Accessories & Options

Spy

The Bolzoni Auramo Spy is a small, lightweight and versatile device for measuring paper roll accelerations.

The Spy uses advanced microelectronics for determining the cause and exact time of possible handling damage to paper rolls throughout the logistics chain. This makes the device an excellent tool in developing the logistics chain and preventing roll damage.

The Spy indicates if a paper roll has been subjected to extensive accelerations due to dropping, hitting or other accidents during its journey from mill to the end user.

The Spy is small and simple to use, which allows it to be hidden into the core of a paper roll prior to wrapping.

It travels with the paper roll from the mill to the end user, monitoring the acceleration values induced during transportation and handling.

The Spy has primarily been designed for paper rolls, but it can just as well be applied for monitoring other products.

BOLZONI AURAMO

Spy - Accelerations measuring device

Operation Principle

Accelerations in three perpendicular directions are stored in the memory of The Spy, together with date and exact time of occurrence. Also the temperature will be stored if the change exceeds the preset threshold value.

The advanced microelectronics provides a possibility to track the orientation of the paper roll. As the orientation changes, due to roll handling, the Spy will record the change and the time of occurrence and store it into the memory.

This will help to visualize and re-create the actual transportation and handling history of the roll when the stored data is analyzed.

Non-essential incidents, such as normal accelerations caused by train or ship vibrations, can be excluded by preset hibernation and storage threshold values.

To minimize the power consumption, The Spy remains passive most of the time, and activates itself only as the acceleration exceeds the hibernation threshold value.

In case the acceleration exceeds the storage threshold, the values will be stored for later analysis.

Components

The Spy consists of a Logging Unit and a Carrier Unit, which also incorporates a battery compartment. The Carrier Unit has been designed for a 3" (76 mm) paper roll core size. Carrier units for other core sizes are available on request.

Configuration and data analysis is carried out using The Spy Terminal Unit and The Spy Data Analysis (SDA) Software.

The Terminal Unit and the SDA-Software are not included in the delivery and have to be purchased separately.

As the paper roll reaches its final destination, The Spy will be removed from the core. The Logging Unit is detached from the Carrier Unit, and the memory is downloaded to a laptop or PC.

Depending on the capacity of the battery pack, The Spy stays functional for 12 to 24 months.

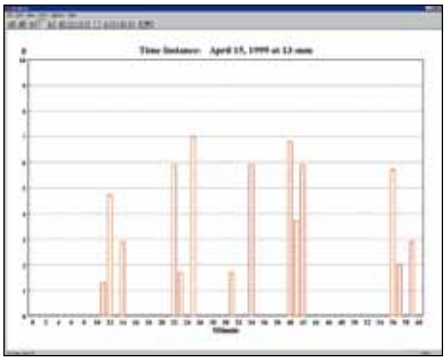
The maximum storage capacity of the standard Spy model is approximately 5000 acceleration samples, 8000 temperature and battery voltage samples and 2000 roll orientation samples.

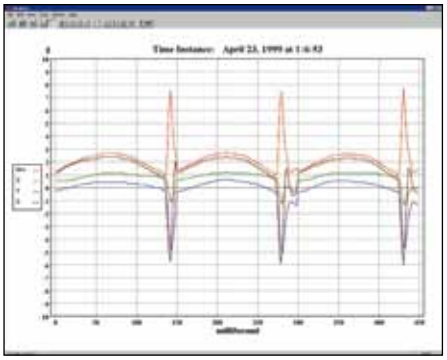
The battery voltage is stored as a safety procedure, in order to detect possible premature battery drainage. An additional internal battery will backup the memory for approximately 10 years.

Spy Data Analysis Software

The Spy Data Analysis (SDA) Software runs under Windows 95, Windows 98 and Windows NT 4.0 (or later). The graphical user interface allows full analysis of the stored data. The results can be viewed from a yearly level down to an individual second level.

The program is also used to configure the measuring parameters, setting the thresholds and to synchronize the internal clock.





Technical Specifications:

Measuring capability	Accelerations in three perpendicular directions (X, Y, Z). Roll orientation, temperature and battery voltage. Configurable hibernation and storage thresholds.
Measuring range (acceleration)	± 8 g, linear ± 3 g
Accuracy	± 0.1 g from 0 to ± 3 g
Bandwidth	0 -100 Hz
Sampling time	50 ms (25 samples at 2 ms intervals)
Measuring range (temperature)	-40°C ... +85°C
Storage capacity	5000 acceleration samples in three directions. 8000 temperature and battery voltage samples. 2000 orientation samples.
Accuracy of internal clock	Better than ±1 minute/week
Operating voltage	3.0 - 7.0 V DC
Electric current drainage	12 mA, 150 µA during hibernation
Operational temperature range	-40°C ... +70°C
Size (Logging Unit)	60 x 102 x 20 mm (2.3" x 4" x 0.8")
Carrier Unit	Suitable for 3" (76 mm) core size. Battery compartment for three 1.5 volt batteries (size C). Carrier units for other core sizes and battery types are available on request.
Battery duration (external)	At least 12 months when using three 1.5 volt (size C) alkaline batteries.
Battery duration (internal)	10 years
Configuration and data analysis	Requires the Spy Terminal Unit and the Spy Data Analysis Software (SDA). SDA is available for Windows 95, Windows 98 and Windows NT 4.0 (or later). The Terminal Unit and the SDA-Software are not included in the delivery and have to be purchased separately.

CERTIFIED ISO 9001 MANUFACTURER

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