



Key Features:

Integrated, ruggedized, container tracking, monitoring, and sensor platform.

Integrated door sensors and light sensors offer superior intrusion detection.

Integrated environmental sensors monitor temperature, humidity and shock throughout the container's journey.

UHF transmitter to transmit alarms, beacon and Savi Reader reports, and interrogation responses.

UHF receiver to support tag interrogation.

LF receiver for short range commissioning and tag wakeup providing spot level locating at chokepoints.

Easy to install on containers within seconds, without any special procedures or tools required.

Rugged, weather-proof design for harsh outdoor environments.



Savi® SensorTag ST-675

Military ISO Container Door Tag with Intrusion and Environmental Sensors

The Savi SensorTag™ ST-675 is the latest innovation for tracking ISO shipping containers, providing new levels of door security monitoring, with active RFID intrusion and environmental sensors. More than a simplistic inspection automation system, the Savi SensorTag ST-675 enables shippers, carriers and logistics service providers to actively monitor the security and integrity of shipments as their containers move throughout the global supply chain. The Savi SensorTag ST-675 provides both security tampering sensors to detect potential theft and prevent terrorist threats, and detects environmental changes to prevent spoilage or the damage of goods.

Innovative Form Factor

Differing from other sensor tags in both placement and method of monitoring ISO shipping containers, the Savi SensorTag represents a new approach to container security with a spring clamp, form factor design for door-mounting. The Savi SensorTag ST-675 design includes:

- Compact C-clamp form factor is placed on the left door of an ISO compliant container.
- Tag compartment resides inside the container.
- Removable battery, hermetically sealed within the tag compartment.
- Externally mounted, low profile antenna encasement.
- Audio beeper for location notification and alarms.

Transportation Security

The Savi SensorTag ST-675 consists of a high performance active RFID tag for real-time ISO container tracking during transit, including sensors that detect any unauthorized opening of the container, alerting security personnel immediately of problems. The Savi SensorTag ST-675 provides two different sensor mechanisms to determine container intrusion or tampering via the container doors. The Savi SensorTag ST-675's sensor arm detects the open status of the adjacent door, and the intrusion light sensor monitors the amount of light entering the container near the doors.

Environmental Monitoring

The Savi SensorTag ST-675 also monitors the environmental conditions inside the container. Any change in temperature, humidity, and shock is detected as the container moves through ports, terminals and key transportation routes worldwide. To monitor the acceptable environmental condition, the user sets the condition range within the Savi SensorTag. If the collected data should rise above or fall below this set range, the Savi SensorTag writes the data, time, and date of this alarm event to an event log in the Savi SensorTag memory. A real-time alarm is then sent to a fixed or mobile RF reader and the temperature, humidity or shock condition change is escalated via a web application, cell phone or email notification, allowing it to be addressed immediately before spoilage or damage occurs. In addition, the unit provides a sensor expansion port (Wireline RS-485 Port Expansion) for adding local or remote sensor capabilities, as required.

Specifications		
Physical	Rear Case: Front Case: C-Clamp:	4.75" (12.07 cm) H x 4.5" (11.43 cm) W x 1.5" (3.81 cm) D 4.6" (11.68 cm) H x 3.2" (8.13 cm) W x 0.5" (1.27 cm) D 4.75" (12.07 cm) H x 5.25" (13.34 cm) W x 2" (5.08 cm) D
Environmental	Temperature: Humidity: Vibration: Shock:	-40°C (-40 °F) to +70°C (158 °F) Operating -40°C (-40 °F) to +85 °C (185 °F) Storage 100% at 50 °C (122 °F); Salt Fog Testing per MIL STD 810 Testing per MIL STD 810 Testing per MIL STD 810
LF Receiver (Downlink)	Frequency: Range: Modulation: Data Rate: Data Coding: Air Protocol:	123 kHz 12 ft. (4 m) from Savi Signposts; Up to 3.5 ft.(1.07 m) from Savi Mobile Readers ASK On-Off Keying Average 1.6 Kbps, 50% duty cycle Pulse Width Modulation Savi EchoPoint LF Air Protocol 1.1
UHF Transmit/Receiver	Frequency: Range: Air Protocol: Modulation: Data Rate: Data Coding: Max. Transmit Power: Antenna:	433.92 MHz Up to 300 feet line of sight when mounted to a container to Savi Fixed Readers; Up to 200 feet to Savi Mobile Readers Savi EchoPoint Air Protocol 2.2 Seal and Sensor Protocol Extension; Backward Compatible with Savi EchoPoint Air Protocol 2.1; EBCS FSK, deviation +/- 50 KHz 27.8 Kbps Manchester -7.4 dBm (0.18 mW) typical External Patch Antenna
Tag Identification	EchoPoint Air Protocol 2.1:	32-bit tag identification supported
Digital	Sensor Memory: User Memory: Interfaces: Owner ID:	On-board non-volatile memory 32 kbytes On-board non-volatile memory 128 kbytes Wireless (RF Read/Write Capable) & Wireline (RS-485 Port Sensor Expansion) 3 bytes, programmable
Mounting	Clamps easily onto ISO Container door edge (frame) – C-Clamp to left door, sensor arm under right side for monitoring door closure status. The tag can be mounted anywhere on the edge of the left-hand container rectangular doorframe measuring 50mm x 100mm.	
Approval	FCC Part 15, ESD, EN 300 220-1, EN 301 489-1, U.S. UL 1950, EN 60950	
Tamper Sensors	Door Sensor: Light Sensor:	Senses whether or not door is opened or closed Senses the light entering the container near doors above an adjustable threshold
Environmental Sensors	Temperature: Humidity: Shock:	Senses & samples temperature with adjustable sample period and adjustable alarm thresholds Senses & samples humidity with adjustable sample period and adjustable alarm thresholds Senses & samples shock- Event Driven when above adjustable thresholds
Power	Battery: Battery Life:	'A' size 3.6 volt primary lithium (Li-SOC12), User replaceable, hermetically sealed in its own compartment 4 years or more based on usage of 2 collections per day
Warranty	Three years	

About Savi

With over 16 years experience, Savi is a proven leader in RFID solutions for the management and security of supply chain assets, shipments and consignments. Savi's integrated RFID hardware and software solutions drive business value, such as reducing supply chain assets, inventory and operational costs. Founded in 1989, Savi Technology is a wholly-owned subsidiary of Lockheed Martin, with headquarters in Sunnyvale, California, and offices in Johannesburg, London, Melbourne, Singapore, and Washington D.C. For more information, visit www.savi.com.

About Lockheed Martin

Headquartered in Bethesda, Md., Lockheed Martin employs about 135,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2005 sales of \$37.2 billion.

Contact Savi

Let us show you how Savi's supply chain solutions can work for your organization. In the United States, call toll-free 800-428-0554, international customers dia 408-743-8000. Contact Savi Asia at 65-62411191, Savi Australia at +61 03 9882 4430, and Savi EMEA at +44 1344 742 815 (Great Britain), or +2711 469-3144 (S. Africa). Visit www.savi.com or email us at sales@savi.com.

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