

MPS-16000

X-Band microwave intrusion detection sensor

DESCRIPTION – The MPS-16000 microwave sensor is a volumetric perimeter intrusion detection system. Designed for high performance, cost effective operation and ease of installation, the MPS-16000 microwave sensors provide an extremely high Probability of detection (Pd) with a low Nuisance Alarm Rate (NAR).

APPLICATION – The complete microwave system consists of a transmitter, receiver and mounting hardware. The transmitter and receiver are pole-mounted and installed facing each other to form a cylindrical zone of detection. The system can be used by itself to provide intruder detection around a complete perimeter or as a gap-fill solution where another system acts as the main perimeter sensor.



Features

- Field selectable antenna patterns
- Six operating channels
- Remote self-test
- Audio output for set-up and maintenance
- Low current operation

Benefits

- Easy-to-install
- Cost-effective
- High performance
- High Probability of detection (Pd)
- Low Nuisance Alarm Rate (NAR)
- Tamper-proof
- Conformally coated Printed Circuit Boards (PCBs) provide long-term reliability in all outdoor environments

Markets

- Prisons / correctional facilities
- Military installations
- Critical commercial / industrial assets
- Petrochemical
- Utilities
- Airports

Technical Specifications

How it works

The MPS-16000 microwave sensor uses advanced microwave radar technology coupled with field configurable planar array antenna elements for short (30 m / 100 ft.) wide angle detection (ideal for gate protection), mid range (106 m / 350 ft.) or long range (183 m / 600 ft.) full perimeter volumetric detection applications. Actual site specific installation and/or operational detection coverage is easily determined with a built-in audio output that is proportional to intruder size and velocity.

Advanced electronic processing features six field selectable operating channels with extremely high adjacent channel rejection. This feature permits multiple radar operation in a highly congested Radio Frequency Interference (RFI) area. The Phase Locked Loop (PLL) signal processing allows for intruder detection, based on a reduction or increase in signal from the transmitter, as well by the sensing Doppler shifted signals from intruder motion. Complete loss of transmitted signal and jamming attempts are also detected. These features, combined with low current operation from any 12 VDC source, make the MPS-16000 microwave sensor an exceptional performer.

Antenna pattern

The detection field is adjustable on-site by changing the configuration of the transmitting (Tx) and receiving (Rx) antennas. As shipped from the factory, the Tx and Rx antenna beam width is 11°. This default configuration can be changed by installing RF absorbent pads over specified elements of the phased-array planar antenna. In this way beam widths of 16° and 24° can be set.

Additional systems

The Model 16001 is the version for standard commercial use.

The Model 16004 version of the sensor system is subjected to a completely documented and traceable acceptance test program. The systems are fully tested at high and low temperature extremes and are operationally "burned in" at high temperature to ensure field reliability.

EQUIPMENT SUPPLIED: 1 transmitter unit, 1 receiver unit, 2 mounting hardware sets, 1 installation & operation manual

RANGE: 5 to 183 m (16 to 600 ft.)

CRAWL DETECTION: Less than 2.5 cm (1 in.) per second

DETECTION METHOD:

- Loss or increase of transmitter signal
- Detection of Doppler-shifted signal from intruder motion

FREQUENCY: • 10.525 ± .025GHz X-Band (std)

- Optional export / special frequencies available

OPERATING CHANNELS: 6 field selectable

OPERATING POWER REQUIREMENTS: 11 VDC to 15 VDC, 150 mA total system

OPERATING TEMPERATURE: -40°C to +70°C (-40°F to +158°F)

CONNECTIONS AVAILABLE:

Transmitter: Power; self-test; tamper; ground

Receiver: Power; alarm; tamper; audio output; reset; ground

DIMENSIONS: 31cm x 16cm x 8 cm
(12.25 in.H x 6.25 in. W x 3.375 in. D)

WEIGHT: Transmitter and receiver each weigh 0.9 kg (2 lbs.)

COLOR: Beige

MECHANICAL:

- High impact plastic housing
- Designed for all weather outdoor or indoor environments
- Both universal wall swivel and 3.5 in O.D. mounting hardware included
- Unit may be replaced without requiring system realignment
- Internal RFI shielding

TRANSMITTER:

FCC Certification: FCC identifier: FL916000

Operating channels: 6 field-selectable channels

Tamper output: Both NC or NO (1 A, 28 VDC maximum)

Self-test: Accepts either 5 to 15 VDC or grounding logic control input

LED indicator: "Power On"

Adjustments: Channel select switch, self-test signal amplitude

RECEIVER:

Microwave bandpass: Greater than 60 dB adjacent sub-carrier rejection

Operating channels: 6 field-selectable channels

Tamper output: Both NC and NO (1 A, 28 VDC maximum)

Alarm relay output: Sealed DPDT (2 each NC and NO contacts: 2 A, 28 VDC maximum)

Audio output: Balanced 600 Ohms proportional to target velocity and size for local or remote monitoring

Remote alarm reset circuit: Accepts 5 to 15 VDC or grounding logic control input

LED indicators: "Power On", "Wrong Channel", "Alarm"

Adjustments: Channel select switch, Doppler sensitivity, alarm duration, latched / timed alarm relay, range select

Alignment: Test point for optimizing system signal with voltmeter

Test point for verifying detection coverage with performance monitor

Audio output for evaluation of intruder detection performance

Options: 115 VAC uninterruptible power supply (with battery)

Specifications are subject to change without prior notice.

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