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Freeko™ II Magnetic Switch

Installation Instructions
REV 5A Jan. 2013
Item: 4777_MAG (A5DS)

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Introduction

The Freeko II MAG, Rev 2 is fully supervised, low-current magnetic contact transmitter. In Rev 2 the Operation Mode been revised to use with external switch or detector, refer to pages 15-16.
The Freeko II MAG includes a built-in reed switch and wired input for external reed switch.
The Freeko II MAG is powered by an internal, long life Lithium battery.
Each Freeko II MAG has a unique ID code (24bit).
Compatible Freeko receivers are designed to "Learn" the specific ID of the Freeko II MAG detectors.
Alarm due to contact open/close and other data are forwarded to the receiver for specific event indication.
A periodic test transmission for supervision purposes takes place automatically once every 12 ~ 14 minutes. The receiver is informed that the Freeko II MAG detector is taking an active part in the wireless security system.

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Features

- State-of-the-art wireless security system
- Low current Technology
- Magnetic & External Magnetic modes
- Powered by 3.6 Volt Lithium battery
- Battery life: Up to 4 years
- Freeko frequency band: 868MHz
- Contact Open transmission
- Contact Close transmission
- Tamper Changed transmission
- Supervision transmission
- Battery condition signal transmission
- Range up to 200 m at Freeko space.
- Unique ID number
- Support external switch with EOL protection
- Supports adding external detector as outdoor detector or other magnetic switch

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Operation

The Wireless Magnetic detector transmits the following events data:

SUPERVISION - a periodical transmission.
Every 12~14 min. indicates detector's presence.

ALARM – REED SWITCH OR MAG:
Alarm transmission triggered by intrusion detection from the reed switch or wire input. (Door/window open/close).

LOW BAT – Whenever the battery reaches a pre-set low level (~2.4V) Low Battery signal will be sent with the nearest message (Supervisor, Alarm, etc.).

TAMPER – Whenever the Freeko transmitter cover is removed or the unit's cover is returned a message will be transmitted with "Tamper" signal.

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Select Mounting Location

It is recommended to mount MAG vertically and on flat area to get maximum range.
As the detector is a wireless transmitter, and in order to take full advantage of it's sophisticated operation, do not install the detector in areas where large metal objects could interfere with the transmission of signals.
It is recommended to attach transmitter to the fixed Freeko and the magnet to the movable part (door or window), as shown in page 10.

For metal doors use a suitable switch and magnet pair connected to the FR2_MAG as transmitter.

For detector installation it is recommended to use a Wood Screw 3x30 PH. Flat head.
Caution: Using different or bigger screws can damage the electronic board.

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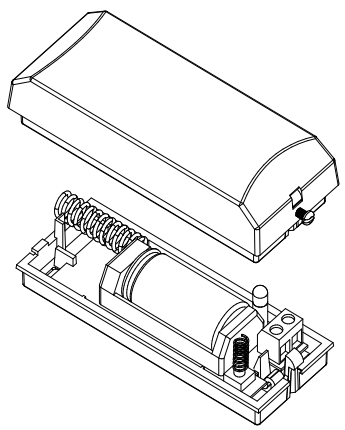
FIG. 1 - Removal of Freeko Cover



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Mounting the Detector

1. To remove the Freeko cover, unscrew the holding screw, insert a flat screwdriver in the slot between the Freeko and the bottom and push gently, until the Freeko cover is disengaged and the opening click is heard (Fig. 1).
2. Remove the PC board.
3. Break out the desired holes for proper installation.(Fig. 2)
4. Mount the detector base.
5. Mount the Magnet Unit near the Marking.
6. Reinstall the PC board.
7. Install battery in the battery holder according polarity.
8. Place the cover by inserting it back in the appropriate closing pin and screw the holding screw.

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FIG. 2 – Magnet Switch (Do not use on Metal)

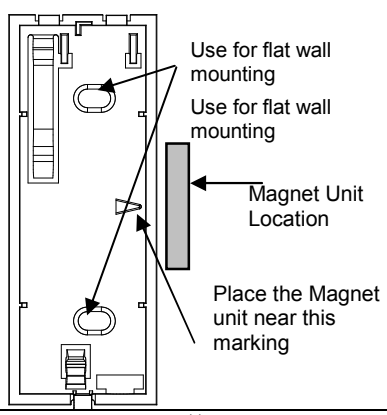

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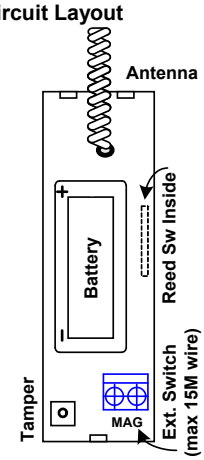
FIG. 3 - Circuit Layout



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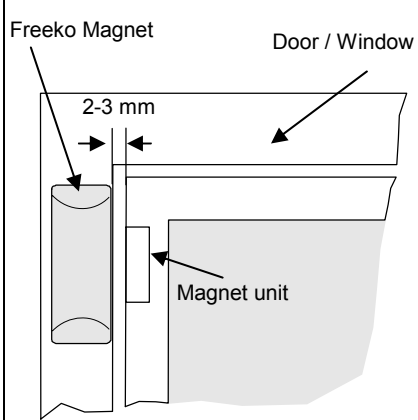
INSTALLATION



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RSSI – RF Signal Strength Indication

The Freeko control panel has "RF Signal quality Indication" for each transmitter in order to help the installer define best location for the detector Freeko RF point of view.
The indication value is between 1 and 10, where 10 (10 displayed as "F") is the best RF received signal. If the RSSI indication is less than 3, it is a sign for weak RF link, try to find a better installation for the MAG.

NOTE:
Refer to the Freeko II receiver installation instruction.

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ID Registration - "Learn" Procedure

Refer to the Freeko II receiver's installation instructions and follow the procedure given there for "learning" detector IDs.
Perform transmission by pressing and releasing tamper switch for learning it by Freeko receiver.
Make sure that the receiver is at learning mode - according to Freeko II receiver installation instruction.
For learning purpose, insert the battery into the transmitter with magnet placed as per Fig.2, so the transmitter automatically gets into Magnetic Switch mode. Wait 60 seconds, for learning keep 3-4 meters from receiver

NOTE:
It is recommended to power up the detector and let the system receiver "learn" the detector's ID before actual installation.

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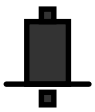
Alarm Transmission Test

Removing and placing of magnet unit enables the alarm transmission test feature.
Check that the receiver unit indicates at least two events – one for removing and one for placing the magnet.

During the detection at the receivers LCD the sign below displayed under the zone number:



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Tamper Transmission Test

Pressing and releasing the tamper (push button) enables the Tamper transmission test feature.
Check that the receiver unit indicates at least 2 events – one for pressing and one for releasing
Verify on the Freeko II receiver that display shows this sign.

Transmission Range Test

By Alarm transmission test (Changing Magnet position) it's enabling to check the RF transmission quality (RSSI). Special indication at the receiver displays continuously the received RF signal quality.
See page 11 and Freeko receiver installation instruction.

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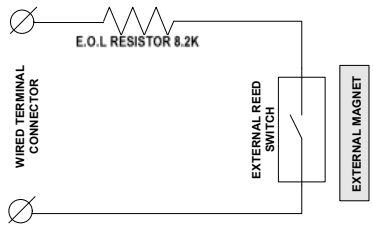
External Magnet or add wired detector

There is an option to use an additional contacts or magnet units connected to the MAG terminal input.
The connection is protected by an 8.2 K Ohm serial resistor.
Alarm transmission, triggered by intrusion detection at MAG terminal input, provides signals of door/window open/close up to 15 meters.



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Setting the operation mode

There are 3 operation modes for Freeko II MAG. The mode should be selected and configured during the power-up - inserting of the battery.

1. Mode No. 1- Internal Reed Switch only:
   In order to configure the Freeko II MAG to use internal reed switch only, during battery insertion make sure that there is nothing connected to the wired terminal.
2. Mode No. 2 - External Reed switch only:
   In order to configure the Freeko II MAG to use External reed switch only, during battery insertion make sure that the internal reed switch is open, external reed switch is closed and a resistor of 8.2K is connected is series to the wired terminal.
3. Mode No 3 - Internal and external reed switches:
   In order to configure the unit for both the internal and external reed switches, during battery insertion make sure that internal reed switch is closed and the external reed switch is closed with 8.2K serial resistor.

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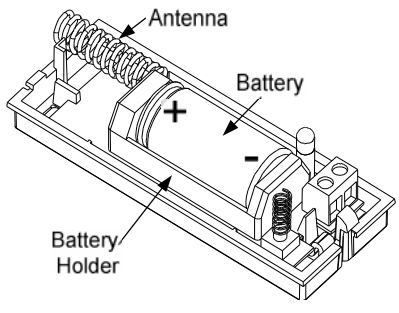
Battery Placement

Notice polarity when replacing new battery.



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Battery Replacement

Remove the Freeko cover by inserting a flat screwdriver in the appropriate slot.

Remove the old battery.

Use only approved and new battery (refer to page 22), low cost ones cause malefactions.

Place a new battery according to polarity marking.

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Battery

A 3.6 V lithium battery powers the unit. If the battery reaches a factory preset low level, the low battery signal will be sent and Freeko this moment the detector remains operational for another 30 days giving enough time to replace the 3.6V lithium battery.

Replace Battery with the following:

3.6V Lithium Battery. Size: 1/2AA

Models:

XL-050F Xeno Energy

LS14250 SAFT

TL-5902 TADIRAN

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CAUTION!

Risk of explosion if an incorrect type battery replaces.

Dispose of used batteries according to your local environment policy.

WARNING: Test this product at least once a week.

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This device complies with:

European Council Directive EMC 89/336/EEC

EN50130-4

EN301489

EN300220

EN50081.

SAFETY 73/23/EEC

EN60950 (ITE)

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Technical Specifications

Data Protocol	Freeko II
Modulation Type	FSK (One frequency)
Frequency band	868 MHz (433 special order)
Identification	Unique ID serial number – 24 bit
Event Transmission	Alarm, Tamper, Supervision, Low Bat
Supervision Timing	12~14 minutes (random)
Detection Method	Internal Reed Switch or External Magnet
Range in open space	up to 200 meters
Battery	Lithium. 3.6V Type: XL-050F Size: 1/2AA
Current Consumption	
Standby:	~5 μA
Transmission:	~16 mA
Tamper Switch	On Freeko Cover Removal; Back Tamper (Option)
Operating temperature Range	-10°C to +50°C
Dimensions	87mm x 35mm x 24mm
Weight (inc. battery)	40 gr

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