

Southwest Microwave Model 316

Outdoor Volumetric Detection to 244 meters

Because Model 316 operates in the K-band frequency band it achieves performance not possible with ordinary X-band microwave links (which operate between 9.4 and 10.8 GHz). Antenna beam-width is approximately 3.5 degrees in both the horizontal and vertical planes. This means that Model 316 will operate at long ranges and within very narrow corridors. The 316 fully complies with the EC emission requirements of EN300 440.

Each Model 316 Transmitter and Receiver is packaged in weatherproof housings, which are only 269 mm in diameter and weigh only 2.0 kg. Comparable X-band systems require housings which are over twice as large. 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 2.5 times higher and detection of slow-moving intruders is correspondingly better.

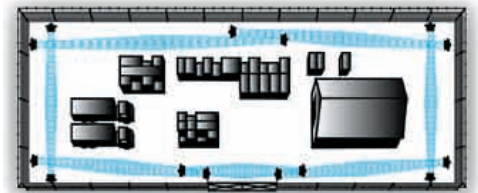
With its superb beam control and higher multipath frequency, Model 316 provides unmatched detection performance.

The narrow band receiver design 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 316 is inherently less susceptible to outside interference from airport landing systems, aircraft radar, and other microwave intrusion systems. Six field-selectable crystal controlled modulation channels with narrow band filtering allow several Model 316's to be used together without mutual interference. Model 316 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.

Features:

- ▶ 244 m Range.
- ▶ Narrow Beam, Low Sidelobe Antennas.
- ▶ Crystal Controlled Transmitter and Receiver Provides Very Narrow Band Detection.
- ▶ K-Band Multipath Detection.
- ▶ Self-contained Alignment Circuits and LED Troubleshooting Indicators.
- ▶ 6-switch Selectable Detection Channels.
- ▶ Enhanced Reflector Antenna Option.
- ▶ CE certified



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Specifications:

Equipment Supplied: Model 316T Transmitter, Model 316R Receiver, universal swivel ball mounting brackets.

Frequency: Square wave modulated frequency of 24.162 GHz conforms to EN300 440. CE certified.

Output Power: +20 dBm peak EIRP consistent with EN300 440.

Range: 30.5 m to 244 m.

Target Size: 35 kg human walking, running, hands and knees crawling or jumping. Prone crawling or rolling 35 kg human, or simulated with a 30 cm diameter metal sphere detected at maximum range of 122 m with flat terrain.

Target Velocity: 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 -60 dB.

Modulation Channels: Six switch selectable.

False Alarm Rate: 1/unit/year based on threshold to noise ratio.

Operating Environment: -40°C to +66°C
0-100% Relative Humidity.

DC Input: 11.0 VDC to 15 VDC at 130 mA (Tx), 58 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 RM83 Performance Test Set at receiver.

LED Indicators: Internally located LED's – Power on, alarm and wrong channel.

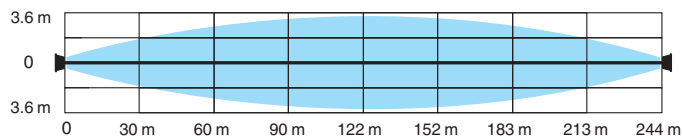
Weight: 2.04 kg each unit.

Shipping Weight: 8.2 kg total.

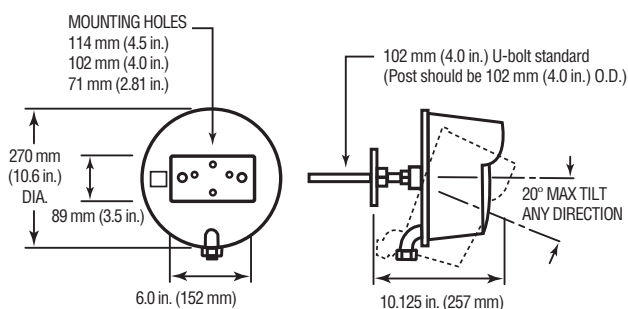
Options: 48C15529-A01 Enhanced Reflector Antenna
(Provides shorter dead zone).
02A15483-A01 Radome Latch Kit
(Replaces screws).

Pattern

The detection pattern width is field adjustable from approximately 0.6 m to 6.7 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 316 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 surface mounted electronics and antenna of Model 316 are mounted on a rugged metal base-plate 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 Model 316 Technical Manual.

How to Order: Specify Model 316.

Order optional accessories by model number and description. Specifications subject to change without notice.



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