

## Balanced High Security Magnetometer

### Features

- **Invulnerable to any Defeat Key**
- **Class A EMI and Lightning Suppression**
- **CE Certification**
- **UL 634 Level 2 Standards**
- **RoHS Compliant**
- **Open Collector Output**
- **Remote Test**
- **Anti-tamper**
- **No Electrical Contacts**
- **Insensitive to Vibration or Shock**
- **Reversed Battery Protection**
- **No Gap Hysteresis**
- **MTBF 5x10<sup>9</sup> hours**
- **All Climates Category**

### Description

"The Next Generation Military Grade High Security Intrusion Sensor"; a novel 3D Balanced High Security Magnetometer System (3D-BMS). This revolutionary new generation of BMS replacement is the only known intelligent 3D Magnetometer Security integrated device (also called Smart Magnetometer or digital Magnetometer). It is the only High Security Switch (BMS / HSS) in the world that cannot be defeated by "Trivial Means". It is also the only BMS technology in the world that can be networked and interrogated.

All 3D-BMS / HSS meet or exceed US Federal Specification Components for Interior Alarm Systems, Balanced Magnetic Switches W-A-450/1 August 28, 1990 in addition to UL Class 94V-O and UL 634 Class 2. Our 3D-Balanced Magnetic Switches (3D-BMS) / High Security Switches (HSS) are light years ahead of their time while maintaining backwards compatibility with existing installations.

### Absolute Maximum Ratings

Supply Voltage ..... +18V  
 Collector-Emitter Voltage ..... +24V  
 Collector Current ..... 40 mA  
 Storage Temperature ..... -55°C to 125°C  
 Operating Temperature Range ..... -40°C to 125°C



### Operational Characteristics

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Supply Voltage	over temperature range	7	12	18	V
Actuation Gap Maximum	with 1/4 inch spacer		0.40		inches
Actuation Gap Minimum	with 1/4 inch spacer		0.20		inches
Power Line Current	Supply Voltage = +12		150		mA
Collector Current Maximum	all supply voltage conditions		40		mA
Secure Output Level	actuated		0.1		V

## Applications Information

### General

The JRM1212 High Security magnetometer features a legacy interface to existing systems. It is designed to operate from the standard 12Vdc security network power lines. The sensor output is open collector for voltage level translation. The output is pulled low in a secure state. The alarm state occurs by default if power is removed from the device in an active security system. Remote test is automatically conducted when power is applied to the device and may be conducted at any time by placing a 12V pulse on the remote test line. It can be wired into existing BMS/HSS systems as replacements for passive devices, provided polarity on the open collector (Vout) is positive.

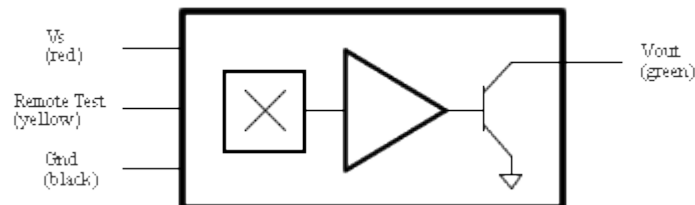
### Functional Gap

The optimal sensor actuator mounting gap is 0.25 inches. The minimum sensor actuator mounting gap of 0.20 inches is set to prohibit various defeat attacks and in particular, defeat sticks. The device may become susceptible to defeat, if operated outside recommended parameters, which includes a mounting gap of greater than 0.30 inches.

### Mounting Surface

The magnetometer and actuator with spacers can be mounted directly on any ferrous or non-ferrous surface. Special spacers are supplied for this purpose which also includes the anti-tamper feature: the switch will not work without it. Some ferrous objects in close proximity to the magnetometer or actuator may trigger an alarm.

## Simplified Schematic



### Extraneous Field Susceptibility

The device is insensitive to high frequency magnetic fields such as those generated by transformers and electric motors. Low frequency magnetic fields, such as those generated by permanent magnets in the vicinity of the device are interpreted as an attempt to breach the security system and generate an alarm state. All inputs and outputs have Class A EMI suppression filters which also provided a measure of protection against lightning.

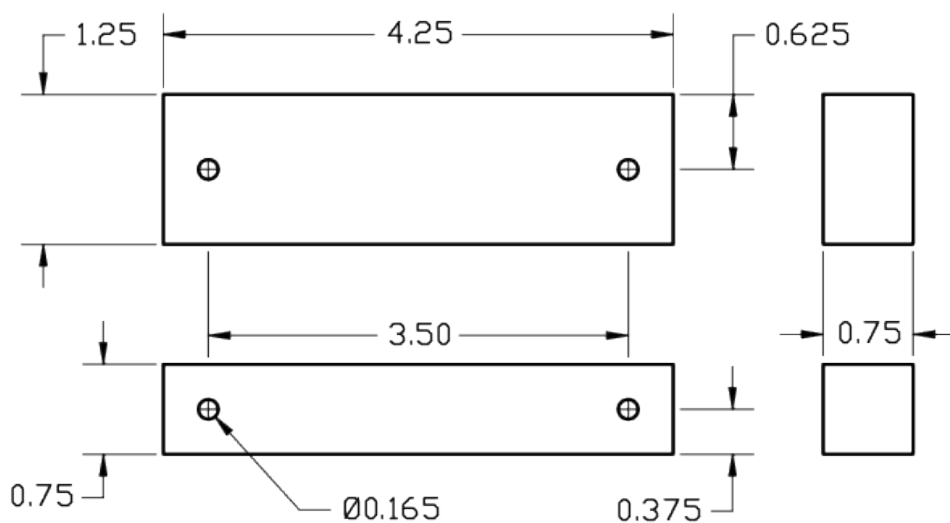
This intelligent device can detect extraneous magnetic fields introduced to mimic the actuator including but not limited to sliding permanent magnets into the gap between the sensor array and the actuator.

### Remote Test

A 12V pulse on the Remote Test line (purple) resets the device, sets a “Secure State” for one second, sets an “Alarm State” for one second and then returns to active sensing.

### False Alarm Immunity

Shock, vibration, and induced line voltage transients are the primary cause of false alarm indication associated with magnetic contacts. There are no electrical contacts to fail. False alarms are eliminated by Class A EMI suppression filters and inherent immunity to shock and vibration.

**Package Description****Output Cable**

The output cable is an armored four (4) conductor telephone cable one meter long suitable for RJ11 connectors. May be interfaced to existing BMS wiring in some systems. Inquire for assistance.

**Jackson Research**

May Pak  
G/F 80-81 Nam Shan Village  
Sai Kung, NT  
Hong Kong  
Phone: (852) 2792-2240  
Fax: (USA) 852-3014-9506

Website: <http://www.jrmagnetics.com>

Email: [jrmagnetics@yandex.com](mailto:jrmagnetics@yandex.com)