

INTREPID™ Model 334

MULTIPLE RANGE DIGITAL MICROWAVE LINK



INTREPID™ Model 334 is a high-security standalone volumetric perimeter sensor for fencelines, open areas, gates, entryways, walls and rooftop applications. Combining Southwest Microwave's field proven detection performance with advanced embedded Digital Signal Processing (DSP) to successfully discriminate between intrusion attempts and environmental disturbances, the Model 334 sensor mitigates risk of site compromise while preventing nuisance alarms.

Designed for maximum protection against physical tampering and harsh environmental conditions, Model 334 features heavy-duty components and packaging, integrated radome tamper switches and optional steel enclosures for external wiring and connections. Advanced EMI/RFI shielding protects sensor electronics against external electromagnetic or radio frequency interference. Standalone configuration and on-board relay alarm outputs for monitoring deter the risk of hacking or other digital compromise faced by networked devices.

Model 334 features 6 crystal-controlled, field-selectable modulation channels with narrow-band filtering to prevent interference between sensors. Units can be dual, triple or quad-stacked with Model 336 K-Band Digital Microwave Links to fortify ultra-high security applications with risk of prone crawling or bridging attack.

Antenna beam width is approximately 11 degrees in the horizontal and vertical planes. A true parabolic antenna assures long range operation, superior beam control and predictable Fresnel zones. Advanced receiver design increases detection probability by alarming on partial or complete beam interruption, increase / decrease in signal level or jamming by other transmitters.

KEY FEATURES

- RANGE: 183 M (600 FT)
- EMBEDDED DIGITAL SIGNAL PROCESSING FOR HIGH PD / LOW NAR
- SOFTWARE-CONTROLLED SETUP
- LOW POWER CONSUMPTION
- FRESNEL SUPPRESSION ALGORITHMS REDUCE OUTER FIELD DISTURBANCES
- SUPERIOR EMI / RFI SHIELDING AND SURGE PROTECTION
- RUGGEDIZED AGAINST MECHANICAL ABUSE AND CLIMATIC EXTREMES



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PRINCIPLES OF OPERATION AND DETECTION

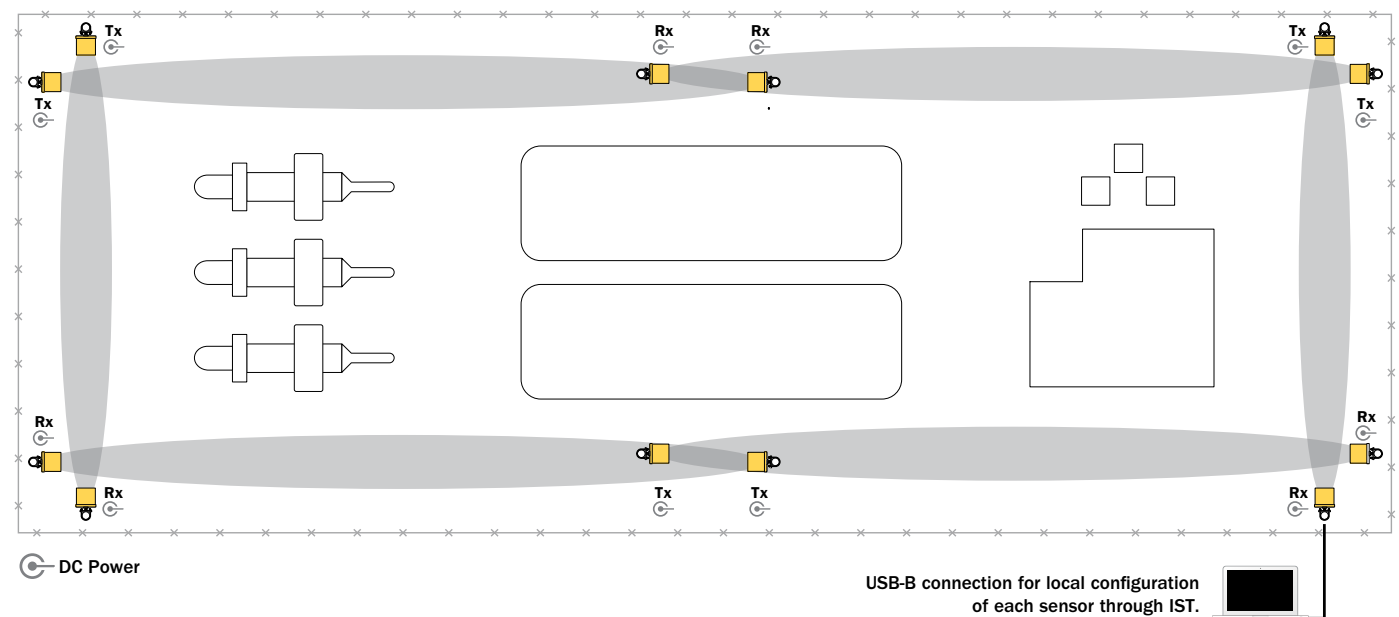
Intrusion detection, using a modulated amplitude sensitive system (not Doppler), takes place within the invisible pattern of microwave energy existing between transmitter and receiver. Changes in signal amplitude at the receiver are directly related to the object's size and density, allowing the sensor to discriminate between objects. Model 334 will alarm on average sized humans walking, running, crawling on hands and knees or prone crawling through the pattern. Local or remote adjustments can provide alarm on smaller, faster or slower targets, depending on the specific application.

INTREPID™ Model 334 employs proprietary digital signal processing algorithms to classify disturbances to the detection field in real time to optimize detection performance. Intruders walking, jumping or crawling through the field are identified and detected, while common environmental disturbances are suppressed, preventing nuisance alarms.

The fully-shielded electronics module and precisely-focused parabolic antenna of Model 334 are mounted on a sturdy metal base-plate and covered by a molded ABS radome for all weather operation. Heavy-duty metal pole-mounting brackets with steel swivel mount permit precise setup and provide firm lock against movement.

For detailed information on application, installation and adjustment, consult Model 334 Technical Manual.

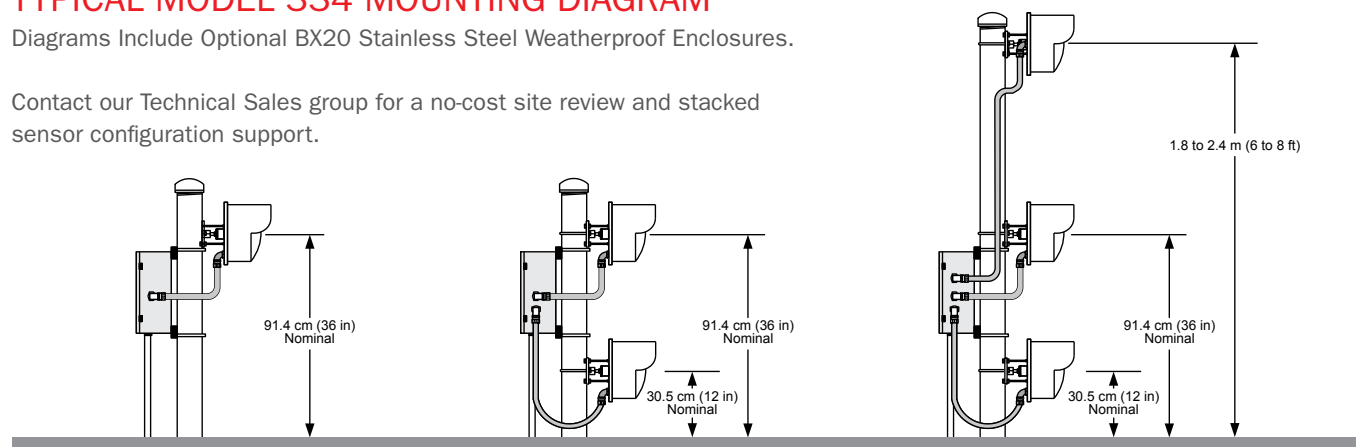
TYPICAL MODEL 334 CONFIGURATION DIAGRAM



TYPICAL MODEL 334 MOUNTING DIAGRAM

Diagrams Include Optional BX20 Stainless Steel Weatherproof Enclosures.

Contact our Technical Sales group for a no-cost site review and stacked sensor configuration support.



INSTALLATION SERVICE TOOL (IST)

The INTREPID™ Model 334 Installation Service Tool (IST) software graphically controls and monitors sensor status, control parameters and signal strength with laptop convenience at each module via optically-isolated, surge-protected USB-B connection. Unique configuration security provides notification upon changes to device settings, ensuring that only approved changes are implemented. Remote adjustment via RS422 or TCP/IP* connection is available.



Alignment Screen - Alignment Complete



Target Screen - Target Detection - Alarm

*Requires third-party serial device server (Ethernet converter).

PERFORMANCE FEATURES AND BENEFITS

- **PARABOLIC DISH AND ANTENNA DESIGN**
Assures long range operation, superior beam control and predictable Fresnel zones for high probability of detection (Pd) and low nuisance alarm rates (NAR).
- **RUGGED CONSTRUCTION**
Heavy-duty industrial components, including metal base-plate / conduit fitting and molded ABS radome are highly resistant to mechanical abuse. Conformal-coated circuit board enables reliable operation in high humidity, corrosive atmospheres or harsh climatic extremes.
- **RF PATH ALARM**
Provides an alert when the RF pattern is compromised or distorted by foreign objects moved into the detection field.
- **RF SHIELDING AND SURGE PROTECTION**
Sensor circuit board is shielded against extreme sources of EMI and RFI and lightning-induced surges.
- **DIGITAL SIGNAL PROCESSING (DSP)**
Proprietary embedded DSP algorithms recognize the unique profiles of intruders walking, running, jumping or crawling through the detection field and offers enhanced crawl and vehicle detection.
- **FRESNEL SUPPRESSION ALGORITHMS**
Unique field-selectable algorithms limit outer field (Fresnel zones) disturbance detection, enhancing operation in challenging applications and reducing nuisance alarms.
- **OPTIONAL HIGH-REL VERSION**
For maximum security sites, Hi-Rel units are fitted with an RFI/EMI shielded radome, undergo an extended burn-in cycle at 52° C (125° F) and are temperature tested from -40° to 66° C (-40° to 150° F). A position-locking, non-corrosive, anodized aluminum and stainless steel mounting bracket reinforce against movement.

INTREPID™ Model 334 SPECIFICATIONS

Equipment Supplied: Model 334 Transmitter, Model 334 Receiver, Universal Swivel Ball Mounting Brackets (2), Installation Service Tool (IST).

Range: 3 to 183 m (10 to 600 ft).

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

Target Size: 35 kg (77 lbs) human walking, running, hands and knees crawling or jumping. Prone crawling or rolling 35 kg (77 lbs) human, or simulated with a 30.5 cm diameter metal sphere, detected at maximum range of 122 m (400 ft) with flat terrain.

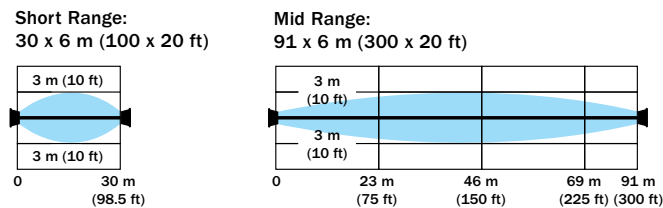
Target Velocity: 30 mm/sec to 15 m/sec (0.1 ft/sec to 50 ft/sec).

Probability of Detection: 0.99 minimum.

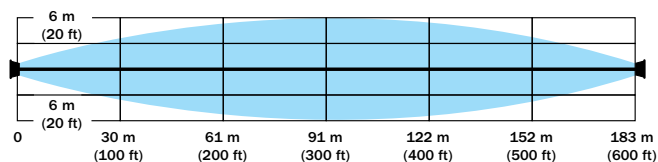
Pattern:

Model 334 provides three detection patterns and ranges to 183 m (600 ft). The pattern width may be varied in the field by simply installing the proper antenna pattern element and adjusting receiver sensitivity. Protection pattern width may be varied from 0.3 m (1 ft) to 15.2 m (50 ft) wide. Pattern height varies in conjunction with pattern width.

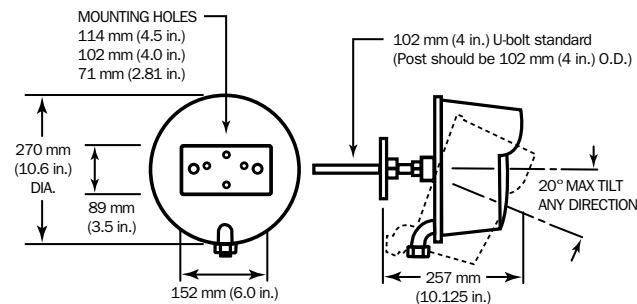
Typical Horizontal Pattern (width):



Extended Range: 183 x 12 m (600 x 40 ft)



Dimensions:



Frequency: X Band. 10.525 GHz (USA) conforms to F.C.C. Part 15.

Output Power: 10 mW peak, 5 mW average, square wave modulated.

Modulation Channels: 6, field selectable.

Polarization: Vertical (E) or Horizontal (H).

Path Alarm: Generated if RF power at Receiver is changed.

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

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

Lightning Protection: Transorb discharge devices on all inputs and outputs, including power. ESD Rating of Class 3 (> 16 kV) per Human Body Model (HBM), Peak Power - 600 W @ 1.0 ms.

DC Input (Tx/Rx): 10.5-60 VDC

12 VDC: 25 mA / 115 mA

24 VDC: 15 mA / 65 mA

48 VDC: 13 mA / 35 mA

Communications Ports (for IST Configuration Only):

1 x Optically-isolated USB-B, 1 x RS422.

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

Path 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 Test: Applying momentary voltage turns over transmitter modulation to provide alarm at receiver.

LED Indicators: Internally located LEDs – Power On and Switch Error at Transmitter. Power On, Channel Fault, Alarm, Jamming Signal, Switch Error and Comm Status at Receiver.

Weight / Shipping Weight: 2.04 kg (4.5 lb) per unit / 8.2 kg (18 lb) total.

Options:

02A15483-A01: Radome Latch Kit (replaces screws).

BX20 / BX35: NEMA 4X (SS) / NEMA 4 Weatherproof Enclosures. Consult factory for specific configuration details.

Ordering Info:

Model 334

Model 334-33465 (High-Rel Version)



INTREPID™ is a trademark of Southwest Microwave, Inc. Specifications subject to change without notice.

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