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DESCRIPTION

Electronic Seal Transponder for Drum Containers

The **EV3-ES1 Security and Electronic Seal Transponder for Drum Containers** is an integral component of the *SensiTrack™ RFID Solution for Hazardous Materials*. The Transponder includes integrated sensory functions for monitoring seal integrity, radiation, temperature, humidity, shock, and battery status while utilizing an industry-standard 433MHz low-frequency location reporting link. The Transponder incorporates an innovative mounting capability designed for a variety of liquid and solid drum containers, enabling a highly secured transport and shipping network to be established with low additional overhead costs.

MODEL

EV3-ES1
EV3-ES1-G
EV3-ES1-GN

EV3-ES1 RFID tags are the COTS version of the ARG-US RFID tag developed by Argonne National Laboratory. They may be attached to a variety of packaging configurations including Models 9975, 9977, 9978, 9979, ES-3100 and DOT 7A with specific hardware packaging. The tags are equipped with a suite of sensors to monitor seal integrity, temperature, humidity, shock, radiation, and battery status. The non-volatile memory in the tags can store thousands of lines of encrypted records. Four A-size lithium batteries combined with an intelligent power management circuitry provide up to 10 years of service before battery replacement is necessary. The EV3-ES1 series RFID transponder tags communicate with the Sensitrack readers via 433 MHz radio frequency and have an Omni reading range of more than 100 meters.

SensiTrack™
RFID Solution for Hazardous Materials

The *SensiTrack™ RFID Solution for Hazardous Materials* incorporates **EV3-ES1 (-N, -GN)** active RFID tags, **EV3-AFI2** & **EV3-HHI** High-performance fixed and mobile readers with SensiTrack drivers and integrated **ARG-US SensiTrack** Software.

Model EV3-ES1 Electronic Seal Transponder for Drum Containers

The EV3-ES1 RFID tag is a 433-MHz, active RF device containing a suite of sensors that are powered by long-life batteries, with an omnidirectional read range of ≈100 m. Integrated sensors monitor temperature, humidity, seal integrity and physical shock as well as battery status.

Sensor data is logged on-board and remotely as well as tracked to pre-set alarm thresholds. In parallel with the sensor monitoring, the tags are polled by the reader at a preset interval. If a tag does not respond to the poll, a "No Response" alarm is generated, alerting the system that there may be a problem with the package (e.g., absence or a drained tag battery) that needs to be investigated.

Models **EV3-ES1-G** (Gamma) and **EV3-ES1-GN** (Gamma + Neutron) radiation detection sensor tags include radiation sensors developed by Argonne National Laboratory.

Model	Container Security Transponder EV3-ES1
RFID Protocol	HiPer aRFID High-performance link , Optional ISO18000-7
Frequency	433.92 MHz
Range	350 feet unobstructed mounted to a container
Antenna	Omni-directional internal
Low Frequency Wakeup	134kHz LF link
Portal & Zonal Location Support	Up to 9 feet range when used with EV3-LRE LF location reference exciter
Power	4 A' size 3.6 V primary lithium (Li-SOCl2), replaceable
Battery life	10 years with 2 collections/day, temp/humidity 1 sample/min,light & breach 30 samples/min, shock event triggered;
Hardwired Communications	USB (mini port)
Weight	977 gram (34.5 ounce)
Dimensions inch (cm)	7.8" x 5.7" x 1.3" 19.8 cm x 14.4 cm x 3.4 cm
Operating Temperature	-30 C to +70 C
Storage Temperature	-40 C to +70 C
Dust and Moisture	IP 64
Beeper	Audible beeper for tag location
Memory	512 kbytes, user configurable between data and sensor data, where either can be from 0-512 kbytes
Sensors	Scan rate: user programmable: 2 Sec-60 min User defineable alarm thresholds Temperature: range: -30 to 70 C , resolution 0.5 C Humidity: range: 0%-100% RH, resolution: 0.5% RH Shock event (up to 250g) Tamper-Indicating Device (TID) seal sensor
Radiation Sensors (EV3-ES1-G and EV3-ES1-GN models)	Gamma detector: range 50 keV to 6 MeV, Dose:1 µSv to 10 Sv (0.1 mRem to 1000 Rem), Dose rate: 10 µSv/h to 8 Sv/h (1 mrem/h to 800 rem/h) Accuracy: Better than ±5% Neutron detector: High counting efficiency, 20% for thermal neutrons. Saturation level: 3×10^4 cps
Low-Battery Indicator	From interrogator
Compliance	FCC Part 15.240 and Part 15.231

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About Evigia

Evigia is the industry leader in the development and deployment of specialized integrated sensor and ASIC technologies to dramatically improve the functionality and cost of wireless and sensing products. The third-generation EV3 platform delivers smaller size, higher energy efficiency and lower cost products which allow significant improvement in the performance and cost of wireless sensing networks.