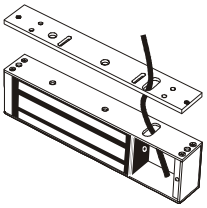
10. Once the position of the mounting plate is correct, use the four long self-tapping screws to permanently mount the mounting plate.



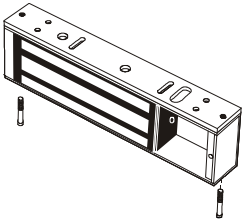
11. Drill the cable access hole. Run the power leads through the cable access hole in the mounting plate and through the hole in the door frame.



12. Remove the cover from the front of the electromagnet. Run the power leads through the large cable access hole.



13. Push the electromagnet against the mounting plate so the electromagnet ends are flush with the ends of the mounting plate. Use the Hex wrench to screw the hex-head mounting screws through the bottom of the electromagnet into the mounting bracket.



14. Cut the wires so they are long enough to connect with the terminal block. Set the voltage using the selection jumpers based on your input voltage.

Voltage Selection Jumpers



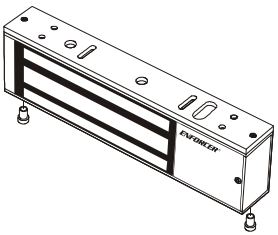
Position two jumpers on all four pins for 12VDC operation



Position a jumper over the two middle pins for 24VDC operation

NOTE: Failure to correctly set the input voltage may cause damage to the lock.
NOTE: Connect switching devices like push-to-exit switches between the power source and the positive terminal on the lock. Connecting switching devices to the negative terminal may cause a delay in unlocking.

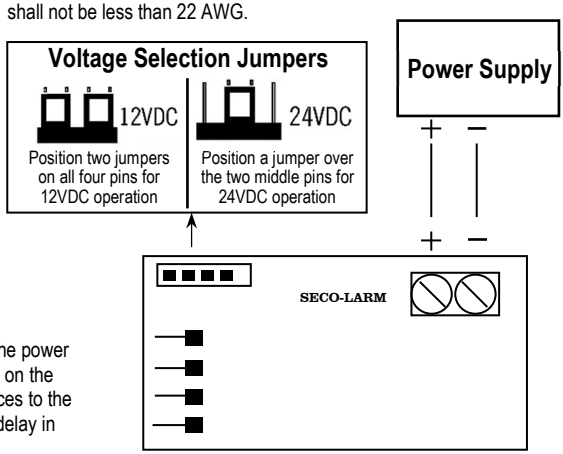
15. Connect the power wires according to the wiring diagram on page 7. Test the unit. Then replace the front cover and install the hex-head tamper caps.



NOTE: This should be the very last step, as once the tamper caps are in place they are very difficult to remove.

Wiring Diagram:

POWER SUPPLY: The product must be powered from a UL-listed, regulated, power-limited, power supply. If power switch is not wired between DC source voltage (+) and magnet, it will take a longer time to de-energize the magnet simulating residual magnetism. The minimum permissible wire size to be used shall not be less than 22 AWG.



***NOTE**: Connect switching devices like push-to-exit switches between the power source and the positive terminal on the lock. Connecting switching devices to the negative terminal may cause a delay in unlocking.

Maximum Distance from Power Source to Electromagnetic Lock:

For a complete chart, please visit www.seco-larm.com

12VDC Minimum Wire Gauge:

Wire Length	25ft.	50ft.	75ft.	100ft.	150ft.	200ft.	250ft.	500ft.	1000ft.
Wire Gauge @ 500mA	20	18	18	18	16	14	14	--	--

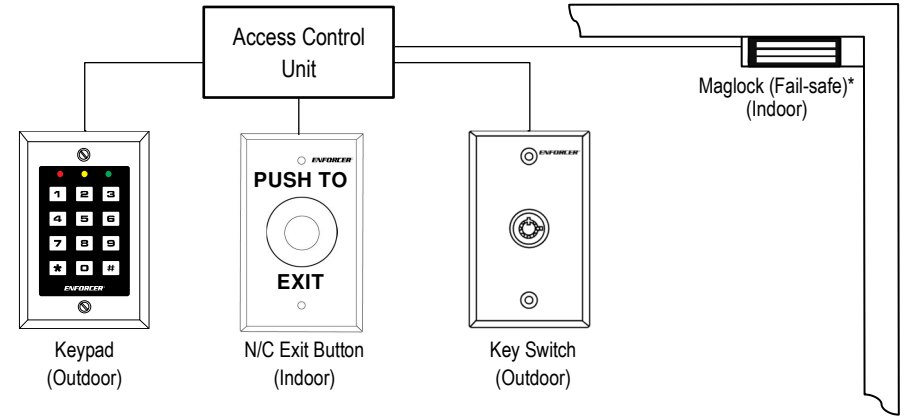
24VDC Minimum Wire Gauge:

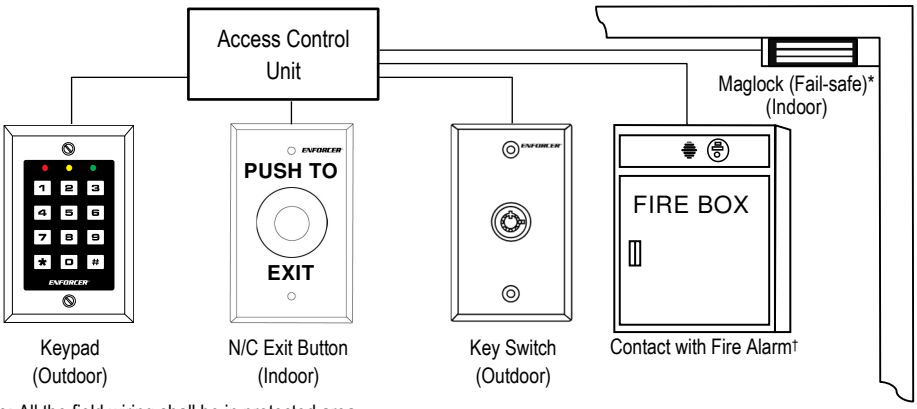
Wire Length	75ft.	100ft.	150ft.	200ft.	250ft.	300ft.	400ft.	500ft.	1000ft.
Wire Gauge @ 250mA	22	20	18	18	16	16	14	14	14

Troubleshooting:

Maintenance	• Wipe the surface of magnet lock with anti-rust oil regularly.
Door does not lock	• Check to make sure the wires are securely tightened to the terminal block. • Check that the power supply is connected and operating. • Make sure the rubber washer is installed and free from damage.
Door locks, but can easily be forced open	• Make sure the electromagnet and armature plate are properly aligned. • Make sure the contact surfaces of the electromagnet and armature plate are clean and free from rust. • Check the power leads with a meter, and make sure 12VDC or 24VDC is present. • Make sure the rubber washer is installed and free from damage.

Wiring Diagram:





Note: All the field wiring shall be in protected area.

*For example, if the building is on fire, the fail-safe lock with automatically unlock allowing personnel to escape quickly.
†In order to use this equipment with fire alarm system, the end product must be listed to UL864

IMPORTANT WARNING: Incorrect mounting which leads to exposure to rain or moisture inside the enclosure could cause a dangerous electric shock, damage the device, and void the warranty. Users and installers are responsible for ensuring that this product is properly installed and sealed.

IMPORTANT: Users and installers of this product are responsible for ensuring that the installation and configuration of this product complies with all national, state, and local laws and codes. SECO-LARM will not be held responsible for the use of this product in violation of any current laws or codes.

California Proposition 65 Warning: These products may contain chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

LIFETIME LIMITED WARRANTY: This SECO-LARM product is warranted against defects in material and workmanship while used in normal service for the lifetime of the product. SECO-LARM's obligation is limited to the repair or replacement of any defective part if the unit is returned, transportation prepaid, to SECO-LARM. Under no circumstances will SECO-LARM be responsible for any costs or charges for removal, installation, or reinstallation. This Warranty is void if damage is caused by or attributed to acts of God, physical or electrical misuse or abuse, neglect, repair, or alteration, improper or abnormal usage, or faulty installation, or if for any other reason SECO-LARM determines that such equipment is not operating properly as a result of causes other than defects in material and workmanship. The sole obligation of SECO-LARM, and the purchaser's exclusive remedy, shall be limited to repair or replacement only, at SECO-LARM's option. In no event shall SECO-LARM be liable for any special, collateral, incidental, or consequential personal or property damages of any kind to the purchaser or anyone else. This lifetime limited warranty is for products sold and installed in the United States and Canada. For all other countries the warranty is 1 (one) year

NOTICE: The information and specifications printed in this manual are current at the time of publication. However, the SECO-LARM policy is one of continual development and improvement. For this reason, SECO-LARM reserves the right to change specifications without notice. SECO-LARM is also not responsible for misprints or typographical errors. Copyright © 2022 SECO-LARM U.S.A., Inc. All rights reserved. This material may not be reproduced or copied, in whole or in part, without the written permission of SECO-LARM.

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