



# ELECTRO-SENTRY™

## Hazard Monitoring System

Combines the key elements of shaft speed, belt alignment and bearing temperature into a turnkey system, with the Command Center™ for visual monitoring and fast alarm identification.

- Diagnose alarm location and condition in under 10 seconds
- Sensors designed for hazardous locations (CL II, Div. 1, Groups E, F & G)
- 4-20mA sensors connect directly to PLC or data acquisition inputs
- Real time trending of sensor data can be downloaded to external network
- No calibration — all sensors ready to use and simple to retrofit
- Easy to troubleshoot — no special training required
- No proprietary “Black Box” or custom software required
- Versatile system can take plugged chute, drag conveyor and other sensor inputs
- System can be expanded and will not become obsolete



### TT420Z-DI —

#### BEARING TEMPERATURE

The TT420Z is a 2-wire loop-powered 4-20mA temperature transmitter that mounts into standard 1/8" or 1/4" grease fitting (Zerk) taps for bearing temperature measurement. This design also allows probe depth adjustment for a wide range of bearing sizes.



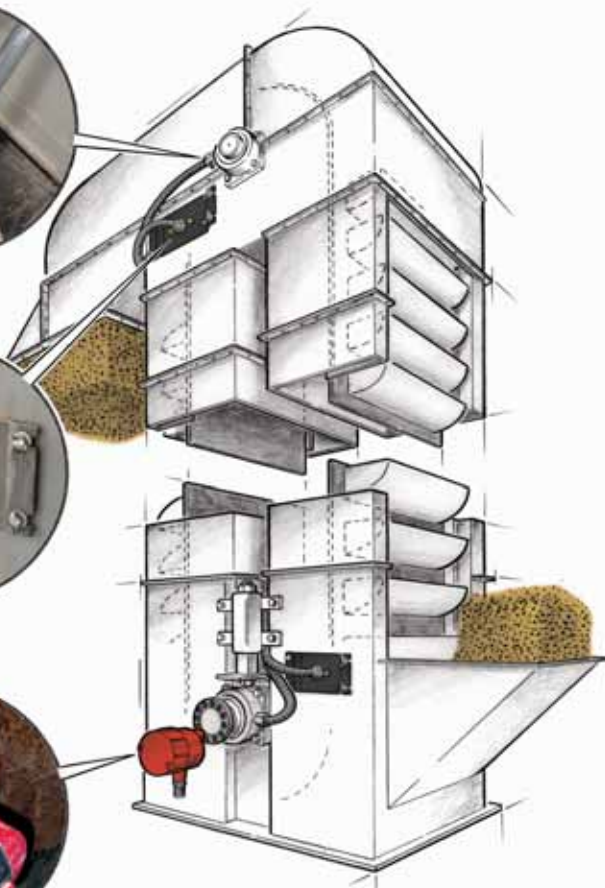
### TT420S-DI — BELT ALIGNMENT

The TT420S is a 2-wire loop-powered 4-20mA temperature transmitter that screws into the rear of any brass rub-block with a 3/8" - 16 tap.



### FB420 — SHAFT SPEED

The FB420 is a feedback sensor that mounts onto the elevator tail pulley to measure shaft speed. Housed in a rugged, XP enclosure the FB420 outputs a 4-20mA signal across the RPM range of the shaft, and has programmable setpoint relay functions.



### Command Center™ Touch Screen for Easy Visual Monitoring and Fast Alarm Identification



Open-architecture design allows the system to scale up or down very easily. Monitor points can be added or subtracted from the standard system at the Command Center — up to 12 legs can be accommodated. 4-20mA loop-powered sensors provide immunity to electrical noise, require no calibration, and enable easy PLC set-up. The Command Center was designed for ease of use by the operator; in under 10 seconds a problem can be identified and pinpointed with 2 or 3 simple steps using the touch screen display shown above.

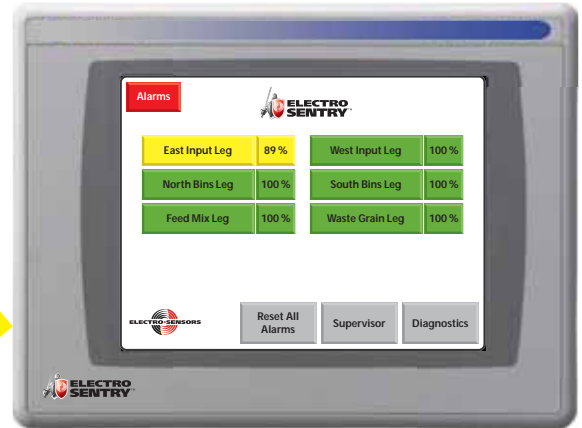
# Diagnose Alarm Condition AND Location In Under 10 Seconds!

## Simplify Maintenance and Diagnostic Procedures



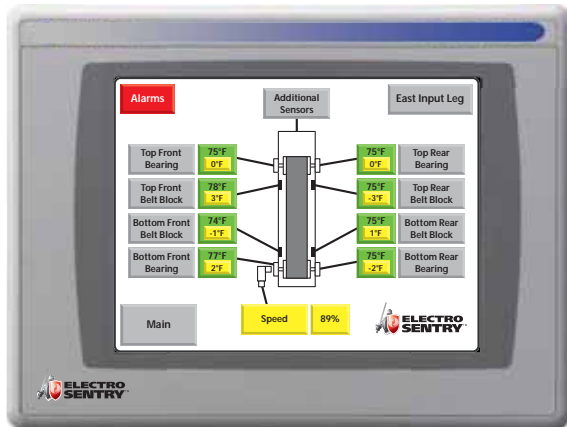
Normal Operation  
"Home" Screen View — No Alarms

East Input Leg  
Changes Due To  
Alarm Condition



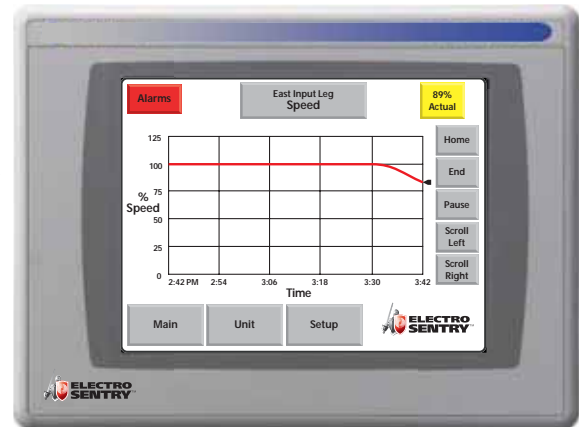
Alarm Condition on East Input Leg  
Plant Location Alarm View

Touch Flashing  
Leg Location  
Button



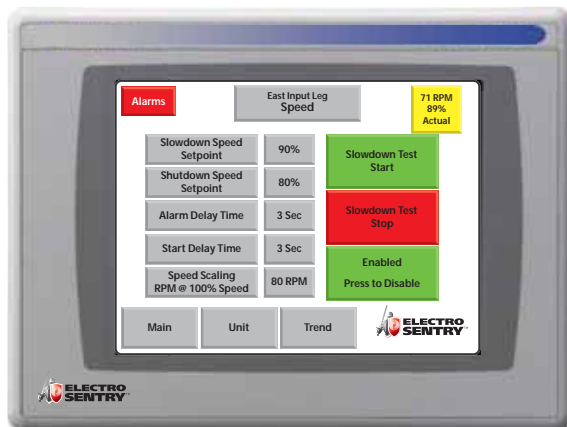
Alarm Condition — Shaft Speed  
Slowdown on East Input Leg  
Tail Pulley

Touch Flashing  
Sensor Location  
Button to View  
Sensor Trend View



Trend View Shows Shaft Speed  
Slowdown on East Input Leg  
Tail Pulley

Touch SetUp  
Button to View  
Setpoints



Setpoint Entry View Shows Shaft  
Speed Setpoints

Touch Main  
Button to Return  
to "Home"  
Screen View  
Then Touch  
Reset All Alarms  
After Speed Is  
Above 90%



Normal Operation  
"Home" Screen View — No Alarms



## Interlock with Existing Plant Control System or Stand Alone for Fault Condition Alarm and Shutdown.

### Specifications • Command Center

**System Input Power** ..... 115 Vac Standard  
24 Vdc, 230 Vac Optional

**Standard System Includes:**

- Allen-Bradley PanelView Plus 1000
- Micrologix 1500 PLC
- Inputs for Analog Sensors
- Digital I/O to Interface with Plant Control System
- USB Port for Downloading Trend Data
- DH-485, DeviceNet, EtherNet/IP Connectivity Modules Available for Micrologix PLC

**Enclosure** ..... NEMA 12 / NEMA 4

Contact Factory for Other Options



### Specifications • FB420 Shaft Speed Feedback Sensor

**Input Power**

Isolated +24 VDC ..... 55 mA with 20 mA signal,  
and relay energized  
External Fuse ..... 0.1A slo-blo

**Input Signal**

Type ..... Magnetic Alternating  
Range of Operation (w/8 PPR) ..... 0.75 RPM to 9999 RPM  
Input Frequency Range ..... 0.1 Hz to 9999 Hz

**Gap Distance** ..... 1/16" to 1/4"

**Analog Output Signal**

Type of Output ..... 4-20 mA  
4 mA at min rpm  
20 mA at max rpm.

**Relay Output**

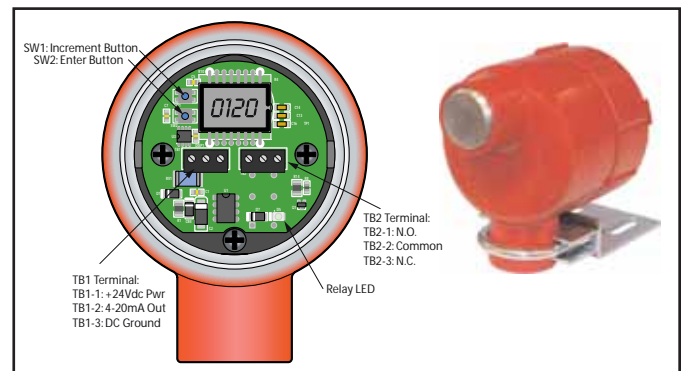
Form C SPDT ..... 30 VDC 5 amps  
250 VAC 5 amps  
Overspeed/underspeed "fail safe" alarm state is relay de-energized

**Physical Environment**

Operating Temp ..... -40° C → + 65° C (-40°F → +149°F)  
Housing & Cover ..... Cast aluminum.  
Class 1, Groups C & D  
Class II, Groups E, F, & G

**Maximum Signal Distance** ..... with 3-conductor cable  
Using Relay ..... 2300 Ft.  
Not Using Relay ..... 3800 Ft.

FB420 Shaft Speed Sensor ..... Part Number 800-045000



### Specifications • ST420-DI Shaft Tachometer

**Specifications**

Sensor Gap ..... 1/4" ± 1/8"  
Vin (min → max) ..... 8-30 Vdc (nominal  
loop power: 24 Vdc)  
Operating Temp ..... -20°C → +85°C (-4°F → +185°F)  
Accuracy ..... Max error at 25°C ± 0.25%  
Max error over operating  
temperature ± 0.50%

Output Response Time ..... < 9mS

**Cable(24 AWG)**

Color Code ..... Brown (V+)  
Black (V-)  
Length ..... 10 feet

**Dimensions**

Length ..... 95mm (3.74")  
Diameter ..... 18mm (0.71")

**Protection**

Class II (E, F, G) Div. 1 Intrinsically Safe design for use in Intrinsically Safe circuits. Reverse-wiring protected. NEMA 4X





## Specifications • TT420Z-LT Bearing Temp • TT420S-LT Belt Alignment

### Specifications

Vin (min → max)	8-30 Vdc
Operating Temp	-40°C → +120°C (-40°F → +248°F) (measurement probe) -20°C → +80°C (ambient)
Accuracy	± 1°C (at 25°C) ± 3°C (at -40°C, 120°C)

### Cable (24 AWG)

Color Code	Brown (V+), Black (V-)
Length	10 Ft.

### Protection

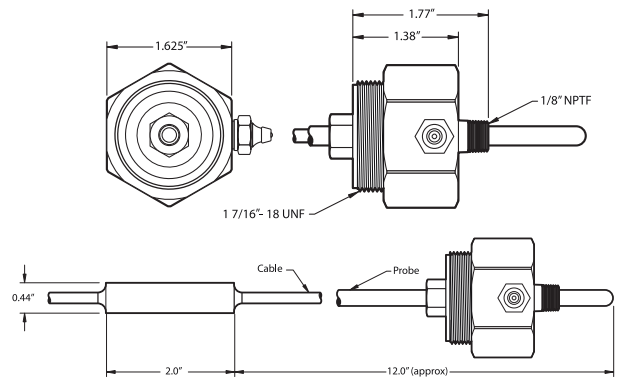
Class II (E, F, G) Div. 1 dust-ignitionproof design for use with conduit.  
Reverse-wiring protected.

### Model

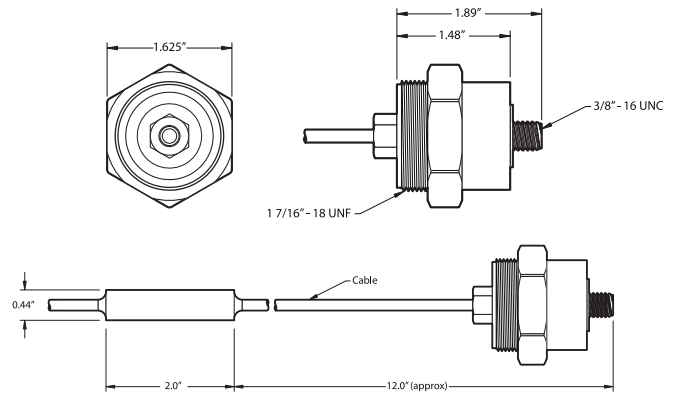
TT420Z-LT (4" probe, 1/8" NPTF TT420Z-LT zerk fitting)	800-001512
TT420Z-LT (6" probe, 1/8" NPTF TT420Z-LT zerk fitting)	800-001513
TT420Z-LT (6" probe, 1/4" NPTF TT420Z-LT zerk fitting)	800-001515
TT420S-LT (Belt Alignment Temperature Sensor)	800-001523

### Part No.

### TT420Z-LT For 1/8" NPT Zerk Tap For Bearing Temp.



### TT420S-LT Probe Housing For Belt Alignment With Rub Block



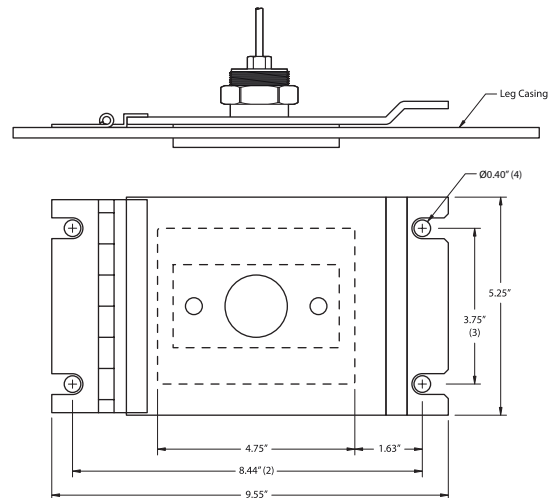
## Specifications • RBF-DI Hinged Door & Brass Rub Block

### Model

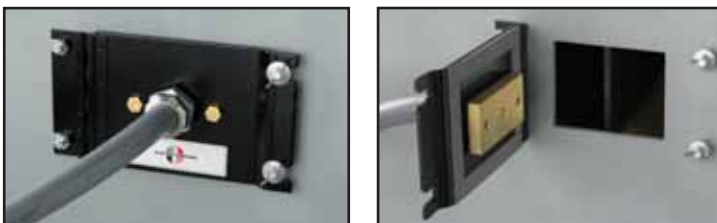
Hinged Door Only	776-000900
Brass Rub Block 2"x4"x1/2"	301-000101
Rub Block Mounting Plate	800-002900
Complete Door Assembly Incl. Rub-Block	800-002800

### Part No.

## Dimensional Drawing • Hinged Door



### Hinged Rub Block Doors for Easy Installation and Maintenance



Brass Rub Block



Specifications subject to change without notice.

ES-700 Rev F