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Electro-Sentry 1
Hazard Monitor

FINALLY

A HAZARD MONITOR THAT DISPLAYS EVERYTHING



The **Electro-Sentry 1** is a complete Hazard Monitoring System for monitoring shaft speed, bearing temperature, and belt alignment on bucket elevators and conveyors used in grain, feed, milling, and other operations.



Jamieson Equipment Company
www.jamiesonequipment.com
toll free 800.875.0280

Key Features

- Instant identification of warning or alarm source
- At-a-glance sensor readings for early warning of problems
- Minor variances quickly recognized by plant personnel
- 13 inputs and 8 relay outputs for maximum flexibility
- Easy one-button test for quick system verification
- Pluggable terminal blocks on all inputs and outputs
- Hour Meter operation and speed monitoring can be initiated from a One-shot or Maintained switch

The Electro-Sentry 1 (ES1) is designed and manufactured for ease of installation, set-up, operation, troubleshooting, and maintenance and to meet the needs of equipment specifiers, installers, programmers, operators, and facility managers. The ES1 has unique features not found in any other hazard monitor.



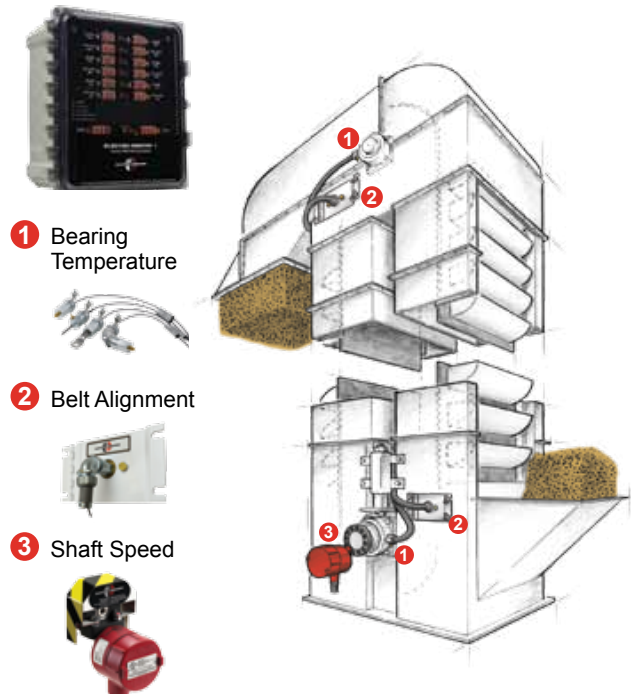
Product Overview

The ES1 is a rugged, reliable, and easy to install and use Hazard Monitor. There is no software programming, proprietary software, scrolling through user menus, pressing keys, or operator intervention necessary to identify the source of any warning or alarm.

Each sensor value is always displayed and there is a dedicated Status LED for each sensor: **GREEN**=Normal, **YELLOW**=Warning, **RED**=Shut Down. With all sensor values and status always displayed, operators learn the normal range of sensor readings so any minor variance is quickly recognized.

There are twelve 4-20 mA temperature inputs for bearing temperature and belt alignment sensors. Six of these inputs can also be programmed to accommodate contact-closure sensors. The one speed input will accept 4-20 mA or Pulse (NPN, PNP, 5V logic level) sensors. The temperature and speed warning and alarm output relays latch until reset. The temperature displays latch and hold the maximum value until reset. This feature provides maintenance personnel with the unique ability to capture and locate intermittent machinery problems. Speed display value is always "live." The ES1 features programmable BIAS setpoints for each pair of left/right temperature sensors.

When the difference between the left/right sensor pair is greater than the BIAS setpoint, a warning is generated thus eliminating the need for an ambient temperature sensor. This feature can be disabled.



Hazard monitoring on a bucket elevator.

Electro-Sentry 1 Hazard Monitor

Principle of Operation

The ES1 features 8 relay outputs to provide maximum flexibility for system designers and installers. Every system includes 1 output relay for a horn, 3 for a light stack, 2 for temperature or speed (warning and alarm), and 2 for speed only (warning and alarm). The horn and light stack output relays can be OR'd to other ES1 systems.

All variables are easily programmed from the front panel without the need for costly external software or programming tools. End-user calibration and set-up can also be done via the front panel.

The easy push-to-test buttons provide a quick and simple, fully functional system test of speed and temperature sensor inputs, warning and alarm setpoints, and output relays.

Speed monitoring is tested by internally decrementing the real-time speed sensor input until the warning and alarm setpoints are reached.

Bearing temperature and belt alignment monitoring is tested by internally incrementing the real-time temperature sensor inputs until the warning and alarm setpoints are reached.

The programmable hour meter provides a simple yet effective method for scheduling maintenance and provides a visual warning when run-time has exceeded the maintenance interval.

Pluggable terminal blocks are provided for every input and output for quick and easy installation and troubleshooting.

Shaft Speed Sensor Options

Electro-Sentry's industry leading shaft speed sensors and switches are the top choice for monitoring shaft speed with the Electro-Sentry 1.

Options include 4-20 mA and pulse output, explosion proof housing, dust-ignition proof housing, liquid-tight housing, local relay output, and Class I and II approvals. Commonly specified components are the FB420 Shaft Speed Switch, ST420-LT Shaft Speed Sensor, and 906 or 907 XP

Shaft Speed Sensor. See data sheets and installation manuals for complete details.



FB420 with EZ Mount, ST420-LT (Patented), 907 XP

Bearing Temperature Sensor Options

Bearing temperature measurement with the patented TT420Z-LT (Liquid-Tight) family of temperature sensors offers superior performance, ease of installation, and industry standard 4-20 mA outputs. All temperature sensors are factory calibrated and are available with various probe lengths, conduit adapters, and grease fittings. The integrated grease fitting allows the user to grease bearings without disturbing the temperature sensor installation. See TT420Z-LT data sheets and installation manuals for complete details.



TT420Z-LT (Liquid-Tight)

Conveyor Belt Alignment Sensor Options

The patented TT420S-LT (Liquid-Tight) temperature sensors are used to monitor leg and conveyor belt alignment with three versions of rub block doors. All temperature sensors are factory calibrated and come with straight or right angled conduit adapters. These extremely rugged doors are finished with white epoxy to minimize radiant heating effects in outdoor installations. The hinged doors allow easy inspection of the brass rub blocks. The adjustable version allows close positioning to inside corners of machinery casing. See Rub Block Door Assemblies data sheet and installation manual for complete details.



Rub block door models shown with TT420S-LT: Hinged, Adjustable (Patent Pending), Uni-Strut

- 1 Quick and easy programming via LCD and push-button switches
- 2 Pre-labeled for most common sensor configuration (can be re-labeled)
- 3 Programming instructions printed on front panel
- 4 Hour meter for maintenance scheduling
- 5 Easy one-button test for temperature inputs (Increments left or right side temperature inputs)
- 6 Easy one-button test for speed input (Decrements speed sensor input)
- 7 All sensor values are always displayed
- 8 Error codes printed on front panel for quick and easy troubleshooting
- 9 All sensors have Green, Yellow, and Red LEDs for immediate identification of NORMAL, WARNING, or ALARM status



Electro-Sentry 1 Specifications

Product	
Enclosure Dimensions	13.4" x 12.7" x 7.7"
Shipping Weight	12 pounds
Enclosure Material	Polycarbonate
Storage Temperature	-40° C to +80° C (-40° F to +176° F)
Operating	
Input Power	115/230 Vac
Frequency	50-60 Hz
Operating Temperature	-30° C to +70° C (-22° F to +158° F)
Pulse Train Speed Signal Frequency Range	0.1 Hz - 9,999 Hz

Output Relays	
Relays 1, 2, 3, 4	5 Amp Dual Form C SPDT
Relays 5, 6, 7, 8	5 Amp Single Form A SPST
Relay Contact Rating	5 Amp @ 30 Vdc, or 250 Vac Resistive
Setpoint Data	
Speed	Two (warning, shutdown)
Temperature	Two (warning, shutdown)
Temperature BIAS	Twelve (warning only)
Hour Meter	Two (warning, maintenance)

ES705 Rev C