

MDU 17xx SERIES TRANSCEIVERS



Features

- Low cost
- RoHS Compliant
- Small and Flat Profile
- Rugged, Reliable Construction
- Low Power Consumption
- High Sensitivity
- Tested to EN 300 440

Description

The Microwave Solutions MDU (Motion Detector Unit) is an X-Band microwave transceiver that utilises the Doppler shift phenomenon to "sense" motion.

The unit, contained in a lightweight plastic housing, features a dielectric resonator stabilised FET oscillator, which provides stable operation over a broad temperature range in either CW or low duty cycle pulse mode and a balanced mixer for enhanced sensitivity and reliability.

Applications

- Intrusion Alarms (Room, Vehicle)
- Automatic Door Openers
- Speed Measurement
- Collision Avoidance
- Traffic Control
- Presence Sensing

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Operation

The basic principle of operation consists of detecting the frequency shift between a transmitted and a received signal reflected back from a moving object within the field of view of the unit.

The unit produces a low level output signal which can be amplified and processed to provide an audible or visual alarm signal and employs low cost surface mount manufacturing techniques which are field proven as being rugged and reliable.

Electrical Characteristics

Transmitter	
Frequency	: see table
Frequency Setting Accuracy	: 3MHz
Power Output (Min.)	: 10dBm EIRP
Operating Voltage	: +5V ±0.25V
Operating Current (CW)	: 60mA max.
	: 40mA typ.
Harmonic Emissions	: < -30dBm

Pulse Mode Operation

Average Current (5% DC)	: 2mA typ.
Pulse Width (Min.)	: 5µSec
Duty Cycle (Min.)	: 1%

Receiver (Measured in 3Hz to 80Hz bandwidth)

Sensitivity (10dB S/N ratio)	: -86dBm
Noise	: <10µV

Antenna (Standard)

Gain	: 8dBi
-3dB Beamwidth	
E Plane	: 72°
H Plane	: 36°

Antenna (Ceiling Mount)

Gain	: 5dBi
Coverage pattern	– circle on floor of same radius as mounting height above floor.

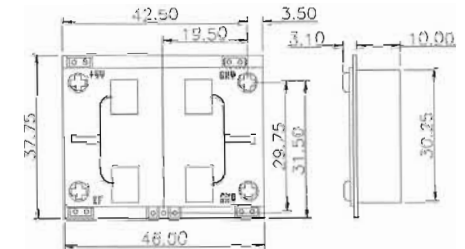
Mechanical Characteristics

Weight	: 13 grams
Tab Connections	: 0.1" spacing
Metallisation	: Sn+Ni+Cu JEDEC JESD97 (e2)

Environmental Characteristics

RoHS Compliant

Power/Temp. Coefficient (over operating temp. range)	: 3dB
Frequency/Temp. Coefficient (over operating temp. range)	: 15MHz
Operating Temperature	: -10°C to +55°C
Storage Temperature	: -30°C to +70°C



Outline Drawing

NOTES Detection range is dependent on size and reflectivity of target and S/N ratio
Doppler shift at 10.687GHz is 31Hz/m.p.h.

Model	Application	Order Code	Frequency	Comments
MDU1750	UK	C720801	10.587GHz	Tested to EN 300 440
	UK Indoor	C720800	10.687GHz	Tested to EN 300 440
	UK Ceiling Mount	C720808	10.687GHz	Tested to EN 300 440
MDU1750	Belgium, Holland, Italy	C720802	10.525GHz	Tested to EN 300 440
	Ceiling mount version	C720810	10.525GHz	Tested to EN 300 440
MDU1740	Germany	C720820	9.35GHz	
MDU1730	Italy, France	C720807	9.90GHz	Tested to EN 300 440



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