



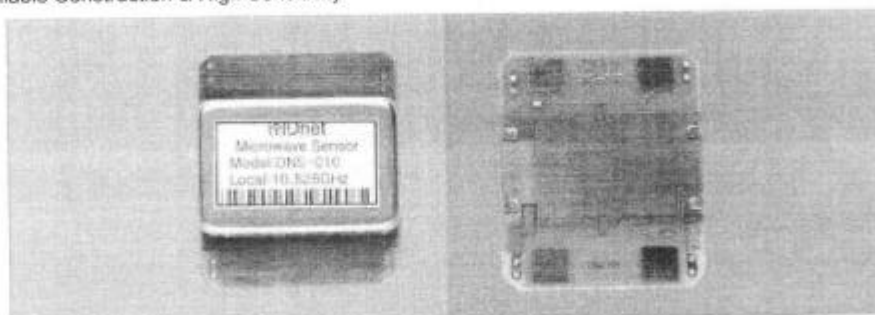
Appendix 8. User Manual

Microwave Motion Sensor Modules

■ Features

- X-Band Microwave Motion Sensor Module -

- * Used a RF the Microwave Sensor.
- * The up-to-date sense which uses Doppler principle.
- * Low cost & Low Power Consumption.
- * Small and Flat Profile.
- * Reliable Construction & High Sensitivity.



■ Specification(Standard Model:10.525GHz)

(Transmitter)

Frequency : 10.525GHz

Frequency Setting Accuracy 3MHz

Power Output (Min.):13dBm EIRP

Operating Voltage +5V +/- 0.3V

Operating Current (CW):50mA max., 30mA typical

Harmonic Emissions: -10dBm

(Receiver)

Sensitivity (10dB S/N ratio) in 3Hz to 80Hz bandwidth:-85dBm

Noise in 3Hz to 80Hz bandwidth:107V

Antenna Gain 8dBi

E Plane 3dB Beam width:40°, H Plane 3dB Beam width:80°

(Module Characteristics)

Weight:6 grams

Size(mm) : 40*46.5*7.2

Power/Temp. Coefficient(over operating temp. range):3dB

Frequency/Temp. Coefficient(over operating temp. range):6.5MHz

Operating Temperature Range :-20°C to +55°C

Storage Temperature Range:-30°C to +70°C

■ Specifications of other models are

referred in the homepage. (www.dno.co.kr)

Classification	Model No.	Frequency	Applications
X-Band Microwave Motion Sensor Modules	DNS-010	10.525GHz	1. traffic / express highway watch and control.
	DNS-020	10.687GHz	2. security relation products (sensor and alarm set etc).
	DNS-030	10.587GHz	3. automobile rear collision warning.
	DNS-040	9.900GHz	4. automatic door activation.
	DNS-050	9.350GHz	5. sensor light.
			6. sensors it applies in all products which operate.

■ Summary of Microwave Motion Sensor Module

- * Microwave Motion Sensor Module is developed applying Doppler Radar principle.
- * The role of Sensor Module is transmitting a low power Microwave from transmitting antenna and receiving the microwave energy reflected by objects to receiving antenna.
- * If the movement of the object is detected by the microwave motion sensor, the reflected microwave frequency is shifted away from the transmit frequency to receiving antenna.
- * The reflected and shifted microwave frequency is mixed with the transmit microwave frequency and results a low frequency voltage at the output of the sensor.
- * The Microwave Motion Sensor Module is designed with Dielectric Resonator Oscillator(DRO).

■ Technology & Certification

: As the RF microwave sensor module which uses the Doppler Radar Principal which it develops at the domestic beginning patent it made an application.(The patent application number : 10-2002-0064322)

NOTICES TO USER

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.*
- Increase the separation between the equipment and receiver.*
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.*
- Consult the dealer for technical assistance.*