



## ultraWave™ Microwave intrusion detection system

**Description** – ultraWave™ is Senstar’s newest generation of volumetric perimeter intrusion detection system consisting of an all digital transmitter and receiver. The transmitter and receiver create an invisible detection zone that alerts when an intrusion occurs. ultraWave works reliably in extreme environments and provides networking for remote alarm reporting and configuration common to other Senstar sensors such as OmniTrax®, FlexPS™ and X-Field®.

**Application** – ultraWave transmitters and receivers can be located up to 200 m (656 ft.) apart. They are post-mounted and installed facing each other to form a cylindrical zone of detection where intruders are reliably detected night or day regardless of weather conditions. ultraWave can be used by itself to provide intrusion detection around an entire perimeter or as a gap-fill solution where another security system acts as the main sensor.



### Features

- Zone lengths from 5 to 200 m (16 to 656 ft.); stackable for increased detection zone height
- Advanced Digital Signal Processing (DSP) for continuous detection; compensates for site and weather conditions
- K-band operation; 10 field-selectable frequency channels
- Optional network interface on receiver minimizes field wiring
- Tx-Rx communications link provides full transmitter supervision and health status with no data wiring to transmitter
- Silver Network™ compatibility allows shared network wiring with OmniTrax®, FlexPS™ and XField®
- Remote diagnostics over sensor network
- For non-networked applications, two user configurable relay outputs provided
- High Probability of detection (Pd)
- Low Nuisance Alarm Rate (NAR)

### Benefits

- State-of-the-art electronics – long term supportability
- Cost-effective solution for gates and partial or complete perimeters
- Provides networking and configuration tools compatible with other Senstar sensors
- Interfaces with almost any alarm monitoring system
- Easy to install and configure with Senstar’s Windows®-based Universal Configuration Module (UCM) software
- Designed and manufactured for reliable operation in harsh outdoor environments

### Markets

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

### How it works

The transmitter creates an invisible pattern of microwave energy between the transmitter and the receiver. A microprocessor and powerful DSP algorithms distinguish background environmental effects from the unique signatures of intruders walking, running or crawling.

Ten selectable frequency channels enable multiple ultraWave units to operate in close proximity without mutual interference, including stacking multiple units on a common mounting post.



# Technical Specifications

## Alarm monitoring

The receiver communicates alarm status to the control point. Alarm status is communicated either through relay outputs or a sensor network interface. To minimize field wiring, the transmitter sends status information to the receiver over a Tx-Rx communications link through modulation of the microwave signal.

## Sensor network capabilities

µltraWave can optionally communicate alarm, status and configuration information to and from a central control point over a network. The primary network supported is Senstar's Silver Network – the Crossfire network is supported for backwards compatibility with the MPS-4100 microwave. Both network types are designed to be polled from both ends of the loop, providing redundant data paths to the processors. Point-to-point links can be EIA-422, single-mode or multi-mode fiber.

Network communication is managed by Senstar's Network Manager, a Windows®-based software application. It controls network communications and passes µltraWave alarm and status information to a Security Management System (SMS) such as StarNet® 1000 or a third-party system. The interface between the PC hardware and µltraWave units with Silver Network is provided by the Silver Network Interface Unit (SNIU). The Network Manager provides a TCP/IP interface to SMS software, allowing the SMS to communicate to the Network Manager over any available TCP/IP connection. For third-party integration to the Network Manager, an SDK with a detailed Applications Programming Interface (API) document, network manager simulator and complete sample code is provided.

## Anti-spoofing

To protect against deliberate spoofing or accidental mis-alignment µltraWave receiver units are configured during installation to recognize only the Tx unit they are paired with. Loss of transmitted signal and jamming attempts are also detected and reported.

## Configuration and troubleshooting

The configuration and troubleshooting capabilities of Senstar's UCM can be accessed with a direct USB connection to the µltraWave units or over the sensor network.

## TECHNICAL SPECIFICATIONS

### RANGE:

- Walking target: 5 to 200 m (16 to 656 ft.)
- Crawling target: 5 to 150 m (16 to 492 ft.)
- Commando roll: 5 to 100 m (16 to 328 ft.)

**ANTENNA PATTERN:** Approximately 13° horizontal and vertical

**DETECTION PERFORMANCE:** Greater than 99% when properly installed

**MOUNTING PROVISIONS:** Units provided with standard pole mount kit for posts from 2.5 to 5 in. diameter (6.35 to 12.7 cm), also supports wall mounting

**CABLE PORTS:** Two cable ports with glands provided

**LIGHTNING PROTECTION:** Tranzorb and gas discharge devices on all inputs and outputs, including power

### ENVIRONMENT:

- Temperature: -40 to 70°C (-40 to 158°F)
- Humidity: 0 to 95% non-condensing
- Conformal coated PCBs

**DIMENSIONS:** 31 x 16 x 8 cm (12.25 x 6.25 x 3.375 in.)

**WEIGHT:** 0.9 kg (2 lbs.) each for transmitter and receiver unit

**SHIPPING WEIGHT:** 3.63 kg (8 lbs.) for transmitter - receiver pair

**COLOR:** Marine white

**HOUSING:** High-impact ABS plastic

### CONNECTIONS AVAILABLE:

Power, two multi-function relays; auxiliary dry-contact input (Rx only), USB for configuration

**POWER REQUIREMENTS:** 2.5 W with 12 to 48 VDC input for both transmitter and receiver

### RELAYS:

- Form C, 1.0 A at 30 VDC
- Function of each input can be assigned based on requirement
- Assignable functions include alarm, tamper, input power fail, fail safe

### AUXILIARY INPUT (RX ONLY):

- Status reported over network in network mode
- Programmable for supervision type, resistor value(s) and filtering

### REGULATORY COMPLIANCE:

- FCC – complies with FCC Part 15, Subpart C, section 15.245, 10 field-selectable channels in 24.075 GHz to 24.175 GHz band, 24 dBm output
- CE – complies with ETSI EN 300 440-1 v1.5.1, ETSI EN 301 489-3 and EN-50130-4, 10 field-selectable channels in 24.150 GHz to 24.250 GHz harmonized band, 20 dBm output

### OPTIONAL PROCESSOR COMMUNICATION CARDS:

- EIA-422 network card with A- and B-side Tx and Rx connections for Silver and Crossfire networks:
  - Allows runs up to 1.2 km (3,937 ft.)
- Multi-mode fiber optic network card with A- and B-side Tx and Rx connections for Silver and Crossfire networks:
  - ST connectors for 50/125 µm, 62.5/125 µm, 100/140 µm, and 200 µm HCS® multi-mode fiber, 820 nm
  - Allows runs up to 2.2 km (7,200 ft.)
- Single-mode fiber optic network card with A- and B-side Tx and Rx connections for Silver and Crossfire networks:
  - ST connectors for 9/125 single-mode fiber, 1310 nm
  - Allows runs up to 10 km (32,000 ft.)

### NETWORKING OPTIONS:

- SNIU – provides interface between Silver field network and indoor computer equipment
- Network Manager Suite - software interface to "head-end" SMS such as StarNet 1000 or 3rd-party system

**CALIBRATION:** Done with UCM software

### UCM SOFTWARE:

- Windows®-based
- Connect to µltraWave transmitter and receiver via USB
- Configure user-programmable parameters
- View sensor response plots
- Store sensor response plots for later analysis
- Provides calculator for recommended mounting heights based on zone length

PART	DESCRIPTION
E4FG0101	µltraWave Tx-Rx pair including mounting brackets
E4EM0101	Replacement µltraWave transmitter
E4EM0201	Replacement µltraWave receiver

*Specifications are subject to change without prior notice.*



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