



# **MEM2400EXT**

**Mechanical Electromagnetic Lock**  
**(A Security and Fire Safety product)**



V.1.7





## **Introduction**

Mechanical Electromagnetic Lock, MEM2400EXT, is a newly innovative Fail Safe locking device specially designed for fire exit doors. The product allows the whole piece of door leaf to act as an exit device. A panic bar will not be required to egress. The lock has optional Delayed Egress preset time of 0, 15 or 30 seconds to allow/ prevent free egress from fire exit doors in secure premises. When intruders pull the exit door from the external side the product acts as a High Security locking device. The door leaf will remain closed and an exclusive Early Warning alarm will alert the security room after a preset nuisance time is elapsed. A sounder alarm is triggered at the time when the door leaf is pushed/ pulled with an activation force more than 5kg. MEM2400EXT has a holding force up to 680Kg with preload release up to 60Kg, 100J dynamic impact resistance (GRADE 2, AS Standard), Door Status Sensor (DSS) and Lock Status Sensor (LSS) monitoring, and exclusive Early Warning Alert when external force larger than 5kg is applied to the door leaf. The MEM series has its unique Green features of compact size, low power consumption, lightness, and environmental friendly. It will be an excellent Security Option for the fire exit doors.

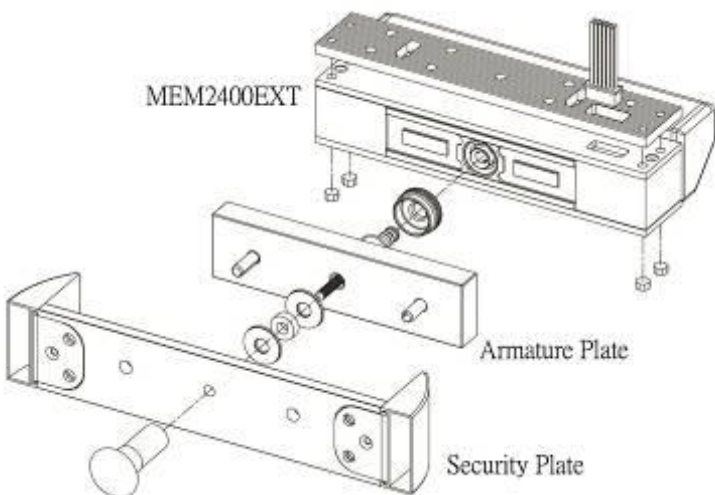
New Features: MEM2400EXT can be directly connected to a fire detector. In the event of a real fire or emergency condition, the power of MEM2400EXT will be cut off by the fire detector and the exit door immediately releases. This special feature enables the absence of the emergency break glass which is often required near an exit door. The product is also ideal for Home Security, Bank, and High Security Applications.

Two models are derived from the MEM2400EXT series; MEM2400EXT-S equipped with an extra built-in Sounder; MEM2400EXT-SC equipped with extra Sounder and Camera.

## **Specification**





SPECIFICATION	MEM2400EXT SERIES
Illustration	 <p>Full installation with security plate</p>
Certifications	CE
Fail Safe	Power to lock
Lock Body Dimension	158L x 36W x 60.0H (mm)
Armature Plate	120L x 30.5W x 12.5H (mm)
Lock Operating Voltage	12/24VDC $\pm 10\%$
Lock Operating Current	Max. 0.42A (with all relays on, no buzzer) 0.240@12VDC/0.120mA@24VDC (normal operation)
Lock Holding Force	Up to 680Kg
Preload	Up to 60Kg
Dynamic Impact Resistance	Up to 100J (Dynamic Impact resistance, <b>AS Standard:</b> GRADE 1, 60J/GRADE 2, 100J/GRADE 3, 160J)
Lock Signal Output	<b>Lock Status Output (LSS)</b> NO, Max 24VDC; Max 0.1A <b>Door Status Output (DSS)</b> NO, Max 30VDC; Max 0.3A <b>Early Warning (EW)</b> 2 dry contacts, Form C Relay; Max 24VDC; Max 1A
Operating Temp	-10°C ~60°C
Weight	1.2Kg
Operating Humidity	0~95% (non-condensing)
Motion Detector (PIR)	A Motion Detector must be installed on the secure side of the door
Surface Finish	Anodized Aluminium housing Zinc plated for anti-corrosion
Residual Magnetism	No Spring Rebound Mechanism on the armature plate is required to overcome the residual magnetism
Standard Packing	10pcs/carton

## Advantages of MEM2400EXT





SECTOR	MEM2400EXT on Fire Exit Door
Installation	MEM2400EXT has combined the feature of Panic Bar & EM lock used on the exit door. It is small in size, weight, and volume and competitive in price. Easy to install.
Early Warning (EW) Alarm	MEM2400EXT has built in sounder to warn the intruder who initially applied force on the locked door and to alert securities in advance
Emergency Escape	In poor visibility situation in a real fire, the door can be released automatically by a cut off from a nearest connected fire detector. Only a Push Action on the door leaf is required to escape from the exit door and there is no need to find the position of panic bar. The whole piece of door can act as an exit device.
Built-in Camera	Built-in Camera feature assists the security guard to identify any personnel who trigger the warning on the locked door. This video output could be connected with DVR for recording purpose.
SECTOR	MEM2400EXT on Security Door
Strengths	See above Installation, EW Alarm, and Built-in Camera description
Sounder	Built-in sounder, 80dBA, and ability to provide local warning

## Fire Alarm Condition

MEM2400EXT has the ability to directly connect to a fire detector.

However, when MEM2400EXT is /is not connected to a fire detector, it has to be connected via a set of normal open contacts to the building complexes fire alarm system and in the event of a “fire alarm condition”, the device will immediately release and automatically reset once the fire alarm has been cleared.





## **Delayed Egress System Function**

During normal operation, when an external force larger than 5kg is applied on the locked door leaf, the system will start the exit sequences and enter the Nuisance Delay Period (can be set for 0, 1, 2 or 3 seconds from the provided dip switches). During this period, fast pulsing sound will be activated from the built-in sounder and the Local Alarm Relay will be energized, giving warnings to the personnel who is pushing against the locked door. However, the lock is designed to revert back to its normal operation if the pressure on the door leaf is removed within the Nuisance Delay Period.

Once the Nuisance Delay Period has expired due to the external pressure greater than 5kg is continuously applied on the locked door, the Release Delay Period begins. During the Release Delay Period (can be set for 0, 15 or 30 seconds), the Remote Alarm Relay will be de-energized and the Local Alarm Sounder will go from fast pulsing to slow pulsing sound to indicate the locked door will be released automatically until the Release Delay Period expires. Once the Release Delay Period has expired, the lock is released, and both Local Alarm Sounder and Local Alarm Relay will stop/be de-energized immediately. Once the lock is released, Reset Switch Input from OPEN to CLOSE resets the system to its normal condition. The Remote Alarm Relay is energized when the door is relocked (The system can only be reset after the Release Delay Period expires).

### **Delayed Egress System Status**

<b>System Status</b>	<b>Light Panel</b>	<b>Local Sounder</b>	<b>Local Alarm Relay</b>	<b>Remote Alarm Relay</b>
<b>Door Unlocked</b>	Red	OFF	OFF	OFF
<b>Door Locked</b>	Green flashes every 5 seconds	OFF	OFF	ON
<b>Nuisance Delay Activated</b>	Red flashes rapidly	Fast sound pulsing	ON	ON
<b>Release Delay Activated</b>	Red flashes slowly	Slow sound pulsing	ON	OFF
<b>Door Releases from passing Release Delay Period</b>	Flashes between Red/Green alternatively	OFF	OFF	OFF
<b>Force to Open</b>	Red flashes rapidly	Normal sound pulsing	ON	OFF
<b>Exit Switch to Unlock</b>	Red	OFF	OFF	OFF



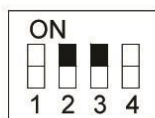


## Dip Switch Setting For Delay Egress Functions

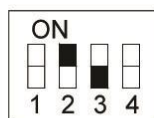
Factory Default Setting: Nuisance Delay set at 3 sec. (Dip switch 2 OFF and Dip switch 3 OFF).

Factory Default Setting: Release Delay at 15 sec. (Dip switch 1 ON).

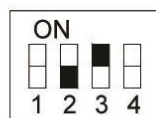
### Nuisance Delay Dip Switch 2&3



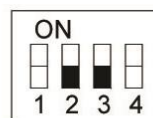
0 Sec



1 Sec

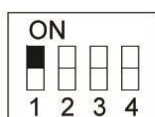


2 Sec

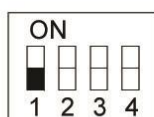


3 Sec

### Release Delay Dip Switch 1



15 Sec

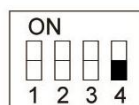


30 Sec

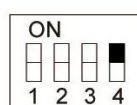
### Free Egress Setting Dip 4:

Free Egress (0 second Release Delay time) could be set from Dip Switch 4 for Fire Exit Door where Delay Egress is not required.

**NOTE:** The Free Egress application can be turned off from the internal dip switch (Dip switch 4 OFF, see below).



**OFF**



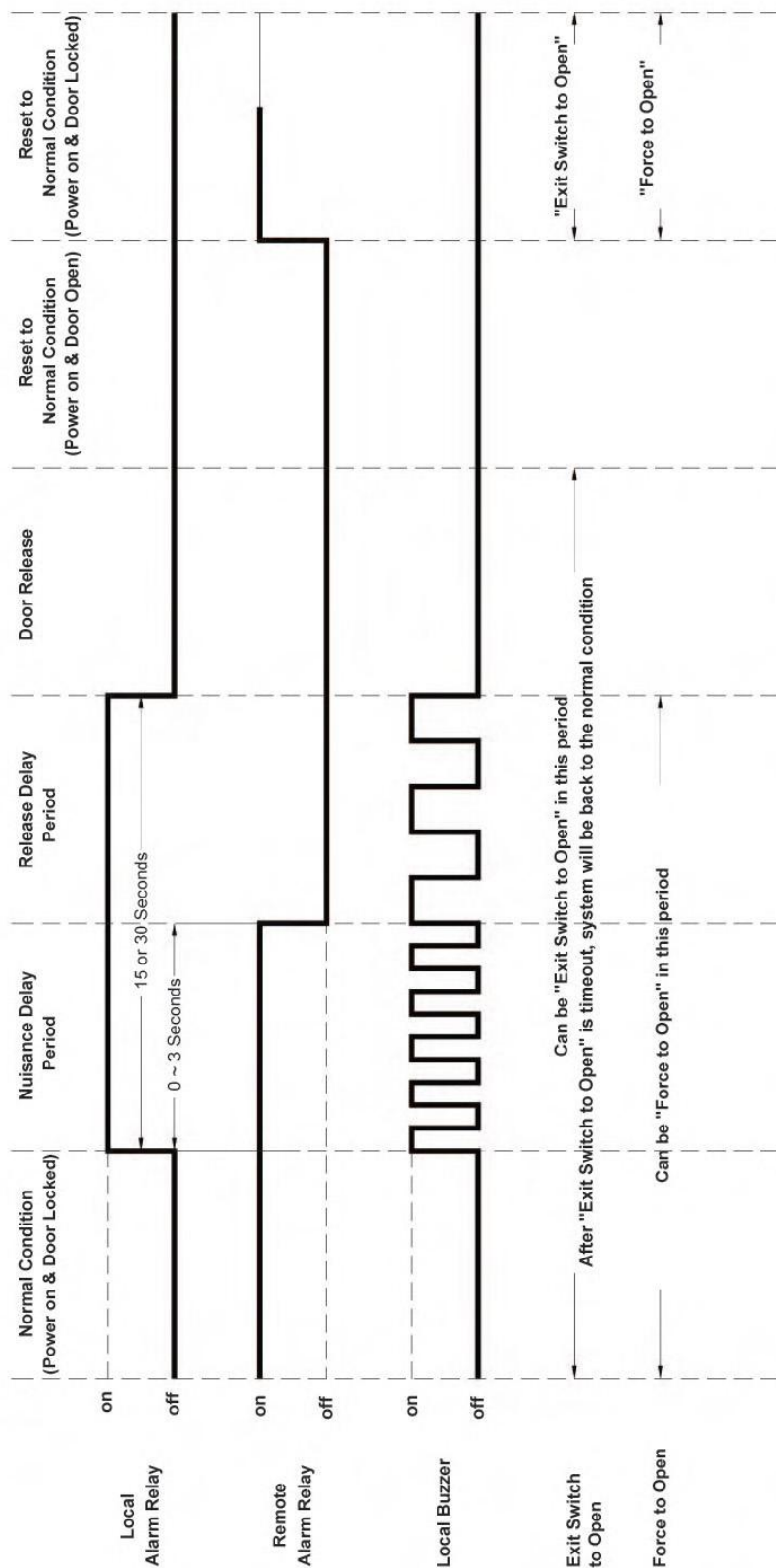
**ON**

**NOTE:** When the lock is unlocked from its EXIT terminal, there will be a 5 seconds delay time before the lock can be auto-locked again.





## Delay Egress Functions



Factory Default Setting: Nuisance Delay set at 3 sec. (Dip switch 2 OFF and Dip switch 3 OFF).

Factory Default Setting: Release Delay at 15 sec. (Dip switch 1 ON).





## Security System Function

When intruders pull the exit door from the external side the product enters into Security Mode. In the normal condition, when the door is locked, the Local Sounder remains off, the Local Alarm Relay remains de-energized. When product enters into the security mode, the Remote Alarm Relay is energized. The system will start the alarm sequences, and the system will enter the Nuisance Delay Period (can be set manually for 0, 2, 4, or 6 seconds). During the Nuisance Delay Period, the Local Alarm Sounder will activated and generate fast pulsing warning sound, and the Local Alarm Relay will be energized.

Once the Nuisance Delay Period has expired (i.e continuously having the force pushing against the locked door), the Remote Alarm Period begins. The Remote Alarm Period can be set for 0, 15, 30 seconds or infinity, the Remote Alarm Relay will be de-energized, and the Local Sounder will generate slow pulsing sound within this period. After the Remote Alarm Period has expired, both Local Alarm Sounder and the Local Alarm Relay will be de-energized, and the Remote Alarm Relay will be energized. System will be reset to the normal condition when the Reset Switch Input is CLOSE.

NOTE 1: If the Remote Alarm Period is set to infinity, it is impossible to have Remote Alarm Period expired

NOTE 2: System can be reset only after Remote Alarm Period is expired

NOTE 3: For infinity setting, reset is functional only after Remote Alarm Period reaches 90 seconds

### Early Warning System Status

System Status	Light Panel	Local Sounder	Local Alarm Relay	Remote Alarm Relay
Door Unlocked	Red	OFF	OFF	OFF
Door Locked	Green flashes every 5 seconds	OFF	OFF	ON
Nuisance Delay Period	Red flashes rapidly	Fast Pulsing Sound	ON	ON
Remote Alarm Period	Red flashes Slowly	Slow Pulsing Sound	ON	OFF
Remote Alarm Expires	Flashes between Red/Green alternatively	OFF	OFF	ON
Force to Open	Red flashes Rapidly	Normal Pulsing Sound	ON	OFF
Exit Switch to Unlock	Red	OFF	OFF	OFF

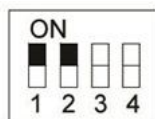




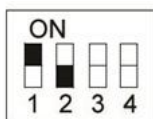


## Dip Switch Setting For Early Warning Functions

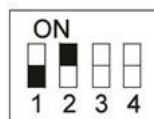
### Nuisance Delay Dip Switch 1 & 2



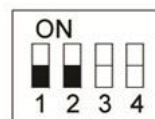
0 Sec



2 Sec

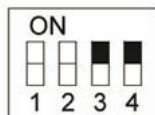


4 Sec

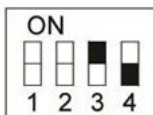


6 Sec

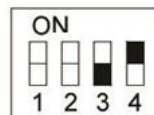
### Release Delay Dip Switch 3 & 4



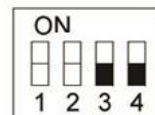
0 Sec



15 Sec



30 Sec



Infinity

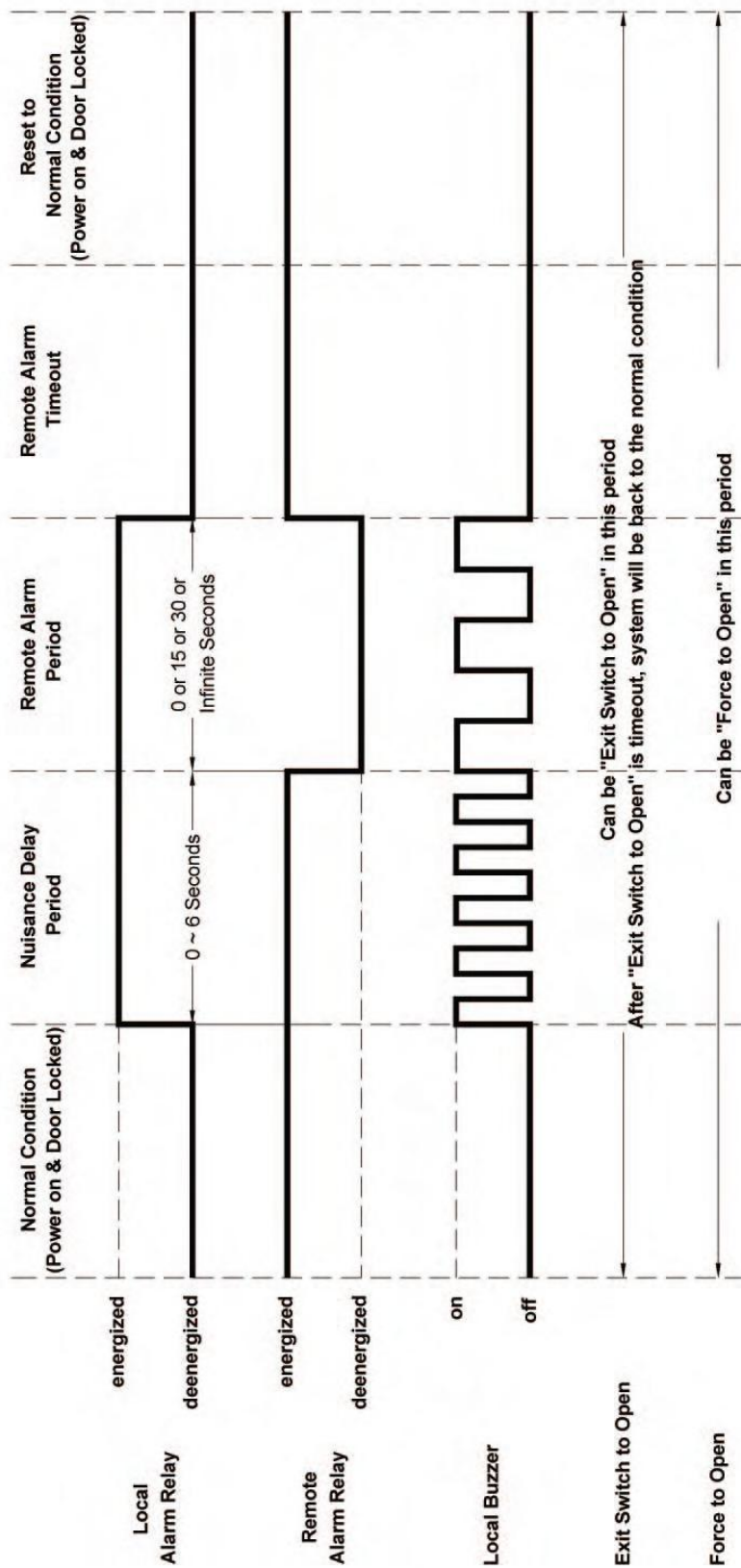
**NOTE:** When under security mode, the Reset feature has 0 second Relock Sequence.

**NOTE:** When both Delay Egress and Early Warning Function are activated, DE will override EW function.





## Early Warning Alarm Functions





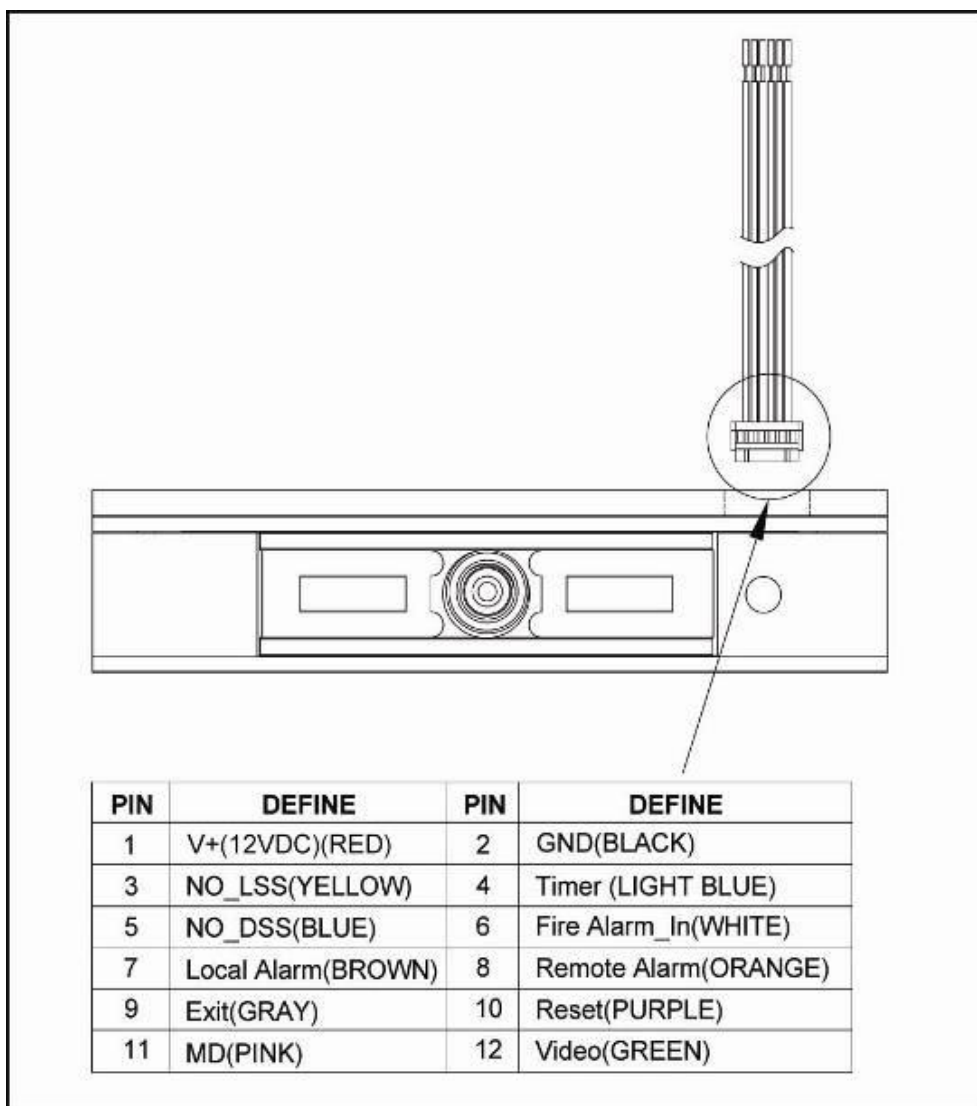
## **Wiring and Other Functions**

TERMINALS	DESCRIPTIONS
<b>Wiring</b>	12/24VDC Power Input – 2 wires Local Alarm Relay Output – 1 wire Remote Alarm Relay Output – 1 wire Reset Input – 1 wire Motion Detector Output – 1 wire LSS Output – 1 wire Request to Exit Input – 1 wire DSS Output – 1 wire Video Output – 1 wire (Only valid for with Camera model) Fire Alarm_In – 1 wire
<b>PIR Motion Detector Input (MD)</b>	Normally Closed – These two WIRES inputs are used to set the product to have Delayed Egress feature. The system will start the delay sequences only when these two inputs are open.
<b>Request to Exit Input (EXIT)</b>	Normally Open – The lock will release for 5 seconds when these two terminal block inputs are momentarily shorted, and will release permanently as long as these two terminal block inputs are shorted.
<b>Reset Switch Input (RST)</b>	Reset Switch Input from OPEN to CLOSE will reset the system back to the normal condition.
<b>Remote Alarm Relay “off”</b>	Remote Alarm Relay is off (triggered) only “when lock is released” or “when lock is going to be released” or “when lock might be forced to be released”.
<b>Camera</b>	350 TV lines/ 5~12VDC/ PAL signal format
<b>Sounder</b>	80dBA





## Wiring Pins Indication



### Diagram of Pins indication

**POWER:** PIN 1 and PIN 2 (Red and Black)



**LSS:** PIN 3 (Yellow)

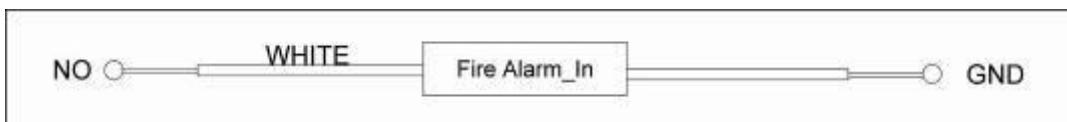




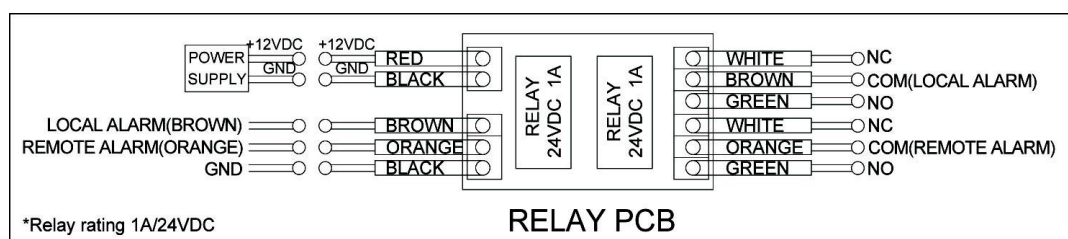
**DSS: PIN 5 (Blue)**



**FIRE ALARM: PIN 6 (White)**

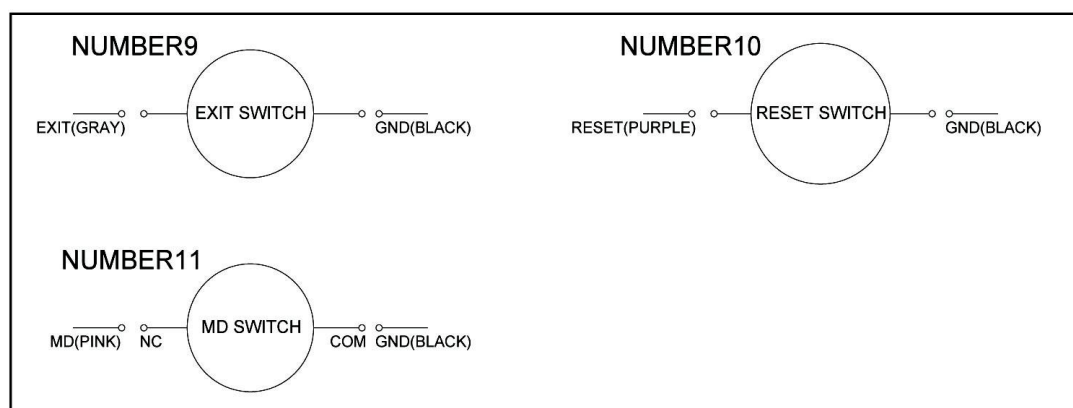


**LOCAL and REMOTE ALARM: PIN 7 and PIN 8 (Brown and Orange)**



**NOTE:** The Relay PCB is included in the product package

**EXIT, RESET and MOTION DETECTOR: PIN 9, PIN10 and PIN 11 (Gray, Purple, and Pink)**



**VIDEO: PIN 12 (Green)**

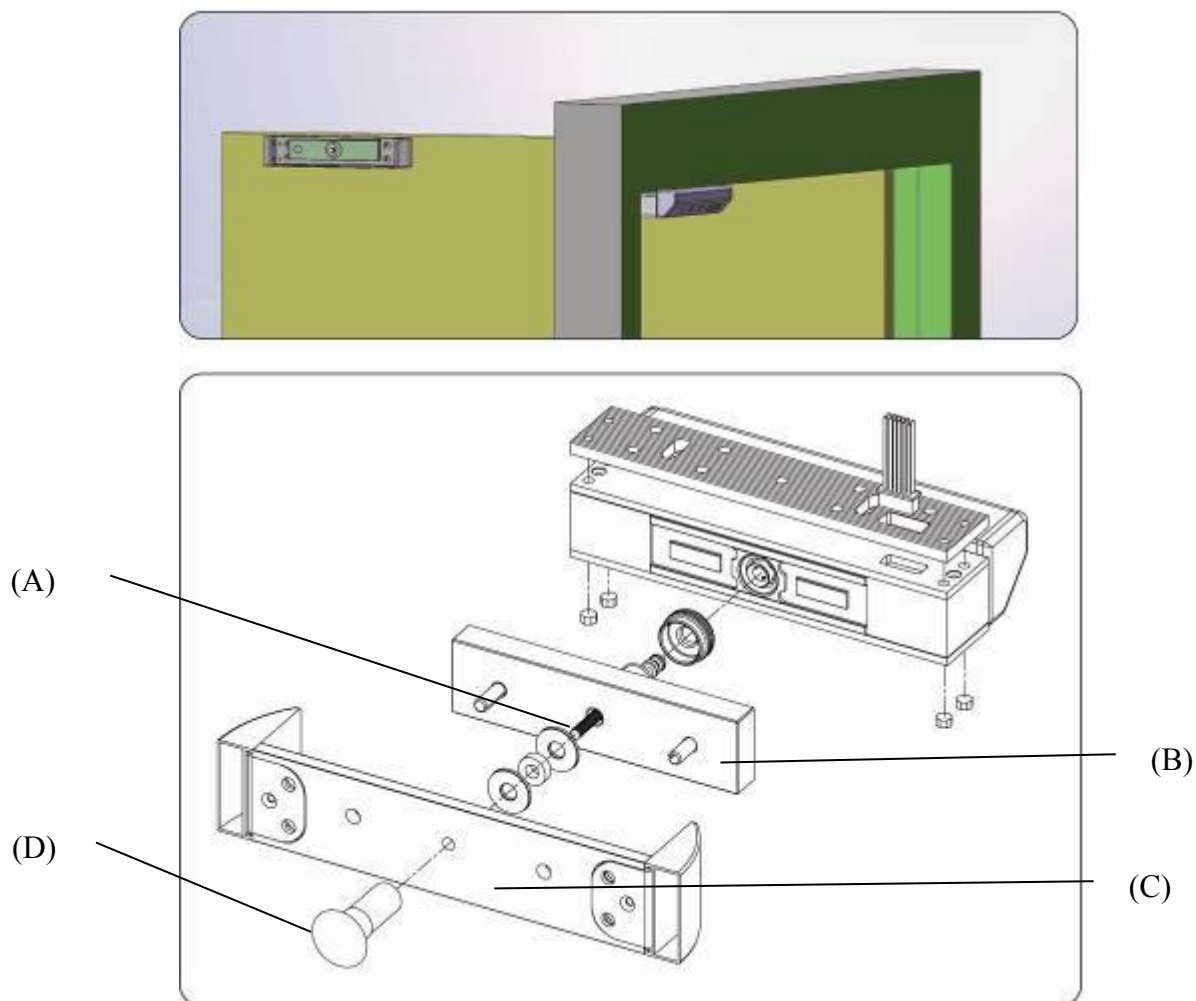
**NOTE:** On "Fire Alarm Condition", MEM2400EXT will unlock the door immediately.

On "Fire Alarm Reset", MEM2400EXT has to be reset manually in order to relock the device again.





## Installation Instruction



**Illustration of standard installation for MEM2400EXT**

### **Armature Plate Installation Instructions**

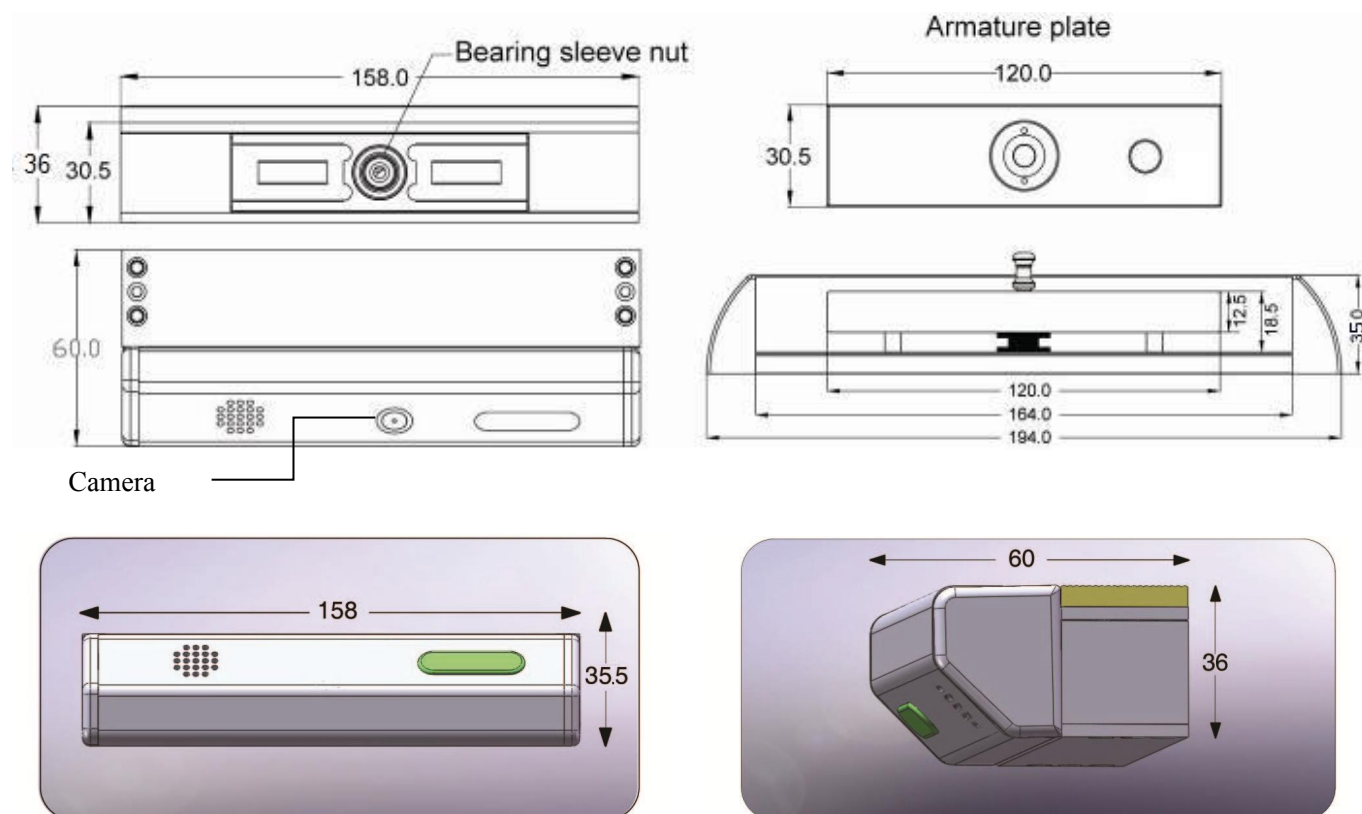
The Armature Plate (B) is screw fixed onto and through the Security Plate (C). The Armature Plate must remain flexible to allow surface alignment with the MEM magnet face. The lock will lose holding force without this floating alignment.

1. Drill a 12.0mm diameter (for timber doors) or a 12.5mm diameter (for metal doors) clearance hole through the door at the center of the desire position of the Armature Plate.
2. Screw and fix the Security Plate directly to the face of the door.
3. Install the Armature Plate with a Countersunk Allen Screw (A) through the fixed Security Plate. Ensure the 2 flat washers and 1 rubber washer are placed as indicated from the above diagram. (It is important to obtain some degree of flexibility of the Armature Plate after installation to allow surface alignment with the MEM magnet face.
4. Install the provided Sex Bolt (D) as shown in the diagram.





## MEM2400EXT Series Dimensions





## **MEM2400EXT Series and Accessories**

<b>MEM2400EXT SERIES</b>	<b>MODEL NUMBER</b>	<b>DESCRIPTION</b>
<b>Models</b>	MEM2400EXT-S	MEM2400EXT with built-in Sounder
	MEM2400EXT-SC	MEM2400EXT with built-in Sounder and Camera
<b>Brackets</b>	SEC2400	Security Plate for MEM2400EXT series

