

Texecom

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Mirage Dual Technology Detector - Brief Description

The *Mirage* is designed to detect the presence of intruders and open a relay contact which may be monitored by an alarm control panel. There are two different detecting technologies within the *Mirage*: a Passive Infra Red sensor (PIR) and a Microwave Doppler sensor (MW). The PIR section looks for variations in infrared caused by body heat, the MW Doppler looks for the presence of a Doppler signal indicating movement. Only when both technologies register a signal at or about the same time does the unit signal an alarm by opening a relay contact.

This method of combining two technologies leads to a significant reduction in false alarms when compared with single technology detectors. The unit is designed for indoor use only and requires a 12V nominal DC power supply.

CASCO



Mirage DTD001 Changes

MGP

12/10/98

Rep047

Changes to Mirage Dual Technology Detector

MPT id: DTD001

FCC id: MYJ DTD001-1

The component changes were made to reduce the harmonic emissions of the Microwave unit and therefore reduce the production cost of our FCC unit. For further cost savings due to volume we would like to use one unit for European (MPT1349 and ETSI 300440) and FCC Part 15.:

1. Harmonics were reduced by decreasing the current through the transistor (and thus reducing transmitted power), re-optimising antenna dimensions and altering the bias conditions of the transistor.
2. MW circuit load was then re-optimised.
3. The gain of the Doppler amplifier was then re-optimised for the new Doppler signal.

Four other minor changes were also made at the same time:

4. A low value series protection resistor was also added to the output of the Doppler Op-Amp to protect from static damage.
5. The pull up resistor on the reset line of the micro was reduced from 150k to 10k for a marginal cost saving.
6. The input protection resistor on the micro pin 10 was reduced from 10k to 1k0 to speed up ATE test time.
7. The LED series resistor was reduced from 1k0 to 330 Ω to increase the brightness of the LED.

See over for changes.

Engineers at Texecom and Radio Frequency Investigation Ltd (RFI) are in agreement that the only parameters these changes should effect are the field strengths of the fundamental carrier and the harmonics (spurious emissions). The spurious emissions will be reduced, however this needs confirming experimentally. Texecom therefore propose that RFI measure the main carrier and the spurious emissions only.



Checked

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Mark Pitts, Senior Design Engineer

Date

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