

Electromagnetic Lock Installation Instruction (Waterproof Series)

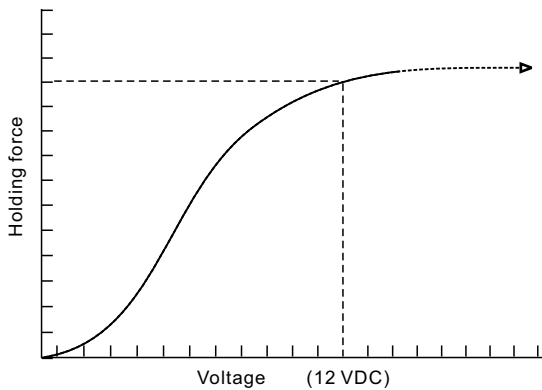
Specifications

Surface Mount	Holding Force	Current Draw	Optional Bracket
10003S	300 lbs(136 Kg)	300mA@12VDC	L-150 bracket for narrow door frames. LZ-150 bracket for in-swinging doors.
10001ST	600 lbs(272 Kg)	280mA@12VDC	L-01ST bracket for narrow door frames. LZ-01ST bracket for in-swinging doors.
GL-600S	600 lbs (272 Kg)	500mA@12VDC 250mA@24VDC	L-GL600 bracket for narrow door frames.
10006S	800 lbs (363 Kg)	340mA@12VDC	L-400 bracket for narrow door frames. LZ-400 bracket for in-swinging doors.
EM-750	800 lbs (363 Kg)	340mA@12VDC	L-750 bracket for narrow door frames. LZ-750 bracket for in-swinging doors.
10010ST,10020ST	1200 lbs(545 Kg)	460mA@12VDC	L-600 bracket for narrow door frames. LZ-600 bracket for in-swinging doors.

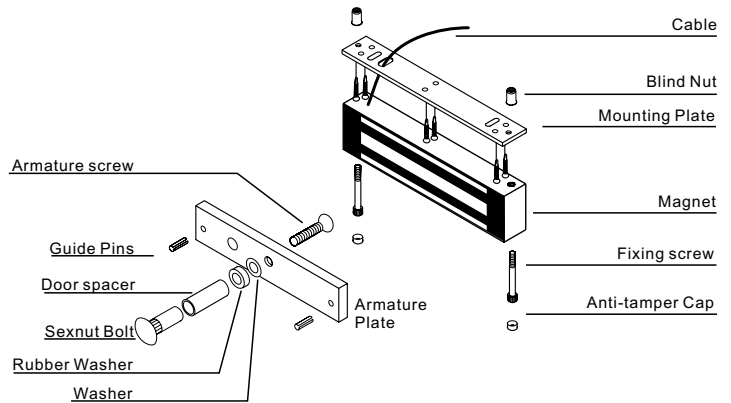
Face Mount	Holding Force	Current Draw	Optional Bracket
10003F	300 lbs(136 Kg)	300mA@12VDC	Z-150 bracket for in-swinging door.
GL-600F	600 lbs (272 Kg)	500mA@12VDC 250mA@24VDC	
EM-750-1	800 lbs (363 Kg)	340mA@12VDC	Z-750 bracket for in-swinging door.
GL-850	800 lbs (363 Kg)	340mA@12VDC	Z-400 bracket for in-swinging door.
GL-1200	1200 lbs(545 Kg)	460mA@12VDC	Z-600 bracket for in-swinging door.
DGL-2400	1200 lbs(545 Kg)X2	460mA@12VDCX2	Z-600 bracket for in-swinging door.

Holding Force Curve & Accessories

The holding force of the electromagnetic lock is depending on the voltage of the power supply. The graph below illustrates the change of the holding force under different voltage. The holding forces of the electromagnetic lock used here by the manufacture here "Colinear" force.

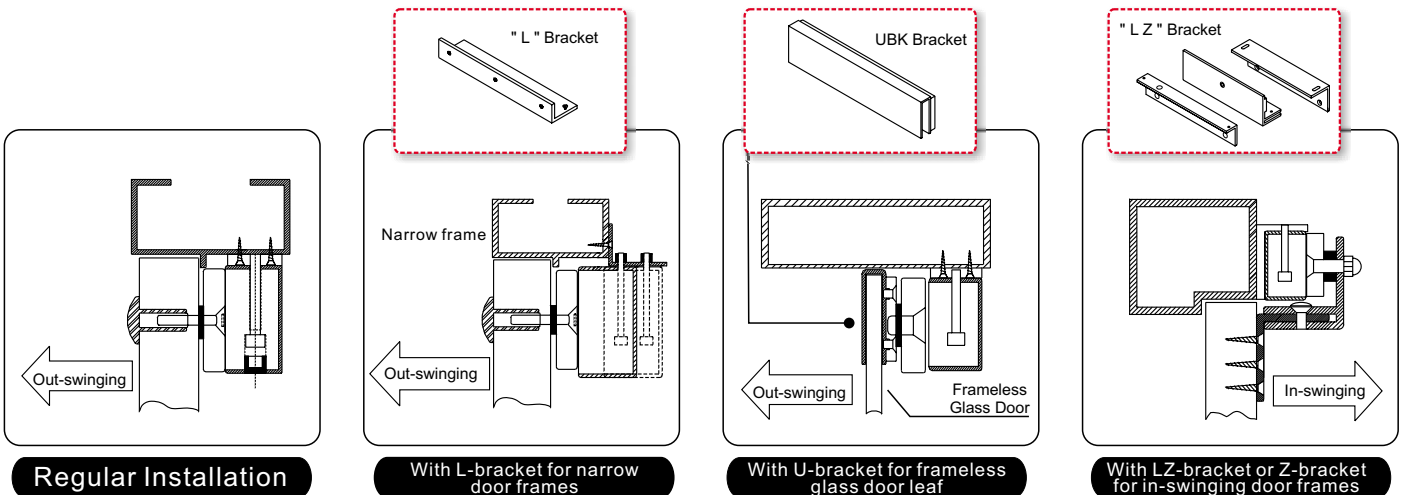


Please note that the actual accessory pack varies according to the electromagnetic lock model.

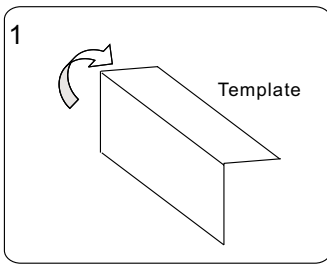
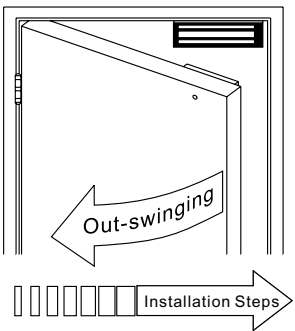


Optional Bracket

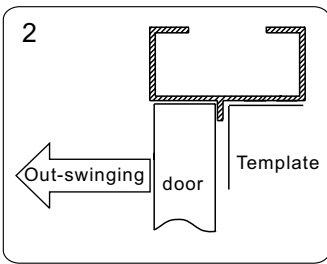
Identify the door swinging direction and inspect the door frame header to determine if bracket is required. A L- bracket, LZ-bracket, Z-bracket or U-bracket (optional) may be required for the electromagnet depending on the frame header and swinging direction.



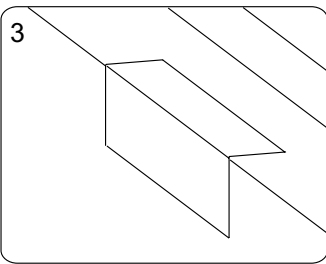
Regular Installation



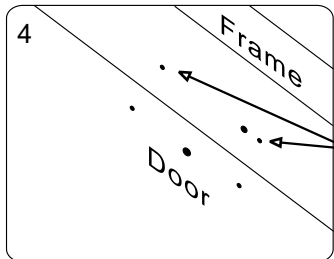
1 Fold the mounting template along the dotted line to a 90-degree angle.



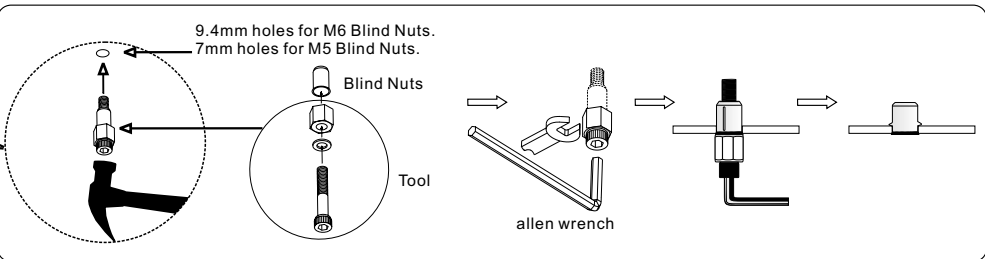
2 Close the door, find a mounting location on the door frame near the upper free-moving corner of the door, as close to the corner of the door frame as possible.



3 Place the template against the door and frame. Be sure the centerline of the armature template matches the centerline of the magnet template.



4 Drill and tap holes as indicated.

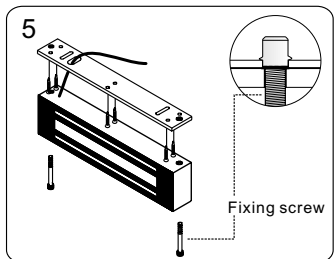


5 Insert two Blind Nuts into separate holes, one for each fixing screw.

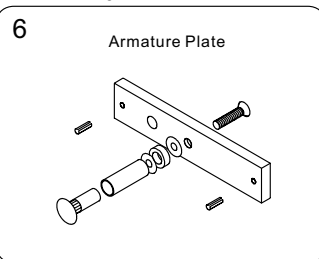
Use the allen wrench. To slowly tighten the Blind Nut. (Don't turning over)

This compress the Blind Nut so that it remains permanently fixed in the frame.

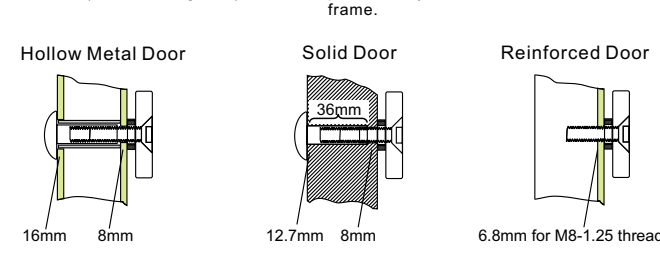
Remove the tool.



6 Use the screws to permanently mount the mounting plate, mount the magnet with hardware provided.



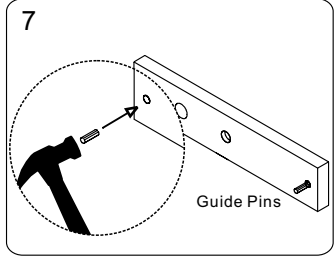
7 Mounting the armature plate to the door. Actual installation varies according to door style.



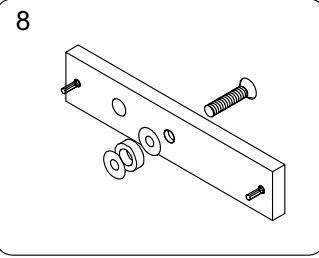
8 Drill an 8 mm hole through door, from sexnut bolt side only, enlarge the 8mm hole to 16mm.

Drill an 8 mm hole thru door from sexnut bolt side of door, drill 12.7mm hole, 36mm in depth.

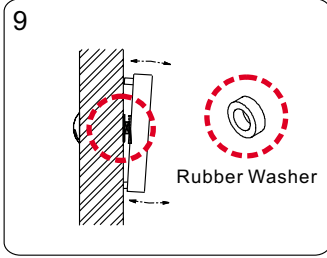
Drill an 6.8 mm dia. Hole and tap for M8x1.25 thread.



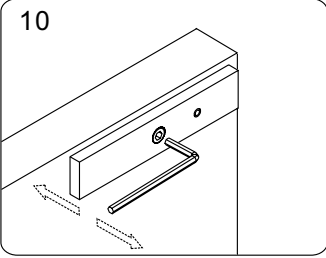
9 Make sure the Guide Pins are in the two guide pin holes.



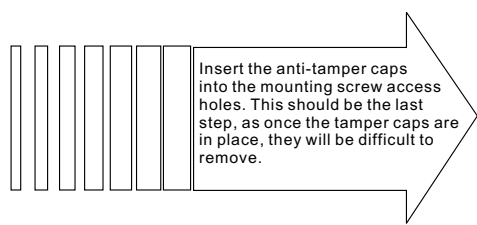
10 Put one rubber washer between two washers, and place them over the armature screw between the armature plate and the door.



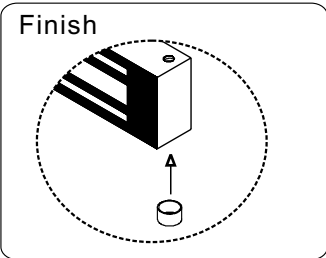
11 This will allow the armature plate to pivot slightly around the armature screw in order to compensate for door misalignment.



12 Connect the power lead, and test the unit. Close the door, use the Allen wrench or add washers to adjust the gap of Armature plate and the magnet.

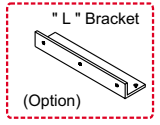
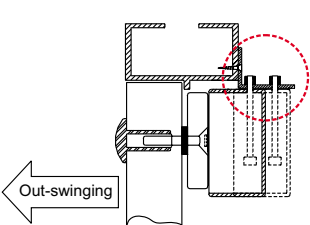


Insert the anti-tamper caps into the mounting screw access holes. This should be the last step, as once the tamper caps are in place, they will be difficult to remove.



With L bracket for narrow door frames

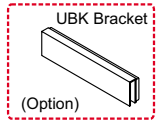
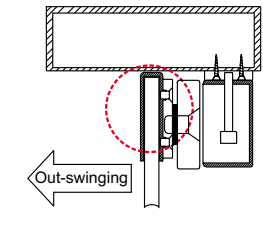
L bracket is used as extension on narrow door frames to provide adequate mounting surface.



- L-150 for 10003S
- L-01ST for 10001ST
- L-GL600 for GL-600S
- L-400 for 10006S
- L-750 for EM-750
- L-600 for 10010ST,10020ST

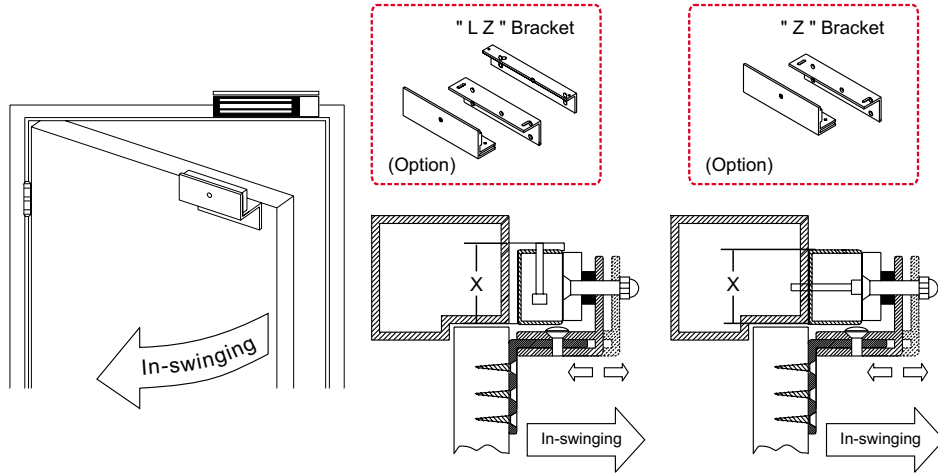
With U bracket for frameless glass doors

Universal glass door kits are compatible with lock models, except 1200 lbs serial.



- UBK-008 for 8mm of glass door
- UBK-010 for 10mm of glass door
- UBK-012 for 12mm of glass door
- UBK-014 for 14mm of glass door

With LZ bracket or Z brack for In-swinging doors



The "X" value in the table below for each bracket to mount on the door frame, shows the minimum requirement width of the door frame for different electromagnetic lock model.

LZ-Bracket	Application	X Value
LZ-150	10003S	37mm
LZ-01ST	10001ST	48mm
LZ-GL600	GL-600S	50mm
LZ-750	EM-750,EM-750-2	48mm
LZ-400	10006S	48mm
LZ-600	10010ST,10020ST	76mm

Z-Bracket	Application	X Value
Z-150	10003F	32mm
Z-GL600	GL-600F	44mm
Z-750	EM-750-1,EM-750-2	45mm
Z-400	GL-850	45mm
Z-600	GL-1200F,DGL-2400	62mm

Installation Steps of LZ or Z bracket for In-swinging doors

1

Find a mounting location on the door frame for the L bracket. Make sure that the door is still closeable.

2

Tighten the electromagnetic lock on the L bracket by using the fixing screw. (For the models with Face Mount, the Emlock can be mounted directly on the door frame)

3

Assemble the Z bracket, and make sure that the Z bracket is adjustable.

4

Insert the guide pins into the armature plate. The guide pins will prevent the armature plate to pivot around.

5

Put one rubber washer between armature plate and the Z bracket, and place them over the 8mm armature screw.

6

Close the door. Measure the correct position by bringing the armature plate close to the contact surface of the electromagnetic lock.

7

Turn on the power of EM-Lock, and let the armature plate bonds to the EM-lock. Adjust the position between the Z bracket and the door frame.

Finish

Once the position is correct, use the screws to permanently mount the Z bracket on the door frame. This should be the last step.

Connecting Diagram

2C Wire Leads: Single Voltage Input

12 VDC: Black, Red
Control Device N.C. contact or Access Relay
Power supply

24 VDC: Black, White
Control Device N.C. contact or Access Relay
Power supply

(Power input is polarity free)

4C Wire Leads: Dual voltage

Voltage Selection: 12 VDC
Red, White, Black, Green
Control Device N.C. contact or Access Relay
Power supply

Voltage Selection: 24 VDC
Red, White, Black, Green
Control Device N.C. contact or Access Relay
Power supply

(Power input is polarity free)

5C Wire Leads: Monitoring Output

White: N.C.
Black: COM.
Red: N.O.
Blue
Blue
Control Device N.C. contact or Access Relay
Power supply

Magnet bond sensor output, remotely monitors the door lock/unlock status. (Rating: 0.25A@12VDC)

(Power input is polarity free)

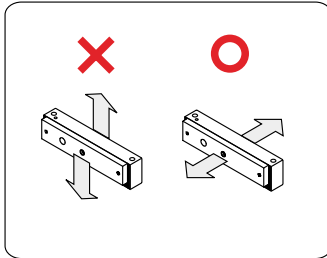
6C Wire Leads: Dual voltage and Monitoring Output

Voltage Selection: 12 VDC
Red, White, Black, Green, Blue, Yellow
Control Device N.C. Contact
Magnet bond sensor output
Power supply

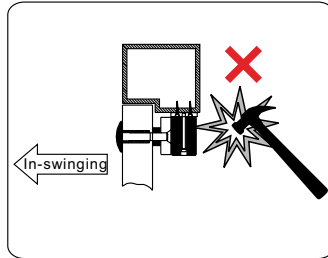
Voltage Selection: 24 VDC
Red, White, Black, Green, Blue, Yellow
Control Device N.C. Contact
Magnet bond sensor output
Power supply

(Power input is polarity free)

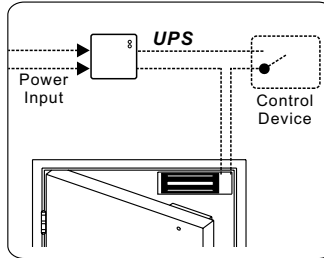
Important Notes



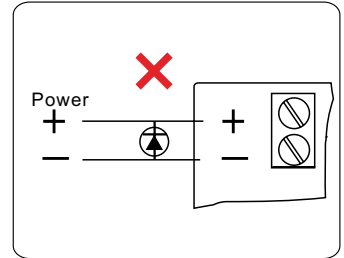
During the installation procedure, it is important to make sure that the working direction of the armature plate has to be facing toward the contact surface of the electromagnetic lock intend to have the maximum holding force.



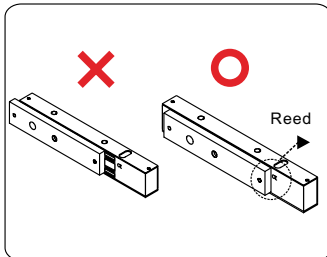
Be aware that it is better to install the electromagnet lock inside the house and hide the cable inside the door frame in order to against the unlawful entry.



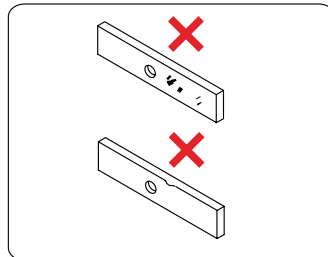
The electromagnetic locks are fail-safe and will require a power supply equipped with battery back up when power outages may interfere with desired security.



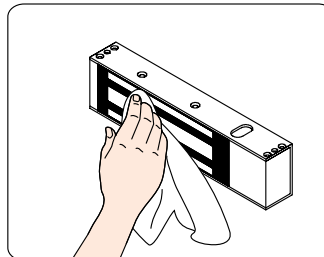
Do not install a diode in parallel with any magnetic lock. A diode will cause a delay when releasing the door and residual magnet to occur.



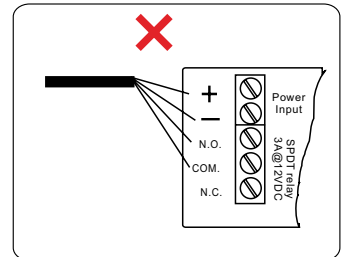
The contact surface of the electromagnetic lock and the armature plate has to be completely attached; otherwise, the reed, which located inside the electromagnetic lock, will not be detected. It will result an incorrect output message for the bond sensor.



Damage to the mating surfaces may reduce the efficiency of the lock and cause rust.



Apply a light coat of a silicon lubricant to prevent rust. Wipe away the excess.



Do not run power wires and signal wire in the same cable or conduit.

Distance in feet from power source to farthest locking device

	AMPS	25f	50f	75f	100f	150f	200f	250f	300f	400f	500f	1000f
Minimum Wire Gauge for 12 VDC	0.25	18	18	18	18	18	16	16	14	14	12	
	0.50	18	18	18	16	16	14	12				
	0.75	18	18	16	14	12	12					
	1.00	18	16	14	14	12						
	1.50	18	14	12	12							
	2.00	16	14	12								
	AMPS	25f	50f	75f	100f	150f	200f	250f	300f	400f	500f	1000f
Minimum Wire Gauge for 24 VDC	0.25	18	18	18	18	18	18	18	18	16	16	16
	0.50	18	18	18	18	18	16	16	14	14	12	
	0.75	18	18	18	18	16	14	14	12	12		
	1.00	18	18	16	16	14	14	12	12			
	1.50	18	18	16	14	14	12					
	2.00	16	16	14	14	12						

Trouble Shooting

Problem	Possible Cause	Solution
Door does not lock	No power	Check to make sure the wires are securely tightened to the correct terminal block
		Check that the power supply is connected and operating properly
		Make sure the lock switch is wired correctly
Reduced holding force	Poor contact between electromagnet and armature plate	Make sure the lock switch is wired correctly.
		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 dust
	Low voltage or incorrect voltage setting	Ensure the electromagnetic lock is set for the correct voltage.
Sensor output is not functioning	A secondary diode was installed across the electromagnet	Remove any diode installed across the magnet for "spike" suppression. (The magnet is fitted with a metal oxide varistor to prevent back EMF)
	Misalignment between the reed switch and its magnet	Check the installation of armature with supplied template.