

Balanced High Security Magnetometer with RS485 Network

Features

- **RS485 Network**
- **Invulnerable to any Defeat Key**
- **Integrated Thermometer**
- **Class A EMI and Lightning Suppression**
- **UL 634 Level 2 Standards**
- **NEMA Rating 1,2,3,4,4x,5,6,12**
- **RoHS Compliant**
- **Open Collector Output**
- **Remote Test**
- **Anti-tamper**
- **No Electrical Contacts**
- **Insensitive to Vibration or Shock**
- **Reversed Battery Protection**
- **No Gap Hysteresis**
- **MTBF 5x10⁹ hours**
- **All Climates Category**

Description

The JR2222 High Security magnetometer features both a legacy interface to existing systems and a RS485 network interface with three command set protocols. 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 can be initiated by either the hard wired remote test line or from software. False alarms are eliminated by Class A EMI suppression filters and inherent immunity to shock and vibration. Anti-tamper is built into the device which requires the supplied spacers. It can be wired into existing BMS/HSS systems as replacements for passive devices, provided polarity on the open collector (Vout) is positive.

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 JR2222 High Security magnetometer features both a legacy interface to existing systems and a RS485 network interface with three command set protocols. 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.

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 can be mounted directly on any non-ferrous surface. The device must be mounted at least 1/4 inch from any 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 the vicinity of the magnetometer or actuator may trigger an alarm.

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.

RS485 Network

A two wire RS485 interface is integrated into the sensor. There are three communication protocol versions available. The first version is a ASCII text protocol similar to telephone modem command sets. The other two protocols are Modbus, one of which is ASCII based and the other is HEX based.

Programs such as Hyperterm, Putty, Tera Term, CuteCom and Hercules can communicate directly with the JR2222 ASCII versions.

Remote Test

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 (Purple). Remote Test resets the device, sets a "Secure State" for one second, sets an "Alarm State" for one second and then returns to active sensing.

Remote test can also be initiated over the RS485 network using the software remote test command.

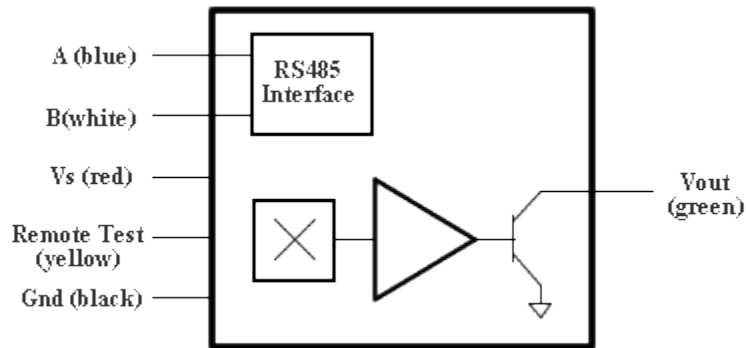
False Alarm Immunity

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. EMI filters eliminate false logic states under normal operating conditions. Consequently, these environmental false alarms have been eliminated.

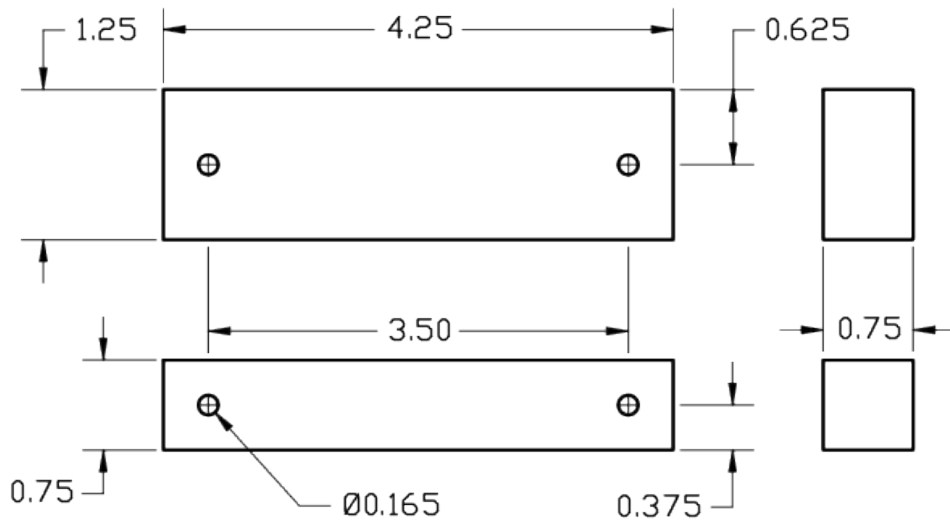
Thermometer

The digital thermometer may be accessed through the RS485 network using the sensor query command. Temperature units are in degrees Centigrade.

Simplified Schematic



Package Description



Output Cable

The output cable is an armored six (6) conductor security cable one meter long with a modular RJ11 (P6C6) connector. May be interfaced to existing BMS wiring in some systems. Inquire for assistance.

Part Numbers

Part Number	Command Set
JR2222-AT	ASCII text serial communication
JR2222-MA	Modbus ASCII
JR2222-HX	Modbus HEX

Available in several colors:
Add suffix -B for black, -A for Gold and -R for red.

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