Southwest Microwave, Inc.
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Product Specifications

MODEL 310B MICROWAVE INTRUSION LINK

SPECIFICATIONS

RANGE: 100 feet (30m) to 1,500 feet (457m)

BEAM DIAMETER: 2 feet to 40 feet (0.6-12.2m) depending on link length and sensitivity setting.

TARGET: 77 pound (35kg) human - walking, running, hands and knees crawling, or jumping. Prone crawling or rolling 80 pound human (35kg) or simulated with a 12 inch (30cm) diameter metal sphere, detected at maximum range of 600 feet (183m).

TARGET VELOCITY: 0.1 ft/sec to 50 ft/sec (3cm/sec to 15m/sec)

FALSE ALARM RATE: 1/unit/year based on signal to noise ratio

PROBABILITY OF DETECTION: 0.99 minimum

SELF SUPERVISION (Alarm on Failure): Fully self-supervised (inherent in design)

AUTOMATIC RANGE ADJUSTMENT: Link automatically adjusts to slow changes in path loss due to rain, snow, etc. AGC range - 54 dB

SENSITIVITY ADJUST: Field adjustable by means of internal potentiometer

TRANSMITTER OUTPUT POWER: 4 milliwatts peak, 2 milliwatts average, square wave modulated

CARRIER FREQUENCY: K-band (U.S.A. 24.125 GHz ± 50 MHz)

MODULATION FREQUENCY: 3.0, 4.5, 7.5, 10.5 kHz ± 3% - field selectable

SPURIOUS EMISSIONS: All spurious signals at least 50 dB below fundamental.

FIELD STRENGTH: The field strength of the fundamental not more than 2,500 mV/M at 3 meters.

SIGNAL SOURCE: Mechanically tuned Gunn oscillator (Gunn diode mounted in a resonant cavity)

APPLICABLE SPECIFICATION (USA): Radiation characteristics conform to F.C.C. Rules & Regulations, Part 15.

POWER REQUIREMENTS:

Voltage:	11 to 14 VDC
Current:	310BT - 150 mA maximum
	310BR - 20 mA maximum
Fuses:	310BT - .5 amp
	310BR - .25 amp

ALARM INDICATION: By set of alarm contacts, two normally open, two normally closed, and two common. Contact rating 2 amps at 28 volts DC. (Form C.)

TAMPER SWITCH: Protects radome - one normally open, one normally closed, and one common. Contact rating 2 amps at 28 volts DC.

INDICATION LIGHTS:

Transmitter - One internally located LED which indicates power is on

Receiver - Three internally located LED's:
One LED indicates an alarm
One LED indicates a jamming signal
One LED indicates wrong channel

DIAMETER EACH UNIT: 10.6 in. (27cm)

DEPTH EACH UNIT: 8.8 in. (23cm)

WEIGHT EACH UNIT: 4.5 lbs. (2.04kg)

SHIPPING WEIGHT: 18 lbs. (8.2kg), transmitter, receiver and mounting brackets

MOUNTING: Universal mounting bracket with ball swivel assembly, U-bolt and plate for mounting to 4" O.D. post or to flat surface (wall)

TEMPERATURE: -40°F to +150°F (-40°C to +66°C)

RELATIVE HUMIDITY: 0 to 100%

ALIGNMENT: Alignment voltage available. May be monitored with RM82 or RM83 performance monitor or equivalent high impedance (100,000 ohm/volts) meter. Alignment voltage ranges from .5 to 5 VDC.

WIRE ACCESS: Supplied with ½" conduit entry to terminal strip area

MODEL 310B

Outdoor microwave intrusion sensors shall be Southwest Microwave Model 310B or approved equal having a maximum range of 1,500 feet. The unit shall operate at a frequency of 24.125 GHz generated by a Gunn oscillator and must be certified by the Federal Communications Commission. The devices shall be bistatic and detect intrusion by sensing changes (increase and decrease) in the amplitude of the received signal. An automatic gain control (AGC) circuit shall be incorporated which will adjust the receiver gain, as needed, for various distances from the transmitter and adjust the gain for changes in path loss, such as rain, snow, fog, etc. The range of the AGC circuit should be approximately 50 dB. The sensor shall be fully self-supervised and will alarm if component failure will cause the link to be incapable of detection. Four transmitter and receiver modulation frequencies shall be available to minimize interference between adjacent units. The equipment must operate over a temperature range of -40°F to +150°F and at relative humidities up to 100%. A means will be provided to adjust the relay hold-in time between ½ second and 30 seconds. The unit will also incorporate a means of latching the alarm relay into the constant alarm state, and electronic reset circuit will be provided in the latch mode. An electronic remote test feature will be incorporated into the transmitter to allow manual remote testing. The receiver will incorporate an interference detector circuit which will either cause an alarm in the presence of a jamming signal, or be able to ignore the interference and operate normally. Indicators will be provided in the receiver to indicate an alarm, to indicate jamming signal present, and to indicate that the receiver is on the wrong channel. The transmitter will have an indicator to determine that power is on. The units will operate from a low voltage DC source, and will require 170 mA of current or less to operate the transmitter and receiver.