

WAVEGUIDE TRANSCEIVERS

Fixed Frequency

MDU19xx Series





Features

- Low cost
- Standard Waveguide output
- Rugged, Reliable Construction
- Low Power Consumption
- High Sensitivity

Description

The MDU (Motion Detector Unit) is an X-Band microwave transceiver that utilizes the Doppler shift phenomenon to "sense" motion.

The unit, contained in a rugged diecast housing, features a dielectric resonator stabilized FET oscillator, which provides stable operation over a broad temperature range in either CW or low duty cycle pulse mode. The unit is available as a "transmit only" unit, with a single mixer or with a pair of orthogonal mixers for direction sensing applications.

Applications

- Traffic Control
- Automatic Door Openers
- Speed Measurement
- Direction of motion detection
- Energy Management Systems
- Sports Radar Guns

This document only gives a general description of the product and shall not form part of any contract. Microwave Solutions pursue a policy of continuous product improvement and reserve the right from time to time to amend the specifications of products.



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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 MDU1900 unit produces two low level output signals which can be amplified and processed to provide an audible or visual alarm. These signals are nominally orthogonal in phase and the direction of the detected target can be ascertained from the lead/lag between the two outputs

The MDU1910 unit produces a single low level output signal which can be amplified and processed to provide an audible or visual alarm.

The MST1950 unit includes the transmitter only and can be used with a separate receiver as one end of a microwave link.

All the units employ low cost surface mount manufacturing techniques which are field proven as being rugged

Electrical CharacteristicsTransmitterOperating Voltage: +5VOperating Current (CW): 60mA m: 50mA tyFrequency: see tableFrequency Setting Accuracy: 3MHzFrequency Pushing (Max): 3MHz/VPower Output: 47dBm (TMDU1900/MDU1910: +7dBm (TPower Variation: 3dB/v (MaHarmonic Emissions: < -7dBm		±0.25V max. yp. ole V Typ) (Typ) ax) m	Mechanical CharacteristicsWeight:85 gramsTab Connections:0.1" spacingEnvironmental CharacteristicsPower Drift(over operating temp. range):3dBFrequency Drift(over operating temp. range):10MHz OperatingTemperature:-10°C to +55°C StorageTemperature:-30°C to +70°CNOTES Detection range is dependent on size and reflectivity of target and S/N ratio Doppler shift at 10.587GHz is 31Hz/m.p.h. Unit functions over -30°C to +70°C with reduced performance	
Pulse Mode Operation Average Current (5% DC) : 2mA typ. Pulse Width (Min.) : 5µSec Dut Cycle (Min.) : 1% Receiver		p. Duty p-p Noise o-p R90/R100	Outline Drawing	
Model	Application	Order Code	Frequency	<u>Comments</u>
MDU1900	MDU1900 Dual Orthogonal Mixers		10.525GHz 10.587GHz	Holland, Belgium, Italy, USA UK
MDU1910 Single Mixer		C960503 C960501	10.525GHz 10.587GHz	Holland, Belgium, Italy, USA UK
MST1950	IST1950 Transmit Only		10.525GHz 10.587GHz	Holland, Belgium, Italy, USA UK