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Product Specifications

MODEL 320SL DUAL STACKED X AND K BAND

HIGH SECURITY MICROWAVE INTRUSION LINK

SPECIFICATIONS

RANGE: 80 feet (24m) to 600 feet (183m)

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

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

TARGET SIZE: 0.2 to 0.8 square meter (man/woman)

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

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

OUTPUT POWER: X-band, 10 milliwatts peak, 5 milliwatts average, square wave modulated
K-band, 6 milliwatts peak, 3 milliwatts average, square wave modulated

CARRIER FREQUENCY: X-band (U.S.A. 10.525 GHz \pm 15 MHz)
K-band (U.S.A. 24.125 GHz \pm 25 MHz)

MODULATION FREQUENCY: 2.83, 4.21, 5.56, 15.45 kHz \pm 1% - field selectable

SPURIOUS EMISSIONS: All spurious signals including harmonics at least 50 dB below fundamental when measured at 100 feet from transmitter

SIGNAL SOURCE: X-band, mechanically tuned GaAs FET transistor oscillator K-band, mechanically tuned Gunn oscillator (Gunn diode mounted in resonant cavity)

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

POWER REQUIREMENTS:

	<u>X-BAND</u>	<u>K-BAND</u>
Voltage:	10.5 to 14 VDC	11.0 TO 14.0 VDC
Current:	20 mA (transmitter) 20 mA (receiver)	150 mA (transmitter) 20 mA (receiver)
Current (sync):	85 mA (transmitter) 110 mA (receiver)	185 mA (transmitter) 110 mA (receiver)
Fuses:	.25 amp (transmitter) .25 amp (receiver)	.50 amp (transmitter) .25 amp (receiver)

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

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

SYNCHRONIZATION: Slave input available at terminal strip, one **HI**, one **LO**, and one **GND**. RS422 level signals, #22 gauge twisted shielded pair cable. (Slave inputs driven from syncplexer module, Model SMC10.)

INDICATION LIGHTS:

Transmitter: Two internally located LED's:

One LED indicates power is on
One LED indicates synchronization is on

Receiver: Four internally located LED's:

One LED indicates an alarm
One LED indicates a jamming signal
One LED indicates wrong modulated channel
One LED indicates synchronization is on

DIAMETER EACH UNIT: 10.6 in. (27cm)

DEPTH EACH UNIT: 8.8 in. (23cm)

WEIGHT EACH UNIT: 4.5 lbs. (2.04kg)

SHIPPING WEIGHT: 9 lbs. (4.08kg) each transmitter or receiver

MOUNTING: Model MB62 - Universal mounting bracket with ball swivel assembly, U-bolt and plate for mounting to 4" O.D. post or to flat surface. (Used on Model 320S).

Model MB65 - Universal heavy-duty position locking non-corrosive mounting bracket, U-bolt, plate and jackscrews for mounting to 4" O.D. post or flat surface.(Used on Model 320SL-33255).

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 voltages ranges from .5 to 5 VDC.

TEST FUNCTION: Remote test on transmitters. Activated by 5 to 15 VDC. Will turn off RF and modulated signal causing receiver to alarm. Remote reset on receiver. Activated by 5 to 15 VDC. Will reset receiver after alarm has been initiated.

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

EQUIPMENT SUPPLIED: 320SL - Transmitters (2), receivers (2), BX15 weatherproof enclosures (2), PS50 power supplies (2), and MB62 mounting brackets (4).

320SL-33255 - Transmitters (2), receivers (2), RFI/EMI shielded radomes (4), MB65 mounting brackets (4), PS40 power supplies (2), BX35 weatherproof enclosures (2), extended elevated temperature burn-in and full temperature test.

MODEL 320SL

Outdoor microwave intrusion sensor shall be Southwest Microwave Model 320SL or approved equal having a maximum range of 600 feet and includes an X-band and K-band transmit/receive source with synchronization capabilities and with field changeable (X-band) antenna elements to allow the link to be operated at very short ranges up to 100 feet, and medium ranges up to 350 feet. The units shall operate at a frequency of 10.525 GHz generated by a GaAs FET (Gallium Arsenide Field Effect Transistor) oscillator and 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 or 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 changes in path loss from rain, snow, fog, etc. The range of the AGC circuit should be approximately 50 dB. A phase-locked loop (PLL) detector shall be used as a narrow bandpass filter. 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 plus external synchronization shall be available to minimize or eliminate interference between adjacent units. The equipment must operate over a temperature range of -40°F to +150°F and relative humidities up to 100%. A means will be provided to adjust the relay hold-in time between ½ and 30 seconds.

The units will also incorporate a means of latching the alarm relay into a constant alarm state, and electronic reset circuit will be provided in the latch mode. An electronic remote test feature will be incorporated into the transmitters to allow manual remote testing. The receivers 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 receivers to indicate an alarm, to indicate jamming signal present, to indicate that the receiver is on the wrong channel and to indicate the receiver is synchronized. Indicators will be provided in the transmitters to indicate that power is on and indicate that the transmitter is synchronized. The units will operate from a low voltage DC source, and will require 335 mA (synchronized condition) or less to operate the transmitters and receivers.