

# Model 310B

## Microwave Intrusion Link

### Southwest Microwave Model 310B Long Range Outdoor Volumetric Detection to 1500 Feet (457 m)

#### FEATURES:

**B**ecause Model 310B operates at K-band frequency (24.125 GHz), it achieves performance not possible with ordinary X-band microwave links (which operate at 10.5 GHz). Antenna beam-width is approximately 3.5 degrees in both the horizontal and vertical planes. This means that model 310B will operate at **very long ranges** and within **very narrow corridors**.

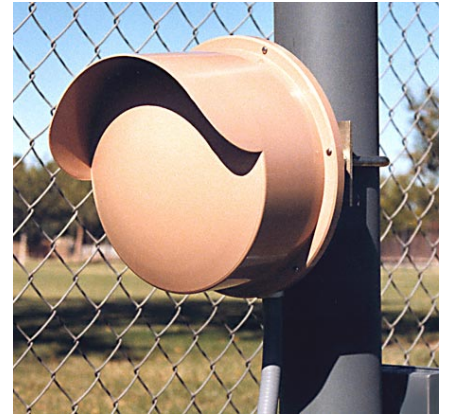
Each Model 310B Transmitter and Receiver are packaged in weatherproof housings which are only 10.6 inches (269 mm) in diameter and weigh only 4.5 pounds (2.0 kg). Comparable X-band systems require housings which are 24 inches (609 mm) in diameter and weigh 35 pounds (15.9 kg). This small size provides optimum resistance to wind-loading and obvious advantages for installation and shipping.

Because its **K-band microwave frequency is 2.5 times higher than the X-band**, the multipath signal generated by an intruder is also 2.5 times higher and detection of slow-moving intruders is correspondingly better.

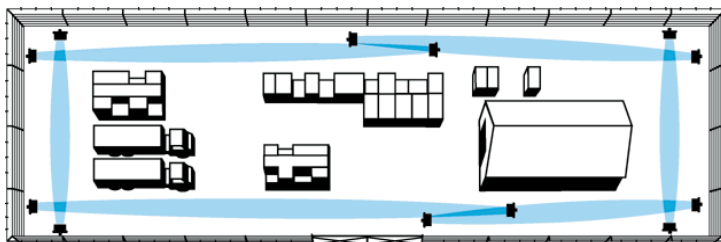
With its superb beam control and higher multipath frequency. Model 310B provides unmatched detection performance.

Phase Locked Loop (PLL) signal processing in the receiver increases detection probability by alarming on partial or complete beam interruption, increase or decrease in signal level or jamming by other transmitters. Its Automatic Gain Control (AGC) circuit permits the receiver to compensate for varying site conditions or changes in the weather.

Operating at **K-band**, which is much less crowded than X-band, Model 310B is inherently less susceptible to outside interference from airport landing systems, aircraft radar, and other microwave intrusion systems. Four field-selectable modulation channels with narrow band PLL filters allow several Model 310B's to be used together without mutual interference. Model 310B can also be stacked with an X-band link, such as Southwest Microwave Model 300B, with no danger of mutual interference. Such an arrangement provides the ultimate in detection performance and extremely high resistance to electronic jamming.



- ▶ 1,500 Foot (457 m) Range
- ▶ **Narrow Beam, Low Sidelobe Antennas**
- ▶ Wide Dynamic Range Phase Locked Loop (PLL) Signal Processing
- ▶ **K-Band Multipath Detection**
- ▶ Self-Contained Alignment circuits and LED Troubleshooting Indicators



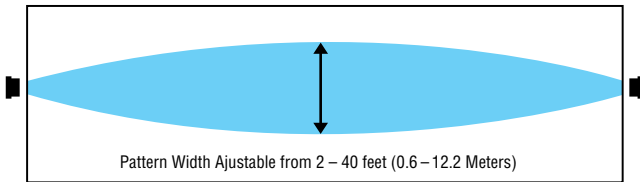
**SOUTHWEST  
MICROWAVE**

# Model 310B

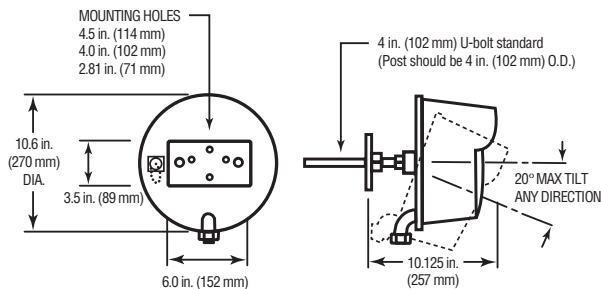
## Microwave Intrusion Link

### Pattern

The detection pattern width is field adjustable from approximately 2 to 40 feet (0.6 to 12.2 m). Pattern height varies in conjunction with pattern width. The pattern width adjustment allows easy adaptation to the final installation site.



### Dimensions



### Operation

Intrusion detection, using a modulated amplitude sensitive system (not doppler), takes place within the invisible pattern of microwave energy existing between transmitter and receiver. Changes in signal amplitude at the receiver are directly related to the object's size and density, allowing the sensor to discriminate between objects. Model 310B will alarm on average sized humans walking, running or crawling on hands and knees through the pattern. Field adjustments can provide alarm on larger or smaller targets, depending on the specific application.

The solid state electronics and antenna of Model 310B are mounted on a rugged metal baseplate and covered by a molded ABS radome. Swivel mount permits precise setup and provides firm lock against movement.

For detailed information on application, installation and adjustment, consult the Model 310B Technical Manual.

### Specifications

**Equipment Supplied** Model 310BT Transmitter, Model 310BR Receiver, Universal swivel ball mounting brackets.

**Frequency** 24.125 GHz (USA) conforms to F.C.C. Part 15. F.C.C. Identifier CA68H9310B.

**Output Power** 6mW peak, 3mW average, square wave modulated.

**Range** 100 to 1500 feet (30.5 m to 457 m)

**Target Size** 77 pound (35 kg) human walking, running, hands and knees crawling or jumping. Prone crawling or rolling 77 pound (35 kg) human, or simulated with a 30 cm diameter metal sphere detected at maximum range of 600 feet (183 m).

**Target Velocity** 0.1 ft/sec to 50 ft/sec (30 mm/sec to 15 m/sec).

**Probability of Detection** 0.99 minimum.

**Automatic Range Adjustment** Link automatically adjusts to slow changes in path loss due to rain, snow, etc. AGC range -54 dB.

**Modulation Channels** Four, field selectable.

**False Alarm Rate** 1/unit/year based on signal to noise ratio.

**Operating Environment** -40°F to +150°F (-40°C to +66°C) 0-100% Relative Humidity.

**DC Input** 11.5 VDC to 14 VDC at 150 mA (Tx), 20 mA (Rx).

**Alarm Output** SPDT-Form C, 2 amps at 28 VDC.

**Tamper Switch** SPDT-Form C, 2 amps at 28 VDC.

**Self Supervision** Alarm on failure and remote test.

**Mounting** Locking ball swivel mount. 20° adjustment in any direction.

**Remote Monitor** Alignment, sensitivity and power supply voltage monitored with RM82 Performance Test Set at receiver.

**LED Indicators** Internally located LED's - power on at transmitter. Alarm, jamming signal and wrong channel at receiver.

**Weight** 4.5 lbs (2.04 kg) each unit.

**Shipping Weight** 18 lbs (8.2 kg) total.

### How to Order

Specify Model 310B. Order optional accessories by model number and description. Specifications subject to change without notice.

