

Watchdog Super Elite – WDC4

BETTER BY DESIGN

Watchdog™ Super Elite Bucket Elevator & Conveyor Hazard Monitor

APPLICATION

Combined belt alignment, belt speed, continuous bearing temperature, pulley alignment and plug condition monitor for bucket elevators and conveyors.

METHOD OF OPERATION

A complete elevator and conveyor monitoring system with inputs for most of the types of sensors standard in the industry. Offers top-of-the-class flexibility and machine monitoring.

Unprecedented user friendliness via a 3.5" full color bespoke design graphics screen. Controller settings can be set up either directly on the unit or via a PC application and transferred between the WDC4s and PC via a SD card. In-built Ethernet port with full support for the Hazardmon.com -cloud based monitoring service.

FEATURES

- ▶ Belt Speed Monitoring (Single and Differential Speed)
- ▶ Belt Alignment Monitoring (Contact, Pulsed and Rub Blocks)
- ▶ Bearing Temperature Monitoring
- ▶ Pulley Alignment Monitoring
- ▶ Plug Condition Monitoring
- ▶ Acceleration Monitoring
- ▶ Jog Prevention
- ▶ 3.5" Colour Graphics LCD Display
- ▶ SD Card for Settings Save / Restore and Firmware Updates
- ▶ Ethernet RJ45 Port
- ▶ Hazardmon.com support for real-time remote monitoring and historical analysis

WATCHDOG PART NUMBERS

- ▶ WDC4V46CAI Multi-Voltage Model
(110Vac, 240Vac 50/60Hz and 24Vdc)
- ▶ WDC4V4CAI 24Vdc only Model

ACCESSORIES

- ▶ P3003V34AI P300 Speed Sensor
- ▶ WG4A-BR Whirligig Speed Sensor Mount
- ▶ MAG2000M Magnetic Shaft Mount for the Whirligig
- ▶ TS2V34AI Touchswitch - Belt Alignment Sensor
- ▶ WDA3V34CAI WDA Motion Alignment Sensor
(Belt Alignment Alternative)
- ▶ ADB810V3AI Adjustable Depth Bearing Temperature Sensor
(NTC)
- ▶ WDB70V3CAI Lug Type Temperature Sensor (NTC)
- ▶ BSE15V10AI Binswitch - Plug Condition Detection
- ▶ ATS8V0A Autoset - Plug Condition Detection (Alternative)



Please refer to instruction manual for correct installation.
Information subject to change or correction.

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Bucket Elevator Application A (Plastic Or Steel Elevator Buckets)

Belt Misalignment



Touchswitch -

Contact type electro-mechanical limit-switch with no moving parts, which detects tracking and misalignment problems.

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Plug Condition



Binswitch -

Capacitance style sensor that can detect plugged spouts, inlets and outlets.

3

Autoset -

Heavy duty capacitance style sensor with automatic material build up compensator that can detect plugged spouts, inlets and outlets.



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Bearing & Surface Temperature



ADB & WDB Series -

1. Grease through, positive mounting, NTC thermistor with user adjustable trip points. ADB series has adjustable depth probes.
2. Surface mount NTC thermistor designed to bolt onto a bearing or gearbox housing.

1

Speed Monitoring



Speed Sensor -

Industry standard inductive sensor for detecting belt slip conditions. Shown on boot shaft with the optional Whirligig target/bracket/guard for easy installation.

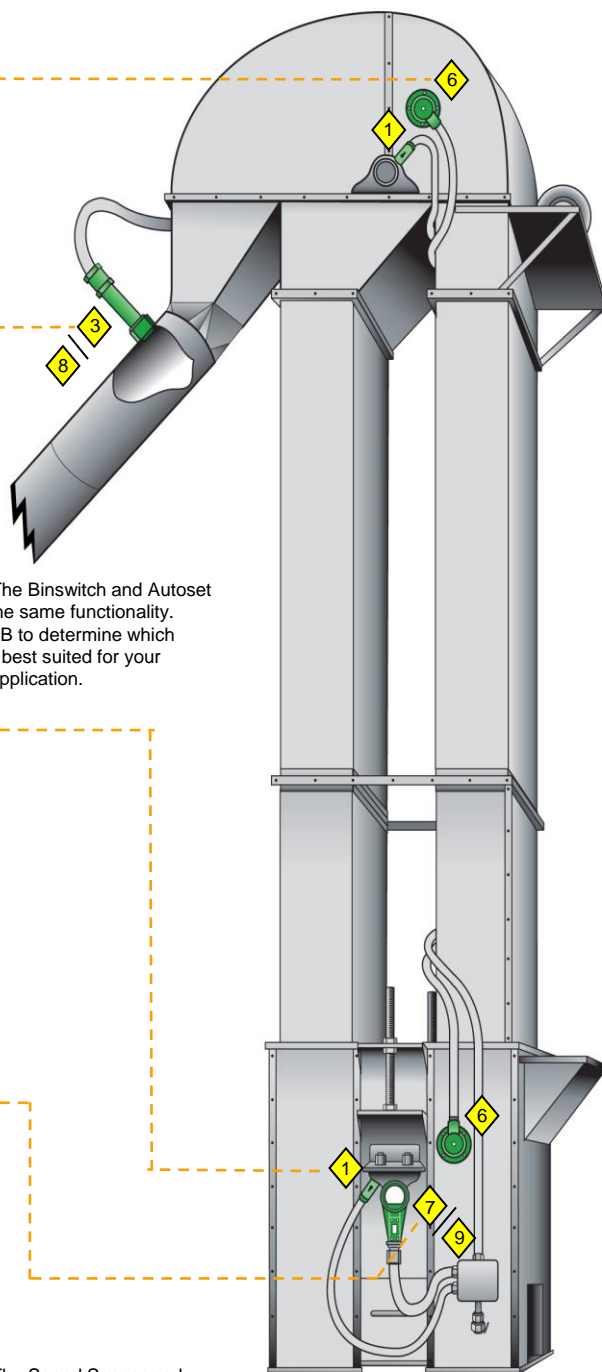
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Rotech Encoder -

Heavy duty option for monitoring underspeed and belt slip conditions. Made from cast aluminum, the Rotech is used in the most severe industrial environments.



9



NOTE: The Binswitch and Autoset provide the same functionality. Consult 4B to determine which sensor is best suited for your specific application.

NOTE: The Speed Sensor and Rotech Encoder provide the same functionality. Consult 4B to determine which sensor is best suited for your specific application.

Detailed specification, wiring diagrams and installation/operating instructions available upon request.

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Bucket Elevator Application B (Steel Elevator Buckets)

Motion (Speed) & Alignment



WDA Sensor -

Non-contacting extended range sensor used to detect targets which are up to 75mm (3 inches) from the sensor. High temperature version available (150°C continuous, 180°C max.).

5

Plug Condition



Binswitch -

Capacitance style sensor that can detect plugged spouts, inlets and outlets.

3

Autoset -

Heavy duty capacitance style sensor with automatic material build up compensator that can detect plugged spouts, inlets and outlets.



8

Bearing & Surface Temperature

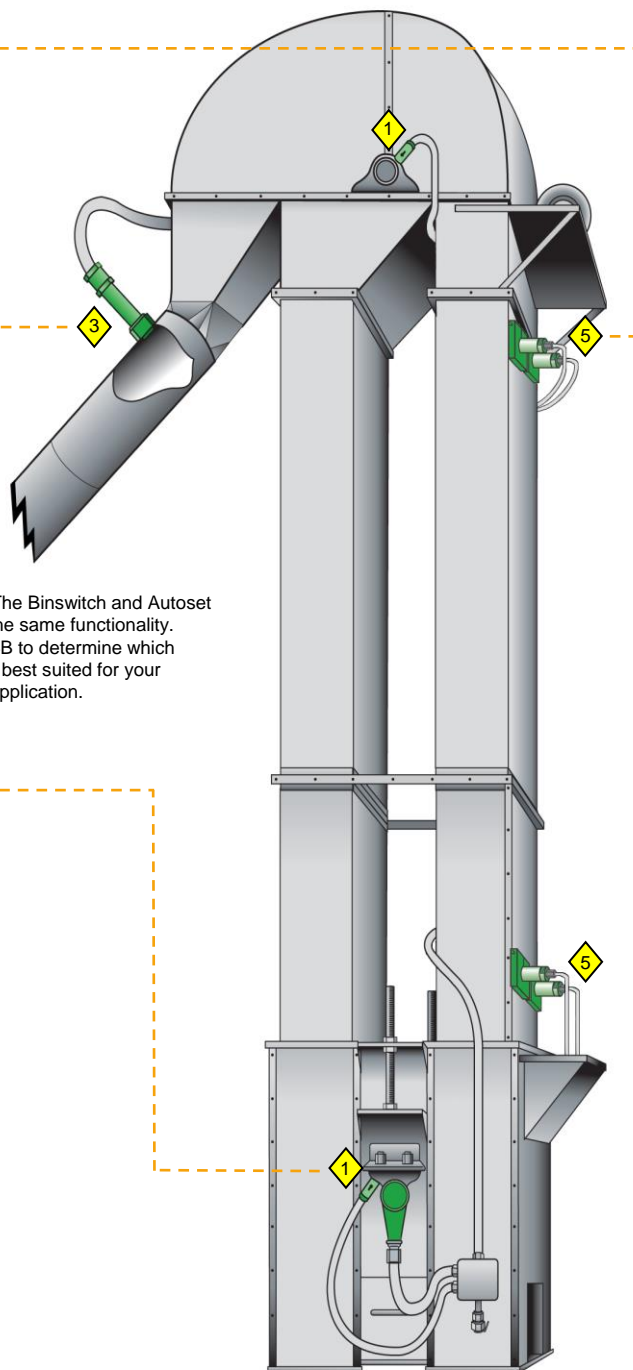


ADB & WDB Series -

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2. Surface mount NTC thermistor designed to bolt onto a bearing or gearbox housing.

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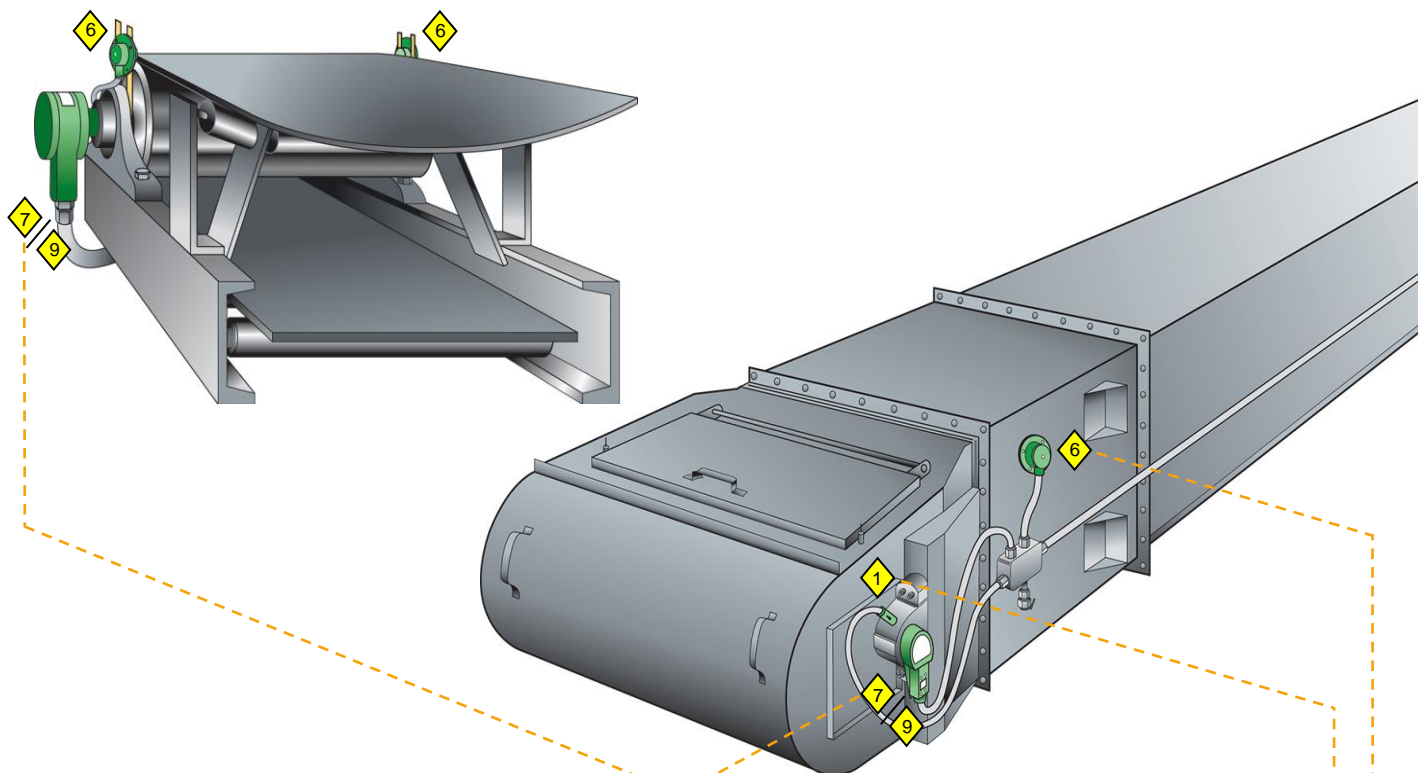
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Standard Conveyor Application (Open & Enclosed)



Speed Monitoring



Speed Sensor -

Industry standard inductive sensor for detecting belt slip conditions. Shown on boot shaft with the optional Whirligig target/bracket/guard for easy installation.

Rotech Encoder -

Heavy duty option for monitoring underspeed and belt slip conditions. Made from cast aluminum, the Rotech is used in the most severe industrial environments.



NOTE: The Speed Sensor and Rotech Encoder provide the same functionality. Consult 4B to determine which sensor is best suited for your specific application.

Bearing & Surface Temperature



ADB & WDB Series -

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Belt Misalignment



Touchswitch -

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TECHNICAL SPECIFICATIONS



Watchdog Control Unit

Power Supply:	WDC4V46CAI - 110 VAC, 240 VAC (50/60 Hz) and 24 VDC WDC4V4CAI - 24VDC ONLY
Power Consumption:	12 Watts
Alarm & Stop Relay:	2 x Pole Normally Open - 8A @ 250 VAC Voltage Free Changeover
Sensor Inputs:	15 (Expandable to 27 with Auxiliary Boards)
Sensor Supply:	24 VDC @ 800 mA (Across F1, F2 and F3)
Speed Range:	120 - 4,000 Pulses/Minute
Construction:	Polycarbonate Enclosure with IP66 / NEMA 4X
Dimensions:	298 x 241 x 133 (mm) / 11-3/4 x 9-1/2 x 5-1/4 (inches)
Enclosure Holes:	2 holes x 25mm Diameter
Approvals:	<p>V46 ATEX and IECEx: Zone 22 CSA: CLII DIV2 Groups F & G InMetro (Brazil), CnEx (China)</p> <p>V4 ATEX and IECEx: Zone 21 CSA: CLII DIV1 Groups E, F & G InMetro (Brazil), CnEx (China)</p>