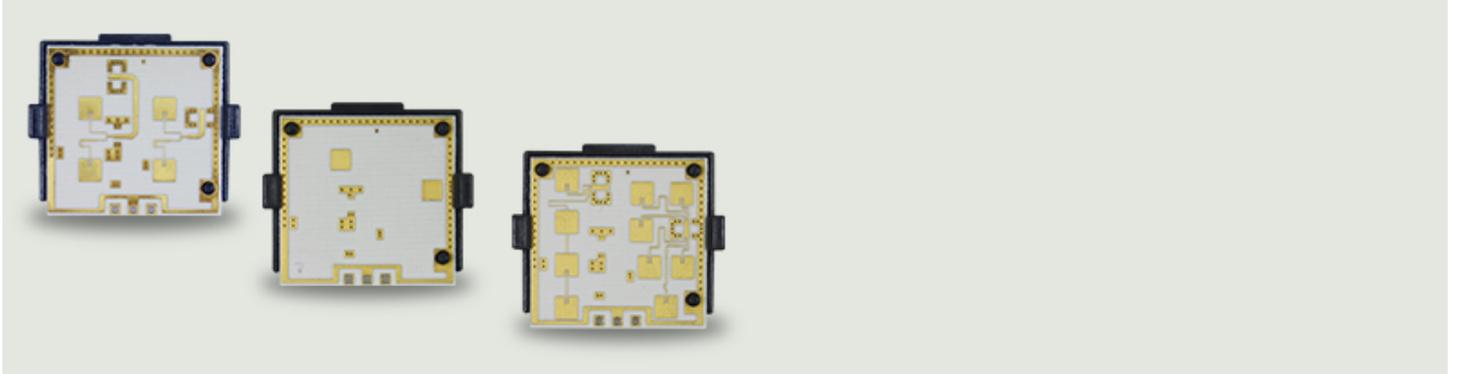


## K-Band Doppler Motion Detector Units

### Model Numbers MDU2400/2430/2440-3



#### Key Features

- 3V or 3.3V operation
- Low Cost
- High Sensitivity
- Patch Antenna
- Wall & Ceiling mount versions
- Small and Flat Profile
- Rugged, reliable construction
- Low Power consumption
- RoHS compliant

#### Applications

- Intrusion Alarms (Room, Vehicle)
- Door Openers
- Energy Management
- Home Automation
- Presence Sensing

The Microwave Solutions MDU2400-3, MDU2430-3 and MDU2440-3 Motion Detector Units are K-Band microwave transceivers with alternative coverage patterns that utilise the Doppler shift phenomenon to "sense" motion. These modules operate from a 3.0V/3.3V supply, making them suitable for use in battery powered applications.

The MDU2400 is optimised for corner mount applications, providing full 90° coverage.

The MDU2430 is optimised for long range/narrow beam corridor applications.

The MDU2440 is designed for ceiling mount applications up to an installation height of 3.5m.

The units feature a resonator stabilised oscillator, which provides stable operation over a broad temperature range in either continuous or low duty cycle pulse mode and an integrated receiver 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.

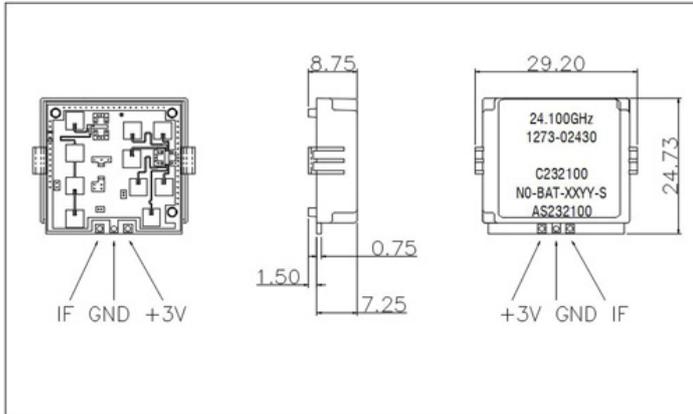
The units produce a low level output signal which can be amplified and processed to provide an audible or visual alarm signal and are manufactured using surface mount techniques, field proven as robust and reliable.

#### Available Modules

Model	Country	Frequency	Comments	Order Code
MDU 2400-3	General use	24.1 GHz	Meets R&TTE Directive	C202100
	UK	24.2 GHz	Meets R&TTE Directive	C202200
MDU 2430-3	General use	24.1 GHz	Meets R&TTE Directive	C232100
	UK	24.2 GHz	Meets R&TTE Directive	C232200
MDU2440-3	General use	24.1GHz	Meets R&TTE Directive	C242100
	UK	24.2 GHz	Meets R&TTE Directive	C242200

# K-Band Doppler Motion Detector Units

## Model Numbers MDU2400/2430/2440-3



### Mechanical Characteristics

Weight	10 g
Tab Connections	0.1" spacing
Metallisation	Gold Flash
	JEDEC JESD97 (e4)

### Environmental Characteristics

RoHS Compliant	
Power/Temp. Coefficient (over operating temp. range)	TBD dB
Frequency/Temp. Coefficient (over operating temp. range)	-25 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	25 MHz
Power Output (Min.)	13 dBm EIRP (MDU2400/2430-3) 10 dBm EIRP (MDU2440-3)
Operating Voltage	+3.15 V ± 0.3 V
Operating Current (Continuous)	60mA (max) 50mA (typ)
Average Current (5% DC)	3 mA typ.
Harmonic Emissions	<-10dBm

#### Pulse Mode Operation

Pulse Width / Duty Cycle (Min.)	5 µsecs / 1%
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#### Receiver (Bandwidth DC - ~8KHz)

Sensitivity (for a 10 dB S/N ratio)	-73 dBm (MDU2400-3) -78 dBm (MDU2430-3) -70 dBm (MDU2440-3)
Noise (measured in 3Hz to 80Hz bandwidth)	< 10 µV

#### Antenna : Wall Mount

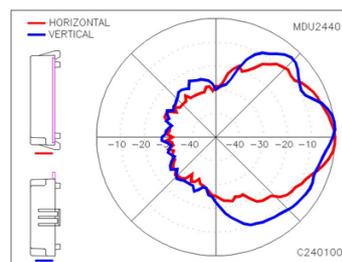
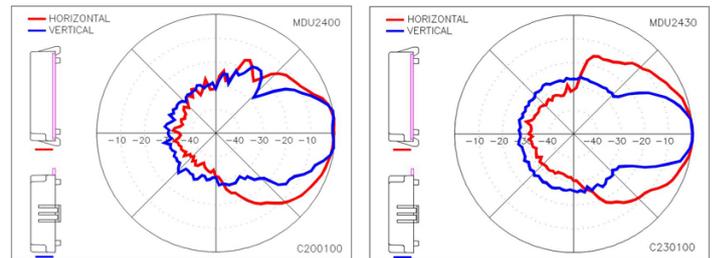
MDU2400-3 Gain	8 dBi
-3 dB Beamwidth E / H Plane	72° / 36°
MDU2430-3 Gain	11 dBi
-3dB Beamwidth E / H Plane	60° / 18°

#### Antenna: Ceiling Mount

MDU2440-3 Gain	5 dBi
-3dB Beamwidth E / H Plane	72° / 72°

**NOTES** Detection range is dependent on size and reflectivity of target and S/N ratio. Doppler shift at 24.2GHz is 160 Hz per m/s target velocity.

### Coverage Pattern



### MICROWAVE SOLUTIONS LTD.

Secure House, Braithwell Way,  
Hellaby, Rotherham, S. Yorks., S66 8QY,  
UNITED KINGDOM

T : +44 (0)870 122 3346

F : +44 (0)844 774 7716

W : [www.microwave-solutions.com](http://www.microwave-solutions.com)

E : [sales@microwave-solutions.com](mailto:sales@microwave-solutions.com)