

## Mechanical Electromagnetic Lock



RUTHERFORD CONTROLS  
A DORMA Group Company

*In or Out... we make it Easy!®*

PLEASE DELIVER ALL INSTALLATION INSTRUCTIONS TO THE END-USER UPON COMPLETION OF THE INSTALLATION.

### Pre-Installation Instructions

1. This product must be installed according to all applicable building and life safety codes.
2. Due to the variety of mounting configurations available with this product, a survey and assessment of the physical area in which the product will be installed must be performed.
3. The door frame must be inspected and deemed structurally sound prior to installation of the mechanical electromagnetic lock. The structural integrity of the mounting surfaces must be strong enough to meet or exceed the holding force of the product.
4. The product must be protected from potential damage due to intruders or tampering.
5. The product should be installed in a location that will not hinder or create a potential safety hazard to authorized personnel accessing the protected area.
6. Because mechanical electromagnetic locks are used in a variety of applications and different door frame configurations, an experienced installer with knowledge of this product must make a determination of the optimal mounting method for this specific application.
7. The components, hardware, installation instructions and mounting template included with this product are intended for use on outswinging doors.
8. Do not install this product on the exterior of buildings.
9. Do not use as a doorstop. This will void warranty.
10. Installation of this product should be done by an experienced installer with knowledge of this product.

**NOTE:** It is highly recommended that thread locking compound be applied to all screws during installation to reduce chance of screws loosening over extended time.

### Introduction

Mechanical Electromagnetic Lock with bi-colored Light Panel; EM-MAG1500 is a newly innovative developed lock integrated with mechanical and electromagnetic design. EM-MAG1500 has significant low carbon foot print with less operating power consumption, less material used from its unique compact size compared to traditional Mechanical Electromagnetic Locks. EM-MAG1500 has a holding force up to 682Kg (1500 lb) with Preload feature up to 60Kg (132 lb) and Impact Resistance of 100J or 74 ft-lbf .

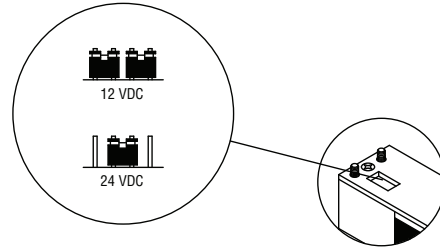
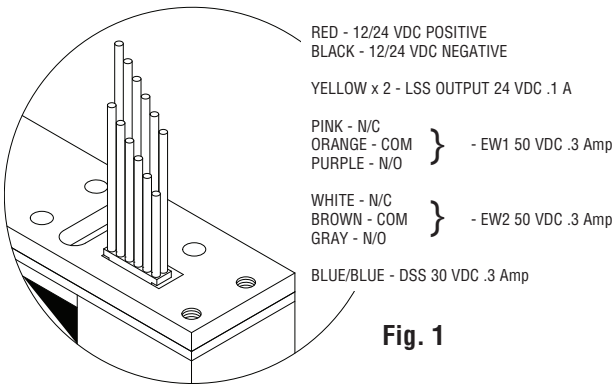
The lock Light Panel indicates the door status, based on the Door Status Sensor (DSS), and Lock Status Sensor (LSS).

Door Open	Red
Door Closed	Green

The EW feature provides Early Warning Output signals when an external force larger than 6~10Kg (13-22 lb) is applied on the locked door leaf.

# EM-MAG1500 Mechanical Electromagnetic Lock Installation Instructions (Continued)

## Electrical Specifications:



<b>Input:</b> 12/ 24VDC± 10% Jumper Selectable (Fig 1a)
<b>Current Draw:</b> .24A @ 12VDC .12A @ 24VDC
<b>Lock Status Sensor (LSS):</b> Reed switch indicating a bond between Armature and Lock (Closed circuit when Lock is powered and armature is in place.) Rated .1A max. @ 24VDC.
<b>Door Status Sensor (DSS):</b> Reed switch indicating door position independent of Lock power. (Closed circuit when armature is in place.) Rated .3A max. @ 24VDC. Ensure orange dots of armature and lock are aligned for proper function.
<b>EW1 &amp; EW2:</b> Switches that are activated by unauthorized individuals applying 6~10Kg (13- 22 lbs) of force on the door when Lock is energized. SPDT dry contacts 50 VDC @ .3A

## Inspection and Maintenance

This product and all related accessories or parts must be inspected and maintained on **a quarterly basis**. Contacting surfaces of the mechanical electromagnetic lock and armature plate must be kept free of contaminating materials. Surfaces must be cleaned periodically with a non-abrasive cleaner.

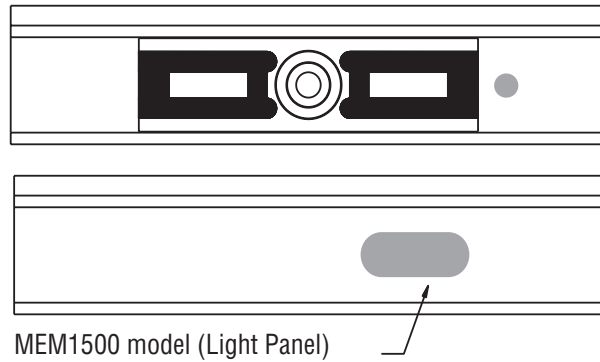
All mounting fasteners must be inspected on **a quarterly basis**. When properly installed, the ends of the armature plate allow a slight movement but the plate will feel secure when grasped at the bolt. There should be no movement to the mounting bracket or housing of the mechanical electromagnetic lock.

For added safety, thread locking compound has been provided for the armature plate bolt and the four captive mechanical electromagnetic lock mounting screws.

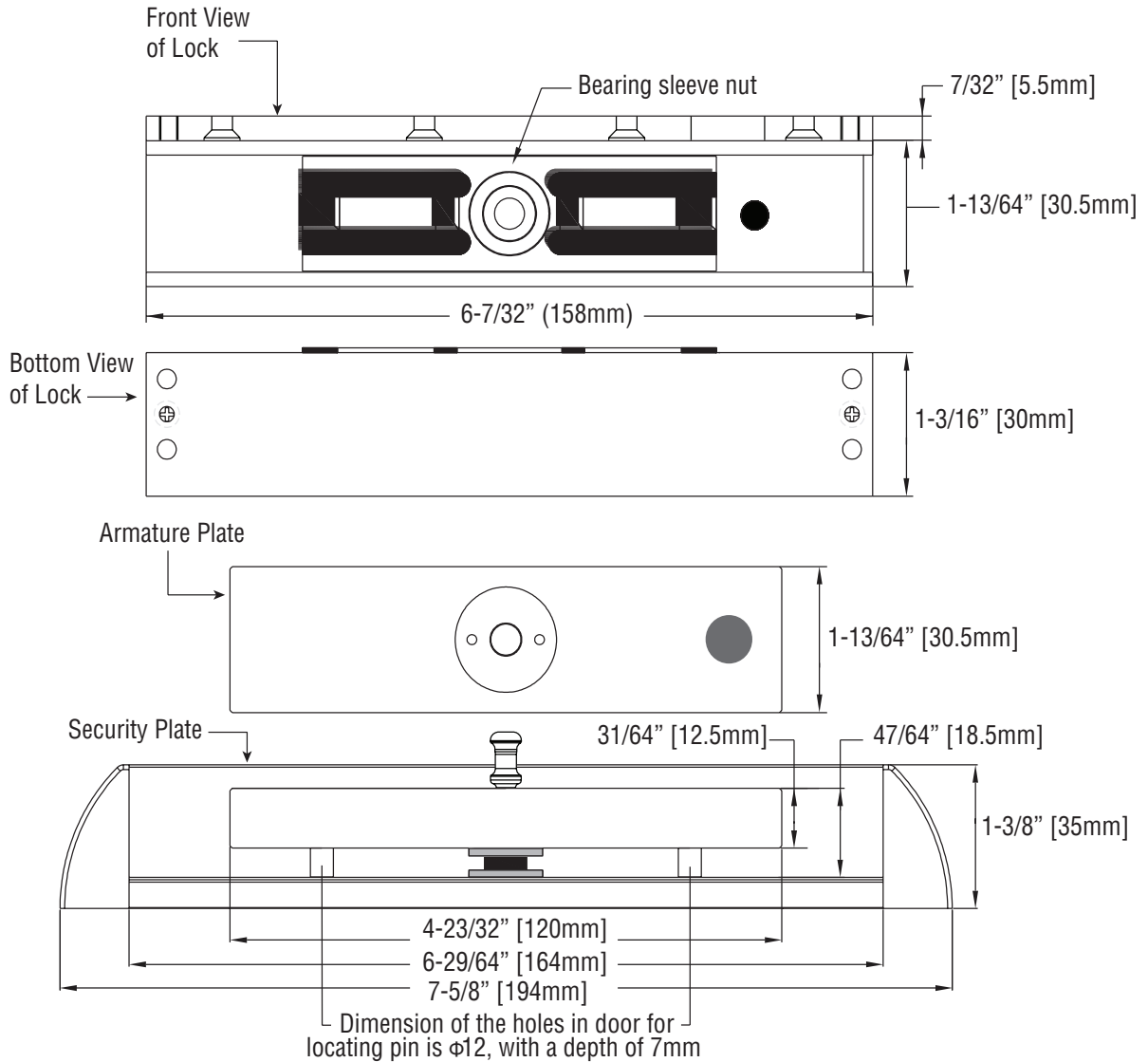
**WARNING: Improper installation, maintenance, inspection or usage of the product or any related accessories or parts may cause the mechanical electromagnetic lock, armature plate and associated hardware to disengage and fall, causing serious bodily injury and property damage. Rutherford Controls Int'l Inc. and/or Rutherford Controls Int'l Corp. will not be liable to the installer, purchaser, end user or anyone else for damage or injury to person or property due to improper installation, care, storage, handling, maintenance, inspection, abuse, misuse or act of God or nature involving this product or any related accessories or parts.**

# EM-MAG1500 Mechanical Electromagnetic Lock Installation Instructions (Continued)

## EM-MAG1500 Light Panel Feature

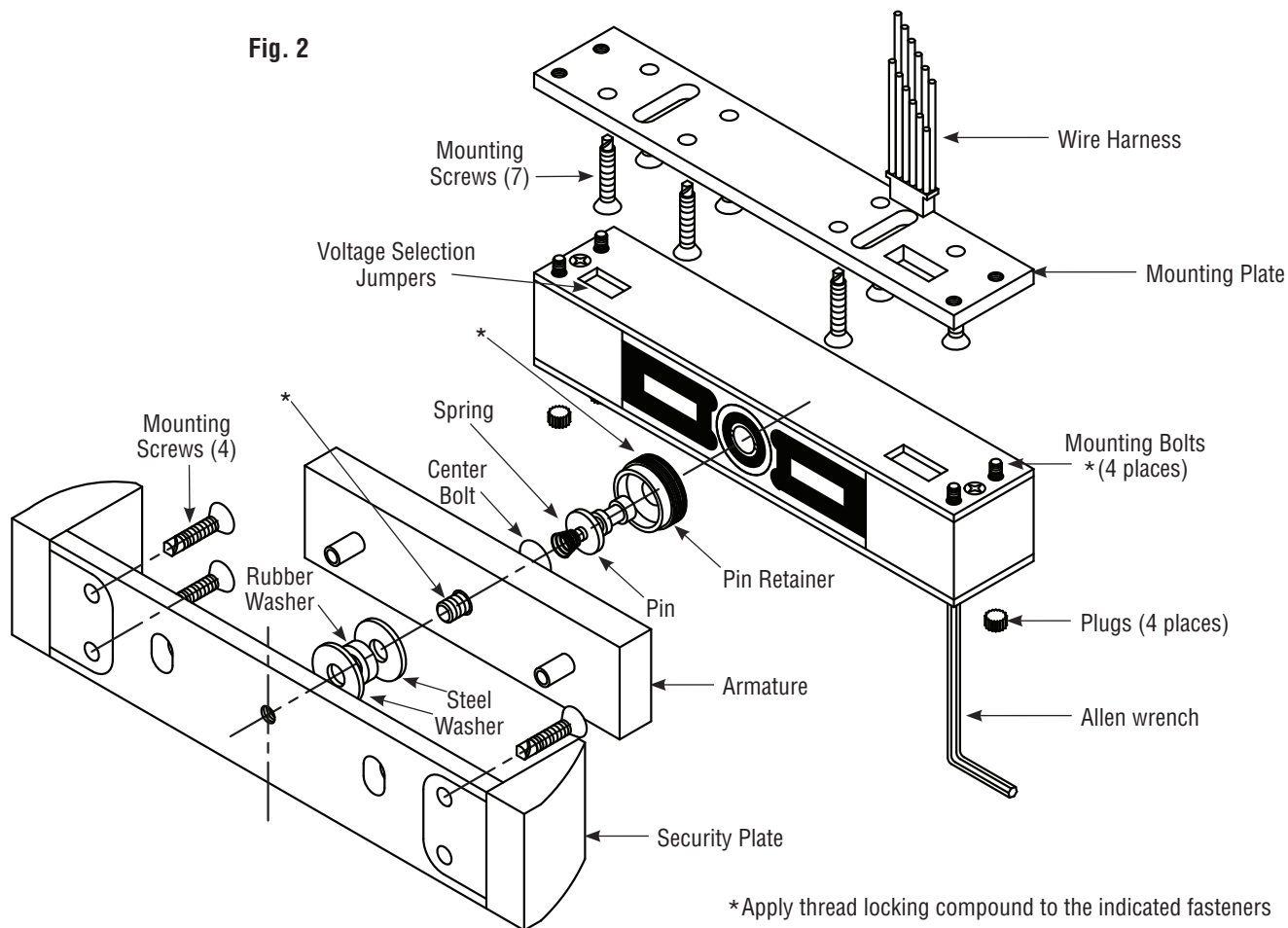


## EM-MAG1500 Dimensions



# EM-MAG1500 Mechanical Electromagnetic Lock Installation Instructions (Continued)

Fig. 2



\*Apply thread locking compound to the indicated fasteners

## Mounting Instructions

1. Prior to mounting install wiring harness and wiring as needed. See Fig. 1
2. Remove mounting plate with provided Allen wrench through 4 bottom holes as indicated in Fig. 2
3. Using provided template mark and drill mounting holes as indicated.
4. Mount Security Plate to door with 4 mounting screws as indicated.
5. Remove Pin Retainer with provided wrench.
6. Install center bolt washers and rubber washer as indicated. DO NOT over tighten the center bolt as the Armature plate must remain pivotal to ensure proper functionality.
7. Ensure that thread locking compound is applied to bolts as indicated.
8. Reassemble Pin, Spring and Pin Retainer using tread locking compound as indicated, making sure that the Pin Retainer is fully engaged within the Armature Plate.
9. Affix mounting plate with 2 screws in slots and align face of Lock with the face of Armature.
10. Once alignment has been achieved, install remaining 8 fasteners into the frame.
11. Prior to mounting Lock to mounting plate ensure voltage selection jumper have been set to proper voltage. See Fig. 1a
12. Apply thread locking compound on the 4 mounting bolts as indicated and fasten to mounting plate.
13. Install 4 plugs into mounting screw holes as indicated.

# EM-MAG1500 Mechanical Electromagnetic Lock Installation Instructions (Continued)

## WIRE GAUGE SELECTIONS

Total One Way Length of Wire Run (ft.)	Load Current @24V							
	1/4A	1/2A	3/4A	1A	1-1/4A	1-1/2A	2A	3A
100	24	20	18	18	16	16	14	12
150	22	18	16	16	14	14	12	10
200	20	18	16	14	14	12	12	10
250	18	16	14	14	12	12	12	10
300	18	16	14	12	12	12	10	--
400	18	14	12	12	10	10	--	--
500	16	14	12	10	10	--	--	--
750	14	12	10	10	--	--	--	--
1000	14	10	10	--	--	--	--	--
1500	12	10	--	--	--	--	--	--

Total One Way Length of Wire Run (ft.)	Load Current @12V							
	1/4A	1/2A	3/4A	1A	1-1/4A	1-1/2A	2A	3A
100	20	18	16	14	14	12	12	10
150	18	16	14	12	12	12	10	--
200	16	14	12	12	10	10	--	--
250	16	14	12	10	10	10	--	--
300	16	12	12	10	10	--	--	--
400	14	12	10	--	--	--	--	--
500	14	10	10	--	--	--	--	--
750	12	10	--	--	--	--	--	--
1000	10	--	--	--	--	--	--	--
1500	10	--	--	--	--	--	--	--

Wire Gauge Chart courtesy of Electronic Locking Devices by John L. Schum

# EM-MAG1500 Mechanical Electromagnetic Lock Installation Instructions (Continued)

## Maintenance Schedule

COMPANY NAME: \_\_\_\_\_

DOOR LOCATION	DATE	NOTES	INITIAL