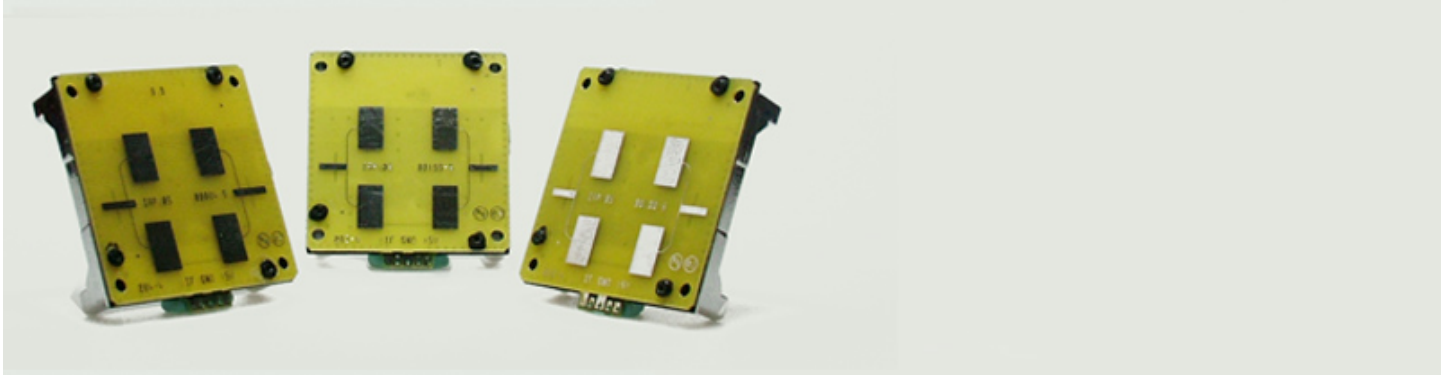


X-Band Doppler Motion Detector Units

Model Numbers MDU1100T Tuneable



Key Features

- Low Cost
- High Sensitivity
- Electronically tuneable
- Patch Antenna
- Small and Flat Profile
- Rugged, reliable construction
- Low Power consumption
- RoHS compliant
- Meets EN 300 440 requirements

Applications

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

The Microwave Solutions MDU1100T 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 an electronically tuneable 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.

The tuneable transceiver incorporates provision for electronically tuning the unit over a frequency range of approximately 5MHz at room temperature. This enables frequency modulation to be applied to the transceiver or fsk ranging to be performed.

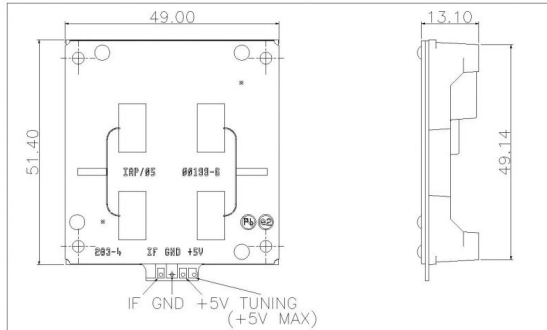
The following patents (and others) apply to the MDU1100T family of products: US Patents 6,064,276, 5,262,783, 5,208,567

Available Modules

Model	Country	Frequency	Comments	Order Code
MDU 1100T	UK	10.587 GHz	Meets EN 300 440	C900861
MDU 1100T	Belgium, Holland, Italy	10.525 GHz	Meets EN 300 440	C900862

X-Band Doppler Motion Detector Units

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Mechanical Characteristics

Weight	15 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
Electronic Tuning Range	> -3MHz min.
(0v to +5v on tuning input)	>-4MHz typ.

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

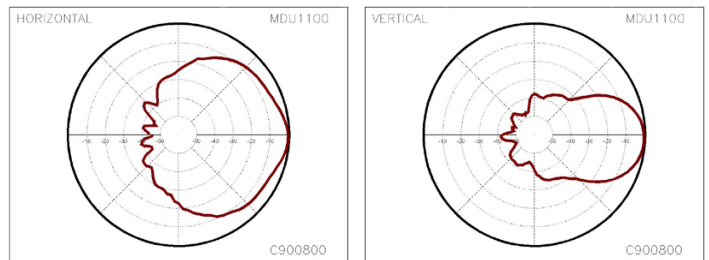
Antenna : standard

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

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.

The tuning input sinks approximately 4 - 6mA at +5 volts.

Coverage Pattern



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