



Savi[®] SensorTag ST-674

SensorTag with Pallet Mounting Bracket



The Savi SensorTag[™] ST-674 is a data rich, active RFID tag that enables shippers, carriers and logistics managers to monitor their assets and shipments in real-time. In addition to real-time tracking using active RFID, the Savi SensorTag ST-674 includes sensors that monitor and log environmental conditions, both temperature and humidity, of assets and their contents during transportation, and while in storage.

The Savi SensorTag ST-674 Form Factor

Designed for various types of applications including medical supply tracking, ammunition, food stuff and other perishables requiring the sensing of temperature and humidity, the Savi SensorTag ST-674 design includes:

- Mounting sleeve that enables the tag to be fastened inside plastic, polycarbon, cardboard or wooden totes and containers or to attach to pallets or racks during transportation or on warehouse shelves and other fixtures during storage.
- Savi ST-674 can also be mounted using Pressure Sensitive Tape (PST) attached to the mounting sleeve.
- Replaceable battery.
- Externally mounted, low profile encasement.
- Audio beeper for location notification and alarms.

Key Features:

Integrated environmental sensors monitor temperature and humidity throughout the asset's journey.

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

UHF receiver to support tag interrogation.

UHF transmitter to transmit alarms, beacon and Savi Reader Interrogation Responses.

Real-time monitoring of asset shelf life with alerts for inspection, maintenance and expiration date notification.

Rugged, weather-proof design for harsh outdoor environments.

RFID Tracking with Savi's EchoPoint[™] Technology

Built on Savi's innovative EchoPoint Technology, the Savi SensorTag ST-674 consists of an active RFID tag that enables effective and accurate real-time tracking of pallets and containers. Savi's EchoPoint Technology employs a unique multi-frequency design and three-element system architecture to achieve both reliable long-range communication, and short-range locating capability. Utilizing this innovative RFID technology, Savi Signposts SP-65X communicate positional information to the Savi ST-674 over a short-range LF link, to notify the tag of its location. As the container passes by choke points and other fixed reader locations, the Savi Fixed Reader SR-650 acquires and stores the tag's location information along with identity and status details, through transmission over a long-range UHF link. For containers in storage, users scan the Savi SensorTag with a handheld reader to gather the data via short range communication. This information is then aggregated into the server and viewed via web-based software to provide the precise location of the container.

Environmental Sensors

The Savi ST-674 includes environmental sensors to monitor the container's temperature and humidity conditions. To monitor the acceptable environmental condition, the user sets the condition range within the Savi SensorTag during tag commissioning. The Savi ST-674 periodically records the environmental status data, time and date to an event log in the Savi SensorTag's memory. If the collected data should rise above or fall below the set condition range, the Savi SensorTag sends a real-time alarm to a fixed or mobile RF reader and the temperature or humidity condition change is escalated via a web application, cell phone or email notification, allowing it to be addressed immediately before spoilage or damage occurs.



Specifications

Physical	Dimensions: Weight:	6.25 in. (16 cm) x 2.3 in.(5.4 cm) x 1.13 in (2.9 cm) 3.8 oz. (108 g)
Environmental	Temperature: Humidity: Vibration and Shock: Altitude:	-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 Low Pressure Testing per MIL STD 810, Procedure 1
LF Receiver (Downlink)	Frequency: Range: Antenna: Modulation: Data Rate: Data Coding: Air Protocol:	123 kHz Up to 3.5 ft.(1.07 m) from Savi Mobile Reader; Up to 12 ft. (3.66 meters from Savi Signpost 2 integrated ferrite core antennas orthogonally mounted on tag board within tag housing 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 2.2; EBCS FSK, deviation +/- 50 KHz 27.8 Kbps Manchester -7.4 dBm (0.18 mW) typical Internal Loop Antenna
Tag Identification	EchoPoint Air Protocol 2.1: BCS/EBCS Commands:	32-bit tag identification supported 22-bit tag identification supported- Sensor data byte supported
Digital	Sensor Memory: User Memory: Interfaces:	On-board non-volatile EEPROM memory 32 Kbytes On-board non-volatile EEPROM memory 128 Kbytes for environmental log circular buffer Wireless (RF Read/Write Capable); Audible Beeper for tag location and status indication
Mounting	MEMS Pallet Container Mounting Sleeve	
Approval	FCC Part 15, ESD, EN 300 220-1, EN 301 489-1, U.S. UL 1950, EN 60950, and HERO Certification;	
Environmental Sensors	Temperature: Humidity:	Senses & samples temperature with adjustable sample period and adjustable alarm thresholds Senses & samples humidity with adjustable sample period and adjustable alarm 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

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.

