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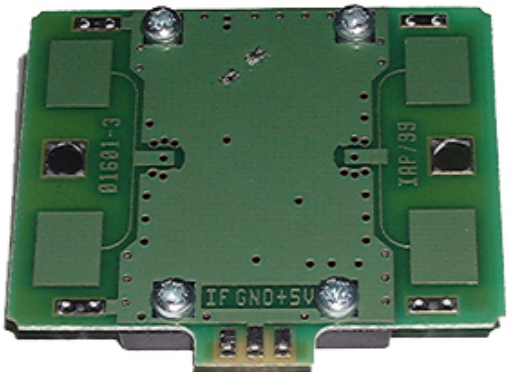
M 1620 SERIES TRANSCEIVERS



Features

- Low cost
- Small and Flat Profile
- Rugged, Reliable Construction
- Low Power Consumption
- High Sensitivity
- Meets FCC Part 15 reqts.

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 consists of a circuit board with a lightweight plastic housing.

The circuit 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 IF 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.)	:	13dBm EIRP
Operating Voltage	:	+5V ±0.25V
Operating Current (CW)	:	60mA max.
	:	45mA typ.
Harmonic Emissions	:	< -7.3dBm
Pulse Mode Operation		
Average Current (5% DC)	:	2mA typ.
Pulse Width (Min.)	:	5µSec
Duty Cycle (Min.)	:	1%
Receiver		
Sensitivity (10dB S/N ratio)	:	-86dBm
Noise	:	10µV
(Both in 3Hz to 80Hz bandwidth)		
Antenna		
Gain	:	8dBi
-3dB Beamwidth		
E Plane	:	72º
H Plane	:	36º

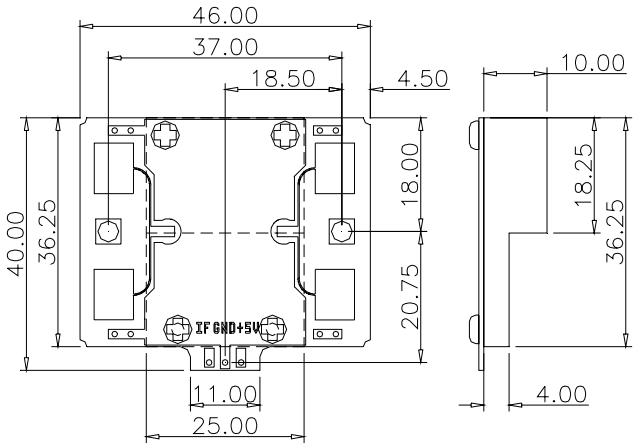
Mechanical Characteristics

Weight	:	9 grams
Tab Connections	:	0.1” spacing

Environmental Characteristics

Power/Temp. Coefficient (over operating temp. range)	:	3dB
Frequency/Temp. Coefficient (over operating temp. range)	:	6.5MHz
Operating Temperature	:	-10ºC to +55ºC
Storage Temperature	:	-30ºC to +70ºC

Outline Drawing



NOTES Detection range is dependent on size and reflectivity of target and S/N ratio
Doppler shift at 10.525GHz is 31Hz/m.p.h.
Unit functions over -30ºC to +70ºC but performance may be degraded above +55°C.

Model	Application	Order Code	Frequency	Comments
M1620	USA,Canada etc.	C915605 C915603 C915606	10.515GHz 10.525Ghz 10.535GHz	USA FCC Part 15 Indoors