



## SPD-2000 NS Operational Description

The SPD-2000 NS contains an ultra-sensitive acceleration sensor (silicone chip mounted) that measures on two axes static (vibration) as well as dynamic (gravity) accelerations. Thus when a protected asset is moved without authorization, the SPD-2000 NS transmits a real-time identifiable coded alarm message to the 'SpiderAlert' system. The alarm transmission is three messages of about 300 ms each with about 700 ms intervals from each other. The total duration of the alarm transmission is about 2300 ms. The real-time means that such a transmission is repeated every 30 s while in motion.

The SPD-2000 NS automatically transmits an alarm restore message when the asset is again at rest or after 10 minutes has elapsed without detecting further acceleration changes so that the system can handle new alarm conditions. The SPD-2000 NS returns to generating a single supervision transmission at about 15 minute intervals to ensure high operational reliability in security sensitive environments. The supervision transmission is one message of about 300 ms long. The maximum number of the supervision transmissions in one hour is five, therefore approximately duration of supervision transmissions per hour is 1500 ms.

The SPD-2000 NS is also tamper protected. Upon removing the unit's cover, the detector automatically transmits a Tamper alarm in near-real time (30 second intervals) as an alarm tracking transmission. Should the SPD-2000 NS not detect further acceleration changes after 10 minutes has elapsed, the detector returns to generating a single transmission at about 15 minute intervals, comprised of three alarm messages the same as the alarm transmissions described above.

Operating power is provided by single onboard commercially available 3.0 V 1/2 AA Lithium battery. When battery voltage is low, a "Low Battery" marker is added to the transmitted message.

A LED illuminates upon all event transmissions (except for a low battery condition).

### **Radio characteristics:**

The transmitter is a resonator based oscillator with an RF output amplifier. The output power is less than 0dbm.

The DC voltage for the final radio section is 3V and can decrease to 2.5V.

The current at the last radio stage is 80mA at transmission and can decrease to 70mA.