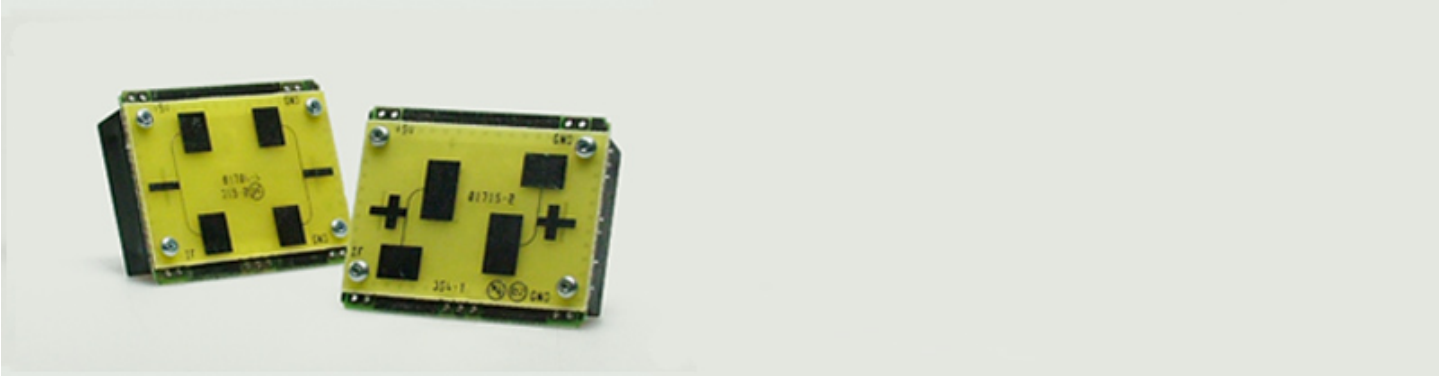
X-Band Doppler Motion Detector Units
Model Numbers MDU1750



Key Features

- Low Cost
- High Sensitivity
- Patch Antenna
- Supervision capability
- Small and Flat Profile
- +3.6V and +5V versions available
- Rugged, reliable construction
- Low Power consumption
- RoHS compliant
- Meets EN 300 440

Applications

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

The Microwave Solutions MDU1750 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.

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.

Available Modules

Model	Country	Frequency	Comments	Order Code
MDU 1750	UK	10.587 GHz	Tested to EN 300 440	C920801
	UK Ceiling Mount	10.587 GHz	Tested to EN 300 440	C920809
MDU 1750	Belgium, Holland, Italy	10.525 GHz	Tested to EN 300 440	C920802
	Ceiling mount version	10.525 GHz	Tested to EN 300 440	C920810
MDU1750	Ireland	10.41GHz	Complies with EN 300 440	C920871
MDU 1750	Germany, Slovak Republic	9.35 GHz	Tested to EN 300 440	C920820
MDU 1750	Italy, France	9.90 GHz	Tested to EN 300 440	C920807

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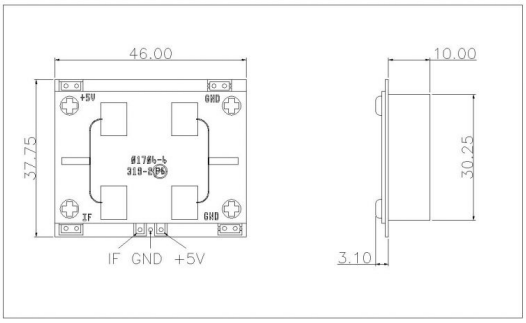


Mechanical Characteristics

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

Environmental Characteristics

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

Electrical Characteristics

Transmitter

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

Pulse Mode Operation

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

Receiver 3Hz to 80Hz bandwidth

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

Antenna : standard

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

Antenna : ceiling mount

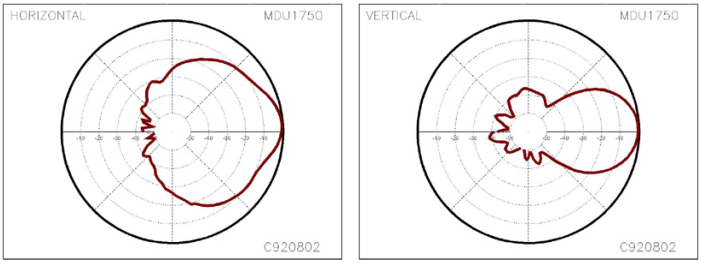
Gain	5 dBi

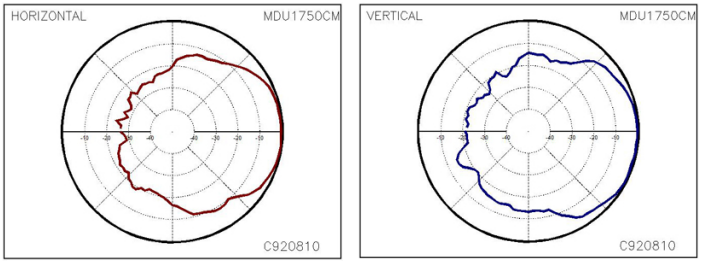
COVERAGE PATTERN: circle on floor of same radius as mounting height above floor.

NOTES Detection range is dependent on size and reflectivity of target and S/N ratio. Doppler shift at 10.525GHz is 70 Hz per m/s target velocity.

Unit functions over - 30° C to +70° C, but performance may be degraded above +55° C

Coverage Pattern





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