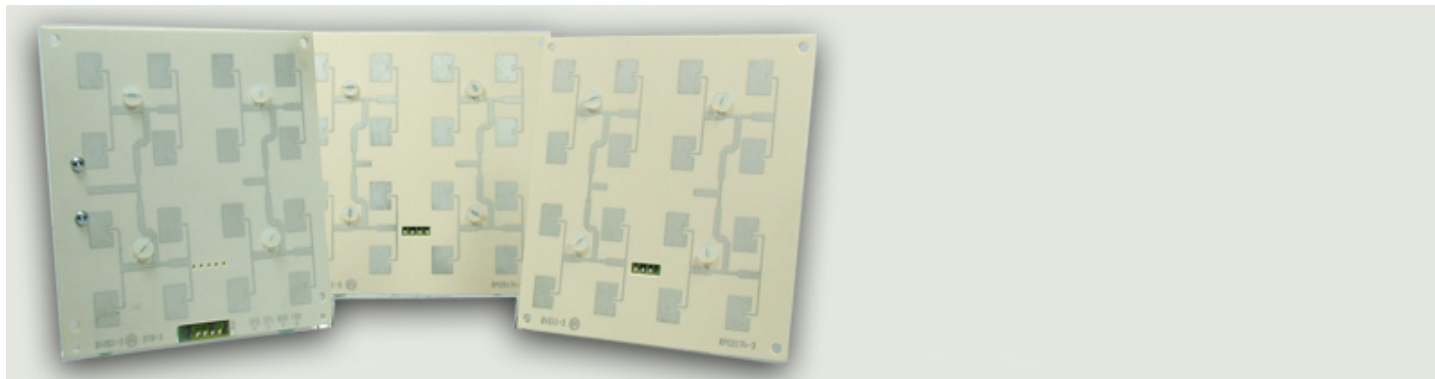


## X-Band Doppler Motion Detector Units

### Model Numbers MDU4200



#### Key Features

- Low Cost
- High Sensitivity
- Patch Antenna
- Small and Flat Profile
- Rugged, reliable construction
- Low Power consumption
- RoHS compliant
- Tested to EN 300 440

#### Applications

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

The Microwave Solutions MDU4200 Motion Detector Unit is an X-Band microwave transceiver that utilises the Doppler shift phenomenon to "sense" motion. The unit is supplied with an integral high gain/narrow beam antenna array making it suitable for long range focussed detection.

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. The unit employs low cost surface mount manufacturing techniques which are field proven as being rugged and reliable.

#### 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.

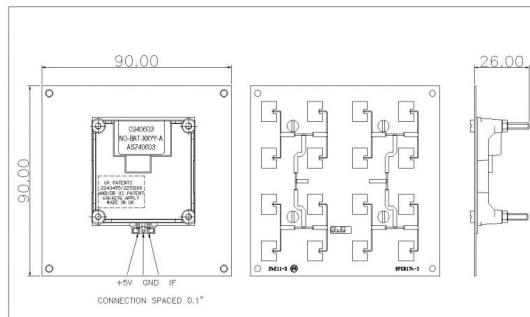
The unit produces a low level output signal which can be amplified and processed to provide an audible or visual alarm signal and employs low cost surface mount manufacturing techniques which are field proven as being rugged and reliable.

#### Available Modules

Model	Country	Frequency	Comments	Order Code
MDU 4200	Belgium, Canada,	10.525 GHz	Tested to EN 300 440	<b>C940802</b>
	Holland, Italy USA etc	10.525GHz		
	UK	10.587 GHz	Tested to EN 300 440	<b>C940801</b>
	France	9.90GHz	Meets EN 300 440	<b>C940807</b>

# X-Band Doppler Motion Detector Units

## Model Numbers MDU4200



### Electrical Characteristics

#### Transmitter

Frequency	See table over
Frequency Setting Accuracy	3 MHz
Power Output (Min.)	10 dBm EIRP
Operating Voltage	+5 V $\pm$ 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 $\mu$ secs
Duty Cycle (Min)	1%

#### Receiver 3Hz to 80Hz bandwidth

Sensitivity (10 dB S/N ratio)	-92 dBm
Noise	< 10 $\mu$ V

#### Antenna : standard

Gain	14 dBi
-3 dB Beamwidth	
E Plane	36°
H Plane	18°

### Mechanical Characteristics

Weight	25 g
Tab Connections	0.1" spacing
Metallisation	Sn+Ni+Cu
	JEDEC JESD97 (e2)

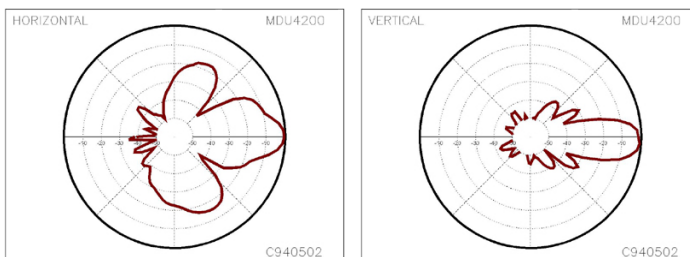
### Environmental Characteristics

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

**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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