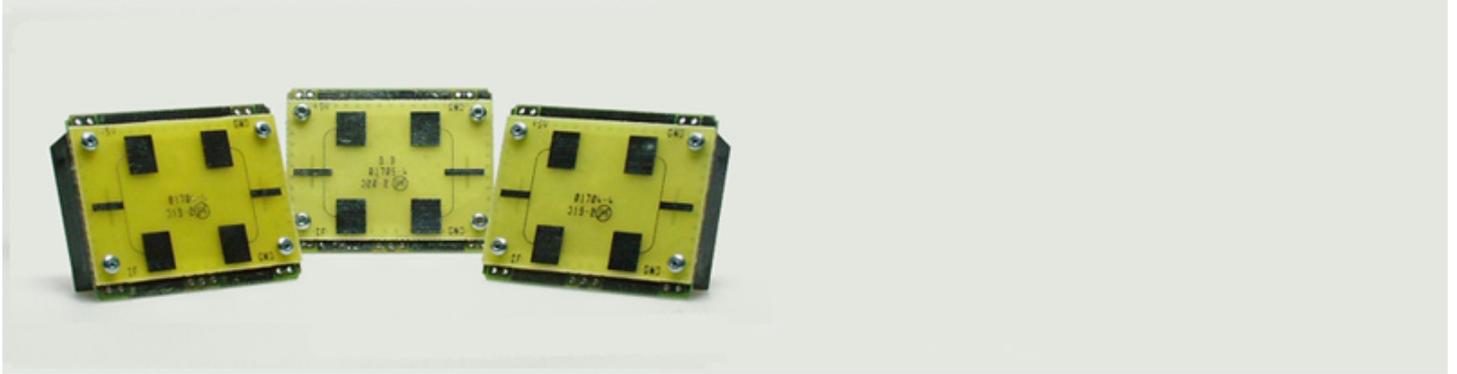


X-Band Doppler Motion Detector Units

Model Numbers MDU1730S/50S



Key Features

- Low Cost
- High Sensitivity
- Patch Antenna
- Wall & Ceiling mount versions
- Small and Flat Profile
- Rugged, reliable construction
- Low Power consumption
- RoHS compliant
- Tested to EN 300 440 v1.3.1

Applications

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

The Microwave Solutions MDU1730S/50S 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.

In addition the module has an integral receiver modulator that can be used as an enhanced "self-test" feature to constantly supervise the function of the module.

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.

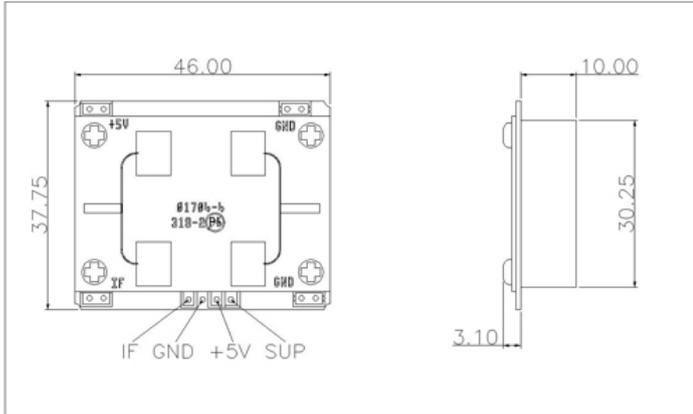
An additional signal (at a frequency within the passband of the IF amplifier) can be applied to the supervision input to modulate the IF output and verify correct operation.

Available Modules

Model	Country	Frequency	Comments	Order Code
MDU 1750S	UK	10.587 GHz, 5V	Meets R&TTE Directive	C920851
	UK	10.587 GHz, 3.6V	Meets R&TTE Directive	C920831
MDU 1750S	Belgium, Holland, Italy, USA	10.525 GHz, 5V	Meets R&TTE Directive	C920852
	Belgium, Holland, Italy, USA	10.525 GHz, 3.6V	Meets R&TTE Directive	C920832
MDU 1730S	Italy, France	9.90 GHz, 5V	Meets R&TTE Directive	C920857
	Italy, France	9.90 GHz, 3.6V	Meets R&TTE Directive	C920837

X-Band Doppler Motion Detector Units

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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 OR +3.6V ± 0.25 V
	specify correct Order Code
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

Supervision Input

Amplitude	0 - 5vdc
Frequency	DC - 1KHz

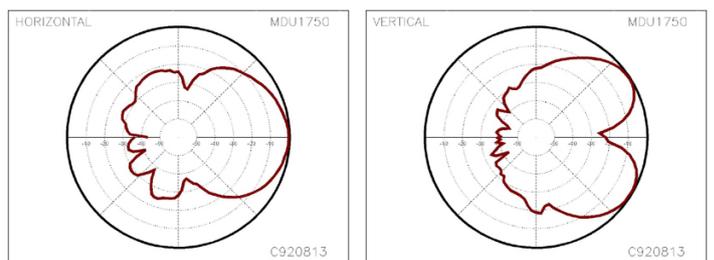
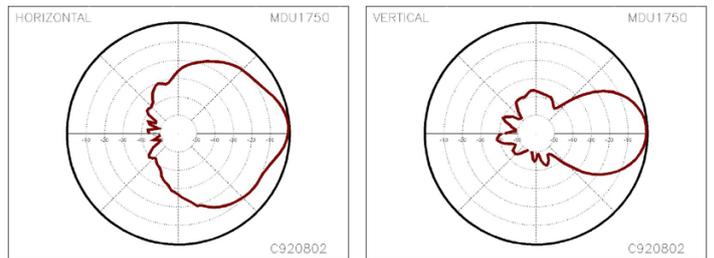
Antenna

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.

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

Coverage Pattern



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