UltraLink Sensor Integration

Flexible integration for Senstar sensors

- Common software interface to SMS for all Senstar networked sensors, including OmniTrax®, FlexZone, XField®, IntelliFIBER™, FPS, FlexPS™, UltraWave™ and FiberPatrol
- Enables Senstar's standard sensor configuration software tool, the Universal Configuration Module (UCM), to remotely access sensors
- Sensor management toolkit (Plot tool, Status tool, Event log tool) provides installer/maintainer with centralized system monitoring capabilities
- Optional redundant configuration for critical applications
- Software Development Kit (SDK) with complete API documentation, test software and network manager simulator
- Optional Alarm Integration Module (AIM) software
- Microsoft Windows® compatible
- Integrated sensor network reduces system installation and maintenance costs
- Allows for centralized sensor configuration and troubleshooting
- Enables control of auxiliary perimeter security equipment
- Software integration with Senstar's Network Manager covers all Senstar networked sensors
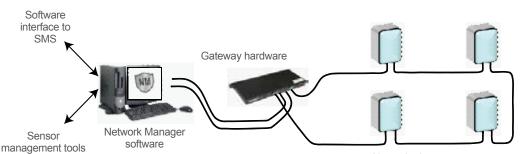- AIM provides easily configured relay-based integration

CONTROL, DISPLAY & SECURITY MANAGEMENT SYSTEMS

DESCRIPTION

Senstar's UltraLink Sensor Integration equipment consists of software and hardware that enables effective integration of Senstar sensors into the customer's overall security system. Supported sensors include OmniTrax, FlexZone, XField, UltraWave, FlexPS, and FiberPatrol. Key UltraLink components include the Network Manager software, add-on communications cards for the sensors, gateway hardware for interfacing the sensor network to standard computer interfaces, and UltraLink I/O modules for transferring alarm information via relays and/or other discrete signaling points. The core UltraLink component is the Network Manager which communicates with the sensors and provides a common IP interface through which 3rd-party security management systems can be integrated. The Network Manager also provides an access point allowing sensor configuration and management tools such as the Universal Configuration Module to be used to configure sensors remotely over the sensor network.

APPLICATION

The Network Manager is Windows®-based and can reside on the same PC as the Security Management System or on a dedicated PC. The connection of the Network Manager to the networked sensors is through gateway hardware that is installed in the control room and connects to the networked outdoor sensors. Communications cards are added to the sensors to enable network communication.

Software interface to SMS

Gateway hardware

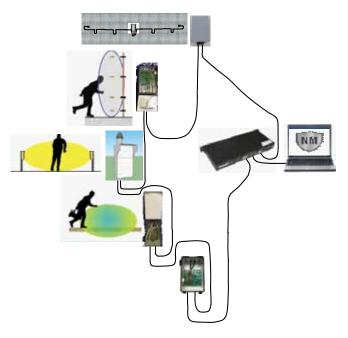Sensor management tools

Network Manager software

Networked sensors

SENSOR NETWORKING

Senstar sensors communicate alarm, status and configuration information to and from a centralized control location using their integrated networking capability. For Senstar's latest generation sensors (OmniTrax, XField, FlexPS, FlexZone and UltraWave), the primary network type is Senstar's Silver Network™. Silver Network uses a loop topology with separate Transmit (Tx) and Receive (Rx) point-to-point links. The Silver Network is designed to be polled from both ends of the communications loop, thus providing redundant data paths to the field equipment. The links can be EIA-422, single-mode or multi-mode fiber, or in the case of OmniTrax and FlexZone, over the sensor cables themselves. The Silver Network includes error detection with automatic retries to provide a reliable and high integrity communications path.

The Silver Network allows a wealth of information to be communicated, including:

- Intrusion alarm status
- Operational status including alarm location, device tamper status and diagnostic alarms
- Configuration data, such as thresholds, gain settings and zone lengths
- Alarm and supervision status of auxiliary inputs
- Control messages for auxiliary relay outputs
- Sensor response data for calibration and troubleshooting
- Firmware updates
- Event logs (sensors maintain an internal event log that can be accessed via Silver Network)
- Sensor diagnostic information such as operating temperature, input voltage, battery voltage and power consumption
- Commands to initiate sensor self-text (device-dependent)

SILVER NETWORK MULTI-SENSOR COMPATIBILITY

NETWORK MANAGER (NM) SOFTWARE

The Network Manager (NM) software initiates and controls all communications over the sensor network and provides the interface for sensor alarm reporting and system management. The NM includes:

- An Application Programming Interface (API) through which SMS software receives alarm and other operational status information from the networked sensors
- System management tools, including Plot tool, Event Log tool and Status tool

The NM can scale to include multiple sensor networks, including sensor networks of different types. Up to 10 instances of any combination of NM versions (Silver, Crossfire™, CCC, FiberPatrol) can be run on one PC.

The NM runs as a Windows® service, rather than as a standard application. Running as a service increases operational integrity through the following features:

- Services can be configured to start up automatically at power-up without the need for user log-on
- Services can be configured to automatically restart if it crashes
- Services can be monitored and managed from a remote machine

NETWORK MANAGER API

The NM API gives the head-end/SMS access to all sensor data, including:

- Intrusion alarm status
- Tamper status
- Communications status
- Diagnostic alarm status
- Dry contact input status
- Control of relay outputs

In addition, the SMS can initiate a sensor self-test through the NM API.

Communications between the NM and the SMS is performed via TCP/IP. During normal operation, status changes are sent unsolicited to the SMS application (the client). The NM API also includes query commands so that the SMS can request the complete operational status of the networked sensors.

Providing architectural flexibility, the NM and SMS can be co-hosted on the same computer or run on separate computers that communicate over an IP network. To accommodate installations with a large number of sensors and/or multiple types of sensor networks, up to 10 NM instances can run on one PC.

ASCII TEXT INPUT/OUTPUT

The NM's ASCII text input/output capability allows integration with any security management system that processes test strings over serial or IP connections. The NM can use custom-formatted text strings to communicate alarm and status data as well as control the state of a processor's relay outputs.

NM REDUNDANCY

To support the requirement for high system availability, the NM can run in a redundant configuration whereby two NM instances run on two separate computers. One NM is active white the other is in standby. A heart-beat protocol operates between the two so that the standby NM takes over in the event the active NM fails.

NM DIRECT OUTPUT CONTROL

The NM Direct Output Control enables any input alarm state on a Silver Network to be configured to control the state of any output point on the same network. "Alarm state" includes any sensor alarm along with supervision, tamper, diagnostic, and auxiliary input alarms. "Output point" includes any physical output (relay, open-collector output) and virtual outputs – self-test, audio control. A typical use of the NM Direct Output Control is to control UltraLink I/O module relays based on sensor alarms.

NM SOFTWARE DEVELOPMENT KIT (SDK)

Senstar provides a complete SDK to enable third-party SMS providers to integrate the NM into their systems. The SDK includes:

- Full documentation on the NM API

- Sample code that interfaces to the NM API, (C++, MFC)
- An NM simulator that simulates an NM connected to an array of different sensors

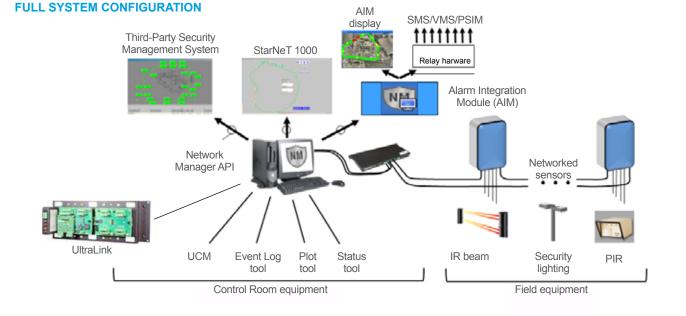## ALARM INTEGRATION MODULE (AIM)

AIM provides two important capabilities:

- Dry contacts interface – provides an easily-configured means to convert alarm data collected by a Senstar NM into UltraLink I/O outputs for interfacing to a third-party SMS
- Alarm display – a single-map alarm display system for customers with simple security environments or as a secondary/"fall-back" display for the PIDS subsystem within a more complex environment

AIM requires a separately purchased license and hardware key. For demonstration or trial purposes, AIM software will run 24 hours without the hardware key.

NM SENSOR MANAGEMENT TOOLKIT (SMT)

The Sensor Management Toolkit (SMT) enables the sensor installer/maintainer to monitor and configure networked sensors from a centralized location. Each tool communications wth the NM via IP, so they can be used on PCs separate from the NM – a real time-saver when access to the computer running the NM is restricted or inconvenient. The SMT software includes:

- Universal Configuration Module (UCM) – Configures and calibrates Senstar sensors
- Plot tool – Records the response of a specific sensor and displays up to 8 channels of recorded or live data
- Status tool – Displays the status of all sensors on the network
- Event Log tool – Provides remote access to the NM log files/daily event information

FULL SYSTEM CONFIGURATION

SILVER NETWORK INTERFACE UNIT (SNIU)

A 19-inch rack-mount unit that provides standard interfaces for connecting the Silver Network to the PC running the NM.

- Two pairs of network connections, one for each end of the sensor network loop:
  - Two EIA-422 connectors (with integrated lightning protection)
  - Two fiber optic connections (multi-mode or single-mode)
- PC Interfaces: Two pairs of EIA-422, USB and Ethernet (the same type must be used for each side of the Silver Network loop)
- Redundancy: Includes a pass-through with fail-over mode that supports redundant operations in conjunction with the NM
- Dimensions: 19-inch rack, 1U, 23 cm (9 in) deep
- Power: 3W, 12 to 48 VDC
- Indoor rated

MINI-SNIU

A DIN-rail mountable USB to fiber/EIA-422 converter for connecting the Silver Network to the PC running the NM.

- Interfaces:
  - EIA-422
  - Fiber optic connections (multi-mode or single-mode)
  - USB Type B port
- Dimensions (H/W/D): 11.5 x 3.2 x 12 cm D (4.5 x 1.25 x 4.75 in.)
- Power: USB powered
- Indoor rated

MOXA ETHERNET-TO-SERIAL CONVERTER

Panel or DIN-rail mountable converter for connecting the Silver Network to the PC running the NM.

- One Ethernet connection (RJ-45)
- Two EIA-422/485 interfaces (screw-terminal connectors)
- Panel-mount, optional DIN-rail mounting kit
- One serial port, can accept multiple IP socket connections, enabling use with redundant network managers
- Dimensions (H/W/D): 11.6 x 10 x 2.6 cm (4.6 x 4 x 1.02 in)
- Power: 3.2W, 12 to 48 VDC
- Temperature:
  - Standard version: 0 to 60°C (32 to 140°F)
  - Extended, outdoor version: –40 to 75°C (–40 to 167 °F)
- Humidity: 5 to 95% (non-condensing)

COMMUNICATIONS CARDS

Sensor communication on the Silver Network is enabled through the addition of a communications card to the sensor processor.

- Generation 1 cards: Compatible with OmniTrax, XField and 16I/16O input/output transponder
- Generation 2 cards: Compatible with FlexZone, FlexPS, UltraWave and UltraLink I/O

ETHERNET CARD

Senstar's Ethernet card for G2 Silver sensors provides a direct connection to a customer's IP infrastructure. Key features include:

- 10/100BASE-TX Ethernet on RJ45
- Works with FlexZone, FlexPS, UltraWave, and UltraLink I/O processor
- Power-over-Ethernet (PoE) power, if supplied, is output on removable screw-terminal connector for input to sensor

Contact Senstar regarding network interface hardware for other sensor network types - Crossfire, CCC and FiberPatrol.

NM SOFTWARE	
00FG0220	Network Manager sofware (service version) for Windows 7/8. Includes Silver, Crossfire, CCC and FiberPatrol versions, management tools, and AIM software (requires hardware key)
00SW0230	USB security key (dongle) for Alarm Integration Module (AIM) software
GATEWAY HARDWARE	
00EM0200	SNIU (EIA-422 and multi-mode fiber-optic Silver Network connections)
00EM0201-002	SNIU (EIA-422 and single-mode fiber optic Silver Network connections)
00EM1301	Mini-SNIU (USB to EIA-422 and multi-mode fiber-optic interfaces). DIN-rail mount.
00EM1302	Mini-SNIU. USB to EIA-422 and single-mode fiber-optic interfaces. DIN-rail mount.
GB0360-ST	Ethernet to dual EIA-422/485 converter (standard temperature)
GB0360-ET	Ethernet to dual EIA-422/485 converter (extended temperature)
G1 COMM. CARDS	
00BA0301	G1 Silver Network comm card – multi-mode fiber optic connections
00BA0302	G1 Silver Network comm card – EIA-422 connections
00BA0303-002	G1 Silver Network comm card – single-mode fiber optic connections
00BA0304	G1 Silver Network comm card – one multi-mode fiber optic and one EIA-422 connection
00BA0305-002	Gen 1 Silver Network comm card – one single-mode fiber optic and one EIA-422 connection
G2 COMM. CARDS	
00BA1901	G2 Silver Network comm card – multi-mode fiber optic connections
00BA2000	G2 Silver Network comm card – EIA-422 connections
00BA2101	G2 Silver Network comm card – single-mode fiber optic connections
00BA1902	G2 Silver Network comm card – one multi-mode fiber optic and one EIA-422 connection
00BA2102	G2 Silver Network comm card – one single-mode fiber optic and one EIA-422 connection
00BA2200	Ethernet card for G2 sensors, 10/100Base-TX, PoE
SILVER NETWORK REPEATERS	
00EM0301	Silver Network repeater module – multi-mode to multi-mode fiber optic
00EM0302	Silver Network repeater module – EIA-422 to EIA-422

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