



# ***Hazard Monitoring Systems***



*A complete line of hazard monitoring systems and accessories designed for all your equipment monitoring requirements.*

*BETTER BY DESIGN*

## Combined Monitoring Systems

Serial network system for continuous monitoring of bearing temperature, belt misalignment, and more.



**T500 Elite Hotbus™**

Combined, belt speed, belt alignment bearing temperature, pulley alignment and plugged condition monitoring system.



**Watchdog™ Elite**

## Temperature Monitoring

Bearing temperature monitoring.



**T400N Elite Hotswitch**

### Model

### Description

The T500 Elite Hotbus is a serial communication system specially designed to monitor up to 256 sensors, including continuous bearing temperature and belt misalignment. With automatic machine shutdown capability and PLC / PC compatibility this advanced microprocessor based system offers low cost installation, versatility and easy system expansion. Logging and trending software is also available for historic data analysis and preventative and predictive machine maintenance.

The Watchdog Elite is a microprocessor controlled unit with combined belt speed, belt alignment, bearing temperature, pulley alignment and plugged condition monitoring for bucket elevators and conveyors. An LCD screen displays machine status messages (available in four different languages) and a super-bright LED display shows belt speed. Calibration and set-up parameters are accessed via a password and front panel touch buttons.

The T400N Elite Hotswitch is a microprocessor controlled temperature monitor, which works in conjunction with NTC temperature sensors to monitor up to 8 bearings and can provide an alarm and automatic shutdown when a high bearing temperature condition is detected.

### Features

- Monitors multiple elevators and conveyors (up to 256 sensors)
- LCD displays system status
- RS485 serial communication
- Enter your own sensor/location names for easy identification
- Alarm and shutdown features
- Wireless connectivity options
- HazardMon.com® cloud based hazard monitoring compatible



- Monitors elevators and conveyors
- User friendly menu set-up
- LED displays belt speed
- LCD message center screen displaying status
- Fully programmable to optimize elevator/conveyor operation
- LED alarm indication and power status
- Relay contacts and RS485 outputs
- PLC interface and optional software
- Alarm and shutdown features
- Wireless connectivity options

- Monitors up to 8 bearing sensors
- Includes 2 separate alarm and 2 separate stop relays
- Short circuit / open circuit fail-safe detection
- Status LEDs provide quick location of the hot bearing condition
- A range of alarms temperatures available from 110° F to 180° F
- Alarm mute - with automatic time delayed reactivation
- PLC board (optional)

### Sensor Options

- 1 WDB or ADB Series: bearing temp.
- 6 Touchswitch: belt alignment
- 2 M800 Elite Speed Switch: speed
- 8 Auto-Set Series: level indicator
- 4 Roto-Level Series: level indicator
- 3 Binswitch: level and plug indicator

- 1 WDB or ADB Series: bearing temp.
- 5 WDA Series: motion alignment
- 6 Touchswitch: belt alignment
- 7 P800 ProxSwitch: speed
- 3 Binswitch: plug switch

- 1 WDB or ADB Series: bearing temp.

### Input Supply Volt.

120 to 240 VAC  
24 VDC (Universal Supply)

120 to 240 VAC  
24 VDC (Universal Supply)

120 to 240 VAC  
24 VDC (Universal Supply)

### Sensor Supply

Use external 24 VDC supply

24 VDC

24 VDC

### Approvals

- Class II Div. 1, Groups E, F, G
- Class II Div. 2, Groups F, G
- Europe - CE, ATEX, IECEx (Available)
- Russia - GOST-R (Available)

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### H" x W" x D"

9.7" x 7.4" x 4"

11.75" x 9.5" x 5.25"

9.7" x 7.4" x 4"

### Applications

Bucket Elevators and Conveyors

Bucket Elevators and Conveyors

Bucket Elevators and Conveyors

## Belt Alignment Monitoring

Bucket elevator belt alignment monitoring system.

Conveyor or bucket elevator belt alignment monitoring system.



## Alarm Monitoring

Centralized alarm monitoring system.



### Model

**A400 Elite Trackswitch**

**B400 Elite Beltswitch**

**X400 Elite Alarmswitch**

### Description

The A400 Elite Trackswitch is a microprocessor based control unit which uses high power magnetic sensors that detect moving metallic buckets or bolts from either one or two bucket elevators. The unit is able to provide an alarm and automatic shutdown of the elevator when a belt misalignment condition is detected.

The B400 Elite Beltswitch is a microprocessor based control unit which uses sensors to detect belt misalignment by pressure (Touchswitch) from one or two elevators / conveyors. The unit is able to provide an alarm and automatic shutdown of the elevator/conveyor when a belt misalignment condition is detected.

The X400 Elite Alarmswitch is a microprocessor based control unit which is able to accept contact style signals in 8 separate zones. Alarm and status LEDs provide quick location of the alarm. A single local and optional remote alarm mute push button acknowledges any alarm condition.

### Features

- Uses up to 4 WDA magnetic (reluctance) alignment sensors
- Monitors alignment of belts in two separate elevators or top and bottom alignment in one elevator
- Includes 2 separate alarm and 2 separate stop relays
- Simple, reliable, consistent. Fully functional test via push button on front panel

- Uses up to 4 touch or contact alignment sensors
- Monitors alignment of belts in two separate machines or top and bottom alignment in one machine
- Includes 2 separate alarm and 2 separate stop relays
- Simple, reliable, consistent. Fully functional test via push button on front panel

- Monitors up to 8 zones
- Includes 1 alarm and 1 stop relay
- Multiple alarm inputs from different sensors
- LED alarm indication and power status
- Alarm mute - local and remote (reactivation on new alarm)
- Test feature
- PLC board (optional)

### Sensor Options

5 WDA Series: motion alignment

6 Touchswitch: force/contact activated

- 8 Auto-Set Series: level indicator
- 4 Roto-Level Series: level indicator
- 3 Binswitch: level and plug indicator
- 6 Touchswitch: belt alignment
- ◆ M300 Slipswitch: speed

### Input Supply Volt.

120 to 240 VAC  
24 VDC (Universal Supply)

120 to 240 VAC  
24 VDC (Universal Supply)

120 to 240 VAC  
24 VDC (Universal Supply)

### Sensor Supply

24 VDC

24 VDC

24 VDC

### Approvals

- Class II Div. 1, Groups E, F, G
- Class II Div. 2, Groups F, G
- Europe - CE, ATEX, IECEx (Available)
- Russia - GOST-R (Available)

- Class II Div. 1, Groups E, F, G
- Class II Div. 2, Groups F, G
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### H" x W" x D"

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### Applications

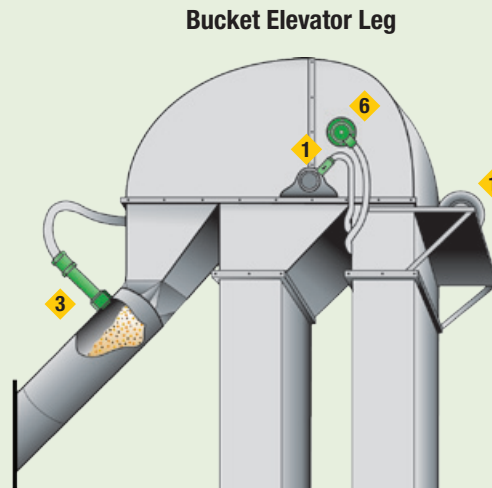
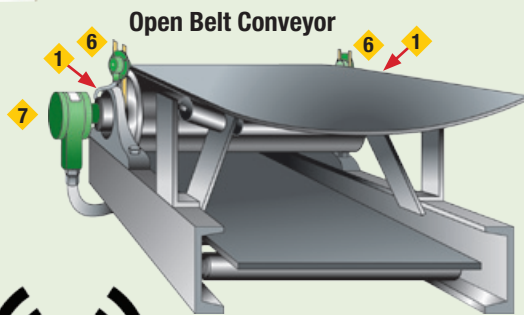
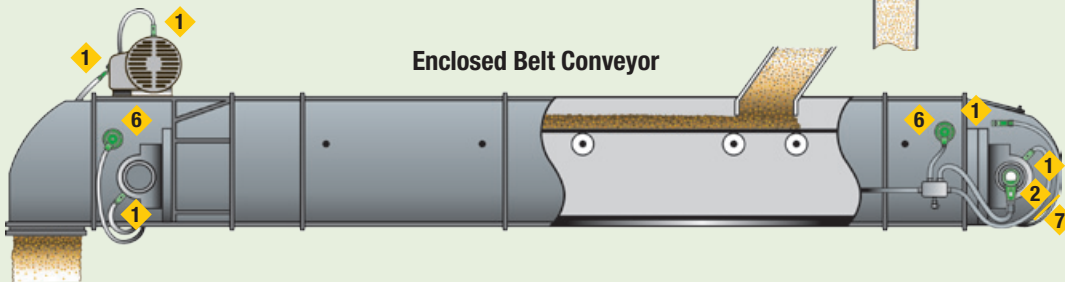
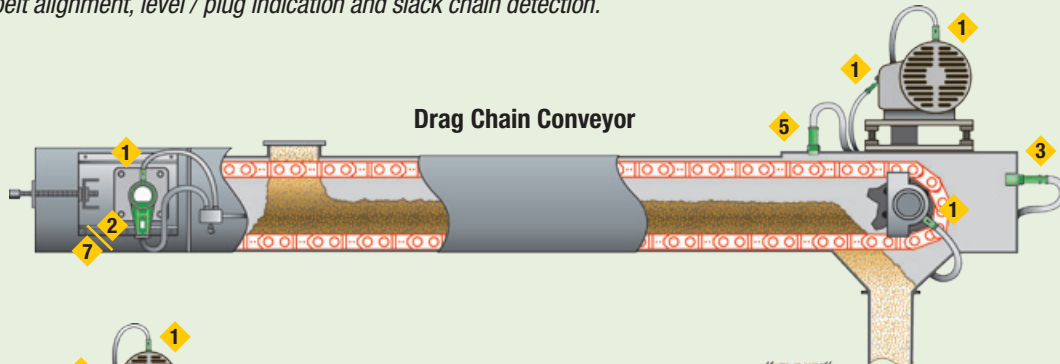
Belt Bucket Elevators

Belt Bucket Elevators and Conveyors

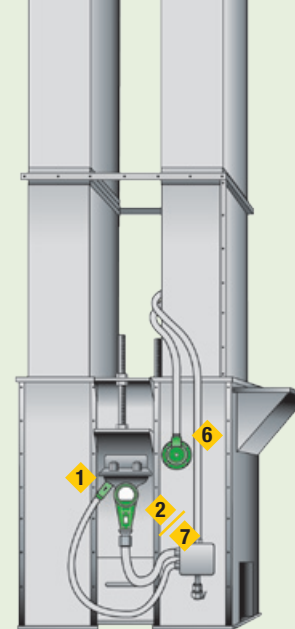
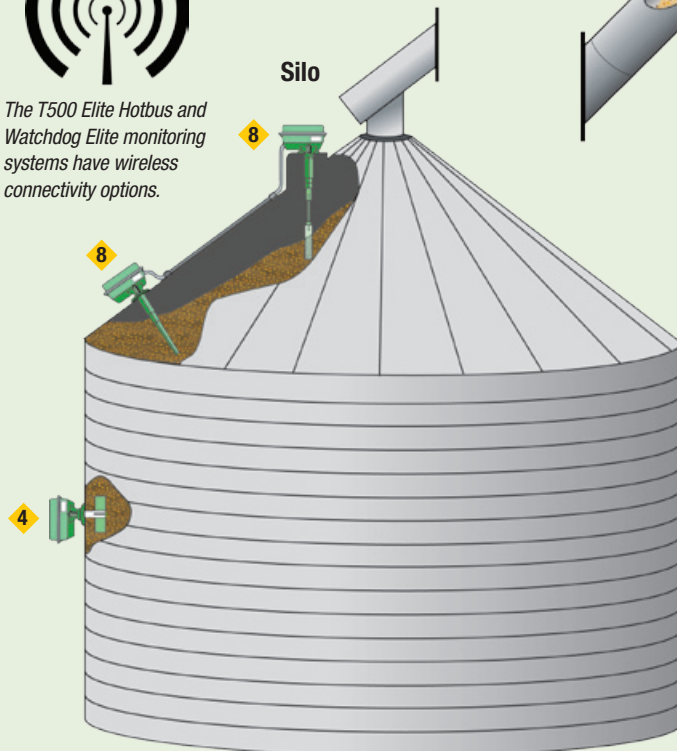
Bucket Elevators, Conveyors, Silos & Bins

## Sensor Applications

These illustrations show typical sensor placements for monitoring: speed, motion, bearing & surface temperature, belt alignment, level / plug indication and slack chain detection.



The T500 Elite Hotbus and Watchdog Elite monitoring systems have wireless connectivity options.



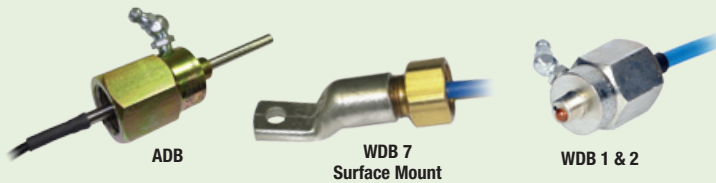
## Sensors

### 1 Bearing & Surface Temperature

The WDB and ADB series bearing temperature sensors are designed to screw directly into an existing grease zerk fitting on a bearing housing. Each sensor is fitted with a grease nipple to allow lubrication of the bearing without the need for removal of the sensor. The WDB series is available with either a PTC thermistor with various factory set trip points or an NTC thermistor with a user adjustable trip point.

The ADB series have been designed to allow the depth of the sensor to be adjustable depending on your application. The ADB series is available with NTC thermistors and have probe lengths of 2", 4" and 8".

RTD Platinum (PT100) and other sensor styles are also available.



### 2 M800 Elite - Speed Switch

The M800 monitors rotating machinery for dangerous underspeed conditions. An inductive sensing device located in the nose of the M800 Elite enclosure will detect a metal target. Once the unit is set to the normal machine RPM, it provides alarm and shutdown signals at 10% and 20% underspeed.

- Can be used with the Whirligig® shaft sensor mount



### 3 Binswitch - Plug Sensor

The Binswitch sensor detects level or plug situations for bulk granular solids or liquids in tanks, bins, or silos and can be used as a plug or choke detector in chutes, conveyors and elevator legs. Programmable features include time delay on material arriving or leaving, and fail-safe relay settings for high and low levels.



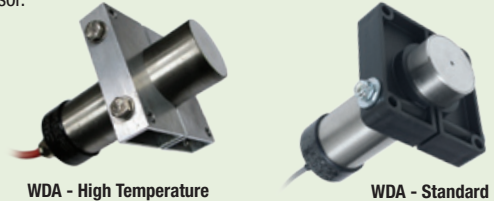
### 4 Roto-Level Series - Plug Sensors

The Roto-Level series are rotary paddle switches designed to detect high and low levels of bulk granular solids in bins, tanks, silos, and as blockage detectors in spouts.



### 5 WDA Series: Motion Alignment

The WDA Series are non-contacting extended range magnetic sensors used to detect ferrous targets (such as bucket bolts or steel buckets) at a distance of up to 3 inches from the sensor.



### 6 Touchswitch™ - Belt Misalignment

The Touchswitch™ is an electromechanical limit-switch with no moving parts, which detects tracking and misalignment problems on bucket elevators and conveyors. Unlike a rub block that utilizes friction (heat) to activate, the Touchswitch™ is pressure sensitive for safer and more reliable monitoring.

NOTE: Rub blocks are available for special applications. Call the 4B Tech Team to discuss the requirements for your specific application.



### 7 P800 - ProxSwitch

The P800 is an inductive proximity sensor designed to detect shaft speed, shaft position, gate position, or object presence. No contact is made between the sensor and the target being monitored. The P800 will detect a ferrous object at 1/2" and a non-ferrous metal object at a distance of 5/16".

- Can be used with the Whirligig® shaft sensor mount



### 8 Auto-Set™ Series - Plug Sensors

The Auto-Set™ series are self-contained point level monitors with digital displays for high, intermediate, or low-level detection of liquids, powders or free-flowing granular solids. The Auto-Set™ series incorporates simple push-button calibration with microprocessor enable/disable switch for total protection of stored values. Once the unit is calibrated for a specific application, it never has to be re-calibrated.



## Other Products & Services

### Testing & Commissioning Service

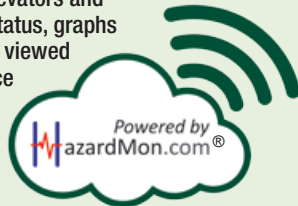
4B has a dedicated team of technicians providing free over the phone 24 hour technical support to trouble shoot any issue that can occur during or after installation.

Additionally, 4B offers an on site commissioning service to ensure our products have been properly set up and are functioning correctly after your initial installation.

4B also offers service contracts to periodically test and verify that our products are being maintained and working properly to help protect your equipment. For a quote on these services, please contact a 4B technical support representative.

### HazardMon.com®

HazardMon.com is a secure cloud based hazard monitoring solution providing status notifications and data logging for bucket elevators and conveyors. Live system status, graphs and historical data can be viewed on any web-enabled device (smartphone, tablet PC, desktop or laptop computer). Emails can be sent to notify users whenever a change in the system's health is detected. An automated maintenance feature allows site operators to verify that all sensors on the system are operational and working correctly.



Visit [www.hazardmon.com](http://www.hazardmon.com) to sign up for a FREE demo account, and see what the cloud can do for you!

### SpeedMaster™ Speed Switch Tester

The SpeedMaster™ accurately tests the calibration of a speed switch, and allows testing of the 10% alarm and 20% shutdown features of the sensor while installed on the machine shaft.



Patent Pending

### ADB Sensor Tester

The ADB Sensor Tester has been designed to test 4B adjustable depth bearing (ADB) style temperature sensors in the field. With integral controls and temperature display, the unit heats the sensor to the desired trip point, and allows quick and easy real life testing of the sensor and temperature monitoring system.



4B monitoring systems are unsurpassed in quality and performance.

Manufactured to ISO9001 quality standards, monitoring systems also carry 3rd party approvals for USA, Canada, Europe and Russia



IECEX RoHS



When it comes to supplying you with virtually any material handling component, 4B has it.

Speed Switches  
Level Monitors  
Elevator Buckets & Bolts  
Forged Conveyor Chain  
& More!

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