HAZARD MONITORING SYSTEM

HEADQUARTERS 514.886.5270

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HAZARD MONITORING & EXPLOSION PREVENTION

Preventative maintenance can help reduce the risk of equipment failure and consequent downtimes. When it comes to monitoring your bucket elevators and belt conveyors, 4B can recommend you the ideal combination of sensors and monitoring systems to suit your requirements and budget.

4B provides an extensive range of their own ATEX / IECEx / CSA / CCC / EAC approved hazard monitoring systems, misalignment switches and bearing temperature monitors and level controls. We can offer you anything from a replacement sensor to a fully integrated hazard monitoring system which can be operated either as a stand-alone system or connected to your PLC.

We can offer you a scalable solution starting with correctly chosen equipment and systems that can be expanded at a later date to encompass other machines in the plant.

4B provides installation service and after-sales technical support to help you overcome any technical problems with your monitoring equipment.

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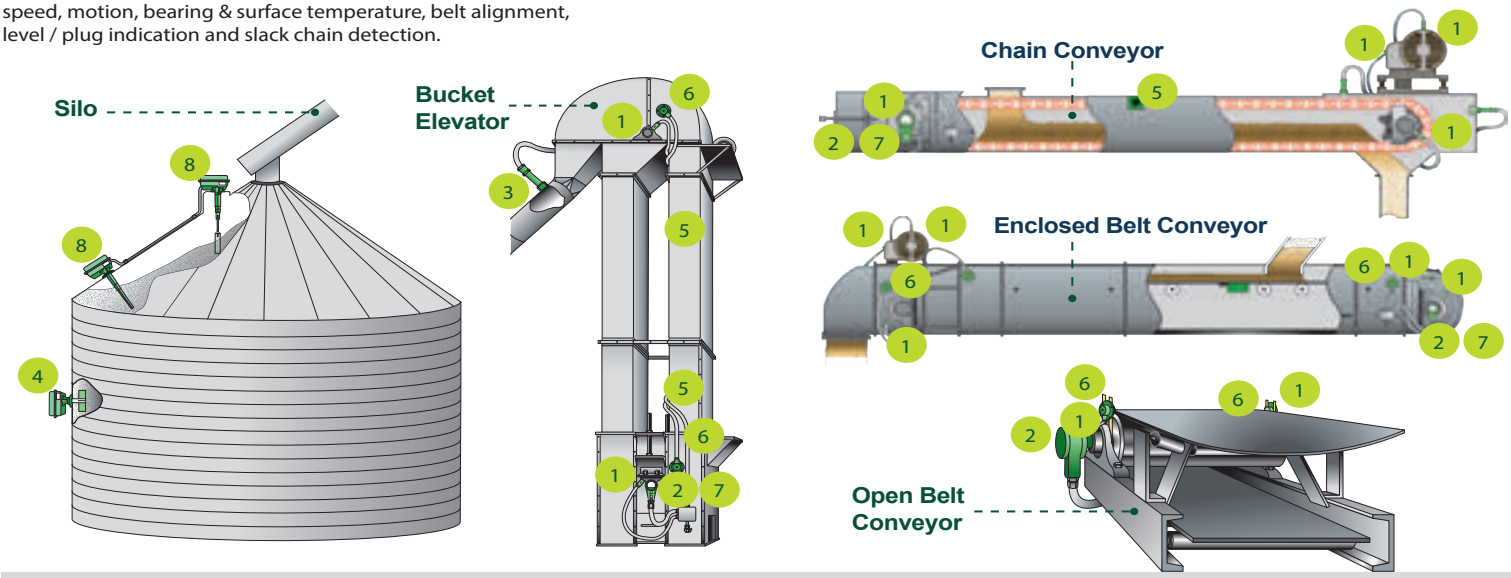
SENSOR APPLICATIONS

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



SENSORS

1 BEARING TEMPERATURE SENSORS

The ADB, MDB, and WDB 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. Most series are available with either a PTC thermistor with various factory set trip points, or a NTC thermistor with a user adjustable trip point, or as a Pt100 RTD version.

2 SPEED SWITCHES

Monitors rotating machinery for dangerous underspeed conditions. An inductive sensing device located in the nose of the enclosure will detect a metal target. Set to the normal machine RPM, 4B Speedswitches provide alarm and shutdown signals underspeed and stopped motion.

3 BINSWITCH

The Binswitch detects level or plug conditions for bulk granular solids in tanks, bins, or silos and can be used as a plug or choke detector in chutes, conveyors and elevator legs.

4 ROTO LEVEL SERIES

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 3

The WDA Series are non-contacting extended range magnetic sensors used to detect ferrous targets at a distance of up to 75mm from the sensor. They can be used on chain conveyors to detect slack or broken chain. They can also be used on bucket elevators where they can detect bucket bolts and steel buckets to monitor belt misalignment.

6 TOUCHSWITCH

The Touchswitch is an electro-mechanical limit-switch style sensor with no moving parts. It is designed to detect belt tracking and misalignment problems on bucket elevators and conveyors. Unlike a rub block that utilises friction (heat) to activate, the Touchswitch is pressure sensitive for safer and more reliable monitoring.

7 INDUCTIVE SENSORS

4B inductive proximity sensors are designed to detect shaft speed, shaft position, gate position, or object presence. No contact is made between the sensor and the target being monitored.

8 AUTOSET SERIES

The Autoset 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 Autoset 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.

ELEVATOR / CONVEYOR MONITORING SYSTEMS

COMBINED MONITORING SYSTEMS

PRODUCT	WATCHDOG SUPER ELITE™	T500 ELITE - HOTBUS™	IE-NODE
			
Bearing temperature	✓ (continuous) max. 6 sensors + 2 ambient temp. sensors	✓ (continuous) max. 256 inputs*	8 dual use inputs (contact or NTC temperature)
Belt speed	✓ (continuous) max. 2 inputs – Differential speed monitoring	✓ (continuous) max. 256 inputs*	2 pulse or 4-20mA
Belt alignment	✓ Pulses / Contact / Rub* Blocks 4 inputs	✓ max. 256 sensors*	8 dual use inputs (contact or NTC temperature)
Plugged condition	✓	✓	✓
Pulley alignment	✓	✓	✓
Communication interfaces	Ethernet with Modbus TCP protocol	All major industrial protocols supported via F500 Gateway	Ethernet IP, Profinet, Modbus TCP
Test function	✓	✓	✖
Alarm & shutdown function	✓	✓	✖
Applications	Single elevator or conveyor	Multiple elevators & conveyors; remote monitoring across site	Bucket elevators & conveyors, plant-wide monitoring
Hazardmon.com (Cloud based hazard monitoring)	✓ (Ethernet onboard)	✓ (via F500)	✓ (Ethernet onboard)
Certifications	UKEx / EAC / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC

* total number of inputs / sensors, all sensors combined.

SPECIALISED MONITORING SYSTEMS

PRODUCT	T400N ELITE	T400 ELITE	A400 ELITE	B400 ELITE
				
Bearing temperature	✓ (continuous) max. 8 sensors	✓ (discreet PTC) max. 16 sensors	✖	✖
Belt speed	✖	✖	✓	✖
Belt alignment	✖	✖	✓	✓
Plugged condition	✖	✖	✖	✓
Pulley alignment	✖	✖	✖	✓
Communication interfaces	Modbus RTU (RS-485)	✖	✖	✖
Test function	✓	✓	✓	✓
Alarm & shutdown function	✓	✓	✓	✓
Applications	Elevator & conveyors	Elevator & conveyors	Elevators	Elevator & conveyors
Hazardmon.com (Cloud based hazard monitoring)	✖	✖	✖	✖
Certifications	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC	UKEx / ATEX / CSA / IECEx / InMetro / Nepsi / CCC

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HAZARD MONITORING SYSTEMS

COMBINED MONITORING SYSTEMS

WATCHDOG SUPER ELITE™

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

The Watchdog Super Elite™ is 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 approvals. Unprecedented user friendliness via a 3.5" full colour 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. WDC4 has multi-lingual support. MODBUS/TCP Support with the application notes for Rockwell, Siemens and Mitsubishi PLCs is available.

Features

- Be lt 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
- Multi-lingual display
- Hazardmon.com support for real-time remote monitoring and historical ana lysis

Input supply voltage

- 100 to 2 40 VAC
- 24 VDC (u niversal supply)

Sensor supply

- 24 VDC

Sensor options

- AD B, MDB, and WDB: bearing temperature
- WDA Series: motion alignment
- Touchswitch: belt alignment
- Inductive Proximity Sensors: speed (P1003V34AI / P3003V34AI)
- Binswitch: plu gswitch

Approvals

- UK - UKEx
- Euro pe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi / CCC
- Russia - EAC
- Worldwide – IECEx

H x W x D

- 308 x 241 x 137mm

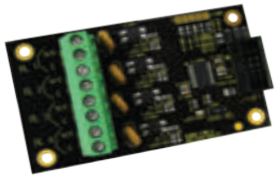
Applications

- Buc ket elevators and con veyors

WATCHDOG EXPANSION CARDS

The Watchdog Super Elite comes with standard 15 sensor inputs. However, it can be extended to up to 27 via the use of expansion cards. Cards can be pre-installed at the factory when ordering a new Watchdog WDC4, or installed into existing control units already in the field.

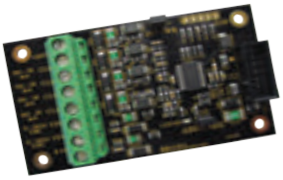
WDC4-AUXO-SSR



4 x solid state alarm relay outputs for the following conditions:

- Speed
- Temperature
- Misalignment
- Auxiliary Inputs

WDC4-AUXI-6AN



Additional analogue inputs:

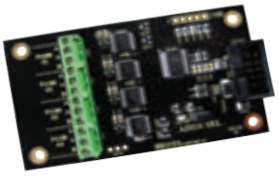
- 4 x 4-20mA current loop inputs (0-20mA range supported)
- 2 x 0-10VDC analogue inputs
- Individually enabled and configured in WDC4

WDC4-AUXI-6NTC

Additional NTC type temperature inputs:

- 6 x NTC inputs
- 2 x Sensor power supply (+24VDC)
- Individually enabled and configured in WDC4

WDC4-AUXI-4PT100



Additional Pt-100 type temperature inputs:

- 4 x Pt-100 inputs
- Temperature range: -200 to 535 degrees C
- Three-wire configuration
- Individually enabled and configured in WDC

COMBINED MONITORING SYSTEMS

IE-NODE (INDUSTRIAL ETHERNET-NODE)

Remote Sensor Monitoring for PLC's & Automation Systems

The Industrial Ethernet Node (IE-NODE) is a remote monitoring interface designed to provide sensor data to PLC's or other automation and control systems. The IE-NODE is available in two versions, both with a total of 10 sensor inputs. Version 1 has 8 contact or NTC temperature inputs, and 2 pulse or 4-20 mA (current loop) inputs. Version 2 has 10 inputs for 4-20 mA (current loop) sensors. Both units can be expanded to 16 sensor inputs with the installation of optional expansion boards. The IE-NODE operates by reading its sensor inputs and sending processed data when requested by another system (e.g. PLC). The units are equipped with RJ45 Ethernet sockets and support PROFINET, EtherNet/IP and Modbus TCP/IP protocols for easy integration with Siemens, Allen-Bradley Rockwell, Delta V, Modicon and other PLC's or automation devices.

Features

- Sensor Interface for PLC's & Automation Systems
- Supports PROFINET, EtherNet/IP and Modbus TCP/IP
- Up to 16 Total Sensor Inputs with Available
- Expansion Boards
- Configuration Software for Easy Network
- Set Up and Visual Overview of All Devices

Input supply voltage

- 100 to 2 40 VAC
- 24 VDC (u niversal supply)

Sensor supply

- 24 VDC

Sensor options

- Temperature (Bearing & Surface) - ADB Series (NTC Type) & Milli-Temp Series (4-20 mA)
- Belt Misalignment - Touchswitch (Contact) or Rub Block (NTC Type)
- Belt Speed & Slip - Milli-Speed Switch (4-20 mA), P300 Proximity Sensor (Pulse), P800 Proximity Sensor (Pulse), M800 Elite Speed Switch (Pulse)
- Level Indication: Auto-Set™ or Rotary Paddle Series
- Plug or Level Indication: Binswitch Elite or Auto-Set™

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 248 x 188 x 133mm

Applications

- Buc ket elevators and con veyors, plant-wide monitoring

IE-NODE EXPANSION CARDS

The IE-NODE comes with standard 10 sensor inputs. However, it can be extended to up to 16 via the use of expansion cards. Cards can be pre-installed at the factory when ordering a new IE-Node, or installed into existing control units already in the field.

ETH-NODE-AUXSW-4P

Expansion board for use with 4B's IE-Node Monitors:

- Allows an additional 4 Ethernet Ports to be added to the IE-Node
- Enables flexible cable routing for reduced material costs and installation time

ETH-NODE-AUXI-6AN

Additional analogue inputs:

- Supports 6 extra 4-20 mA CLI (Current Loop Input) sensors
- RS485 Modbus RTU connection capability

ETH-NODE-AUXI-6NTC

Additional NTC type temperature inputs:

- 6 extra NTC temperature sensors or 6 contact sensors, or any combination of 6
- RS485 Modbus RTU connection capability

ETH-SWITCH1V4C-5P (IE-SWITCH)

An unmanaged switch with 5x RJ45 Ethernet sockets for 10/100 Mbps Ethernet Communications. Designed to work with 4B's IE-Nodes or any other devices requiring 10/100 Mbps Ethernet communications.

COMBINED MONITORING SYSTEMS

T500 ELITE - HOTBUS

HOTBUS

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

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.

Features

- Contin uous bearing temperature monitoring with user adjustable trip points
- RS485 serial communication
- Monitors up to 256 sensors
- 4 second scan time with 256 sensors installed
- Works with many types of sensors
- Enter your own sensor/location names for easy identification
- Alarm and shutdown features
- Gateways available for various PLC connections
- HazardMon.com® cloud based hazard monitoring compatibl e

Sensor options

- ADB, MD B, and WDB: bearing temperature
- Touchswitch: belt alignment
- P3003V34AI + SN2 Node: speed
- Autoset Series: level indicator
- Roto-Level Series: level indicator
- Binswitch: level and plug indicator

Input supply voltage

- 100 to 240 VAC
- 24 VDC (unive rsal supply)

Sensor supply

- Use external 24 VDC supply

Approvals

- UK - UKEx
- Euro pe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwid e – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Bucket elevators and conveyors

Powered by HazardMon.com

ACCESSORIES

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.

F500 Elite Fieldbus Gateway

The F500 is a communications gateway that allows for single point access to a maximum of four T500 Elite Hotbus™ systems via Fieldbus protocol. Fieldbus communication protocols supported include: Ethernet IP, Modbus TCP, Modbus RTU, DeviceNet, Profibus and others.

R500 Elite Alarm Relay Interface

The R500 is a microprocessor-controlled unit, which accepts signals from the T500 Elite Hotbus™ monitor, and is able to cause alarm or shutdown of equipment when a sensor exceeds its programmed alarm tolerance.

Hotbox Node – TN4 (Input Node)

The TN4 is a four input sensor node, powered by 24 VDC. Each input can be an NTC thermistor, PTC thermistor or Volt-Free Contact input; the types may be interchanged on a single node. The Node has a unique 4 digit address which is used to communicate to the T500 via a two wire serial RS485 connection. The TN4 Node processes information from electrical inputs into network data inputs for ADB, WDB , Binswitch or Touchswitch.

Hotbox Node – SN2 (Speed Node)

The SN2 is a two input speed node, powered by 24 VDC. The node is able to monitor two independent pulse (speed) sources for dangerous under speed conditions. The SN2 will support pulses which are PNP or sourced. The Node has a unique 4 digit address which is used to communicate to the T500 via a two wire RS485 connection. The SN2 processes information from electrical inputs into network data.

Hotbus™ Node Tester

The Hotbus Node Tester is a portable testing unit that can be used in the field to determine the operational status of any Hotbus communications node and network to quickly identify wiring or node issues.

Simply plug the network connection cable directly to the node. A digital display on the tester will show the status of the node which can determine if the node is operating correctly.

CLOUD-BASED HAZARD MONITORING

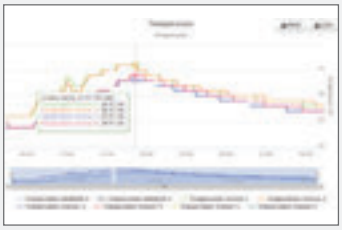
HAZARDMON

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.

Features

- Secure Cloud Based Hazard Monitoring
- Works with T500 Elite Hotbus™ & Watchdog Super Elite
- Data Logged Automatically
- Real Time System Status & Alert Email Notifications
- Automated Maintenance
- View on Any Web-Enabled Device

HazardMon.com ® enables the WDC4 and T500 systems to become Industry 4.0 enabled. It offers real-time visualization and notifications for connected users anywhere in the world. All the data is collected with a two second latency and everything is saved for historical analysis.



Live View

Real-time remote view of your factory from anywhere in the world. Support mobile and desktop views. Data is dynamically updated and presented in most efficient view for operators and managers to understand.

Data Chartin g

Any sensor data can be charted in a matter of two clicks. Time range is selectable between 1h and 30 days. There is also a live chart function for real-time maintenance of site.

Data Analysis

Comprehensive reports for the management to make quick data-driven decisions. With the help of Hazardmon analytics factory management can make maintenance budgeting decisions in matter of minutes. All the Hazardmon reports are exportable and can be easily incorporated into internal health and safety and performance reports.

Automated Maintenance

Completely automated sensor testing process, which allows factory maintenance staff and management to comply with the annual or bi-annual test schedule. Just click on a sensor which needs testing, cause and alarm and clear the alarm. All of the conditions are logged along with the sensor location, name, operator full name, date and time, as well as the test outcome. The maintenance report can then be easily generated and exported in .CSV format.

Continuous Improvements

Hazardmon is updated several times a year with feedback from existing and new customers driving the changes. There is a constant flux of new industry-leading features.

Hazardmon together with the innovative sensing solutions allows 4B Group to stay a technology and solutions leader in the industry and at the forefront of Industry 4.0 and IoT research.

TEMPERATURE MONITORING

T400N ELITE HOTSWITCH

Bearing temperature monitor

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 up to 8 NTC bearing sensors
- Includes 2 separate alarm and 2 separate stop relays (2 machines monitored).
- Short circuit / open circuit fail-safe detection
- Status LEDs provide quick location of the hot bearing condition
- A range of alarms temperatures available from 45°C to 80°C
- Alarm mute with automatic time delayed reactivation
- PLC board (optional)

Sensor options

- ADB, MDB, and WDB Series: bearing temperature
- Extensive range of sensors available from 50 - 100°C
- Continuous temperature sensors
- Modbus RTU connection

Input supply voltage

- 100 to 240 VAC
- 24 VDC (universal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Bucket elevators and conveyors

T400 ELITE HOTSWITCH

Bearing temperature monitor

The T400 Elite Hotswitch is a microprocessor controlled temperature monitor, which works in conjunction with PTC temperature sensors to monitor up to 48 bearings and can provide an alarm and automatic shutdown when a high bearing temperature condition is detected.

Features

- Monitors 8 zones with up to 6 PTC sensors in each zone (48 total)
- Status LEDs provide quick location of the hot bearing condition
- Sensors are positively mounted grease through
- Alarm mute
- PLC board with 8 contact outputs (optional)
- Cold / hot status only

Sensor options

- ADB-MDB-WDB Series: bearing temperature
- Extensive range of sensors available from 50 - 100°C
- PTC type - step sensors

Input supply voltage

- 100 to 240 VAC
- 24 VDC (universal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Bucket elevators and conveyors

BELT ALIGNMENT MONITORING

B400 ELITE

Conveyor or bucket elevator belt alignment monitoring system

The B400 Elite 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.

Features

- Uses u p to 4 touch 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 for general testing

Sensor options

- Touchswitch: force activated

Input supply voltage

- 100 to 240 VAC
- 24 VDC (univ ersal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Belt bucket elevators and conveyors

A400 ELITE

Bucket elevator belt alignment monitoring system

The A400 Elite 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/ underspeed condition is detected.

Features

- Use s up to 4 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 pan el

Sensor options

- WD A Series: motion alignment
- BAP Series: motion align ment

Input supply voltage

- 100 to 240 VAC
- 24 VDC (u niversal supply)

Sensor supply

- 24 VDC

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Worldwide – IECEx

H x W x D

- 246 x 188 x 102mm

Applications

- Belt bucket elevators

BELT MISALIGNMENT MONITORS

TOUCHSWITCH

Touchswitch
Belt/pulley misalignment sensor

The Touchswitch is an electro-mechanical limit switch with no moving parts, that detects the misalignment of both pulleys and belts in conveyors and bucket elevators. The sensor detects the lateral force of the belt or pulley and activates a volt-free solid state relay. Sensor output can be used to activate an alarm or shutdown the machine. The sensors are normally installed in pairs on opposite sides of the belt/pulley.

Features

- Hardened stainless steel face
- External test wheel for quick and simple sensor/system testing
- Not affected by dust or material build up
- No calibration or sensitivity adjustment needed
- No calibration needed
- No moving parts
- Food Grade (TS2V34AI-FG) type available.

Supply voltage

- 12-24 VDC

Compatible 4B control unit

- Watchdog
- T500
- B400

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC (all TS except TS2V34AI)
- Worldwide – IECEx

Applications

- Belt/pulley misalignment on elevators and conveyors

WDA HIGH POWER SENSOR

WDA
Belt alignment/ speed and chain break monitor.

High temperature version

The WDA sensor detects moving ferrous material and is designed for use with bucket elevators to detect buckets, for measurement of speed and alignment. WDA is a non-contact sensor, detecting metallic targets at up to 100mm range. It can also detect ferrous bolts where plastic or 316 stainless buckets are used. The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit.

Features

- Long ran ge magnetic sensor unaffected by material build up
- Continuously monitors the moving elevator, with visual indication by an LED
- 25-75mm range depending on the size of the target, easily adjusted from the sensor itself or from the optional independent control unit
- Mounting bracket included
- Stainless steel construction
- High temperature version available (not ATEX approved)

Supply voltage

- 24 VDC

Compatible 4B control unit

- Watchdog

Approvals

- UK - UKEx
- Europe – ATEX (standard version)
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi
- Worldwide – IECEx

Applications

- Belt alignment
- Belt speed (when used with Watchdog)
- Chain slack / break monitor (page 21)

BAP

BAP
Belt alignment/ speed monitor

The BAP detects moving ferrous material and is designed for use with bucket elevators to detect belt misalignment condition. It can also detect ferrous bolts where plastic or 316 stainless buckets are used . The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit.

Features

- Mag netic sensor unaffected by material build up
- Continuously monitors the moving elevator, with visual indication by an LED
- 12-50mm range depending on the size of the target, easily adjusted from the sensor itself or from the optional independen t control unit

Supply voltage

- 12/24 VDC

Compatible 4B control unit

- Watchdog

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Belt alignment sensor

BELT ALIGNMENT & RIP DETECTORS

BULLDOG

Bulldog
Belt Alignment
& Rip Detection
Switch

The Bulldog alignment and rip detection switch is an electro-mechanical system designed to detect dangerous belt misalignment and belt tear damage on open belt conveyors. The switch will detect misalignment of belts when contact is made with the roller; the roller arm will be forced to pivot by the belt activating a switch at 20° to trigger an alarm, and 35° to trigger a shut down. The sensors are usually installed in pairs on opposite sides of the belt. A flexible wire is set below the running conveyor belt attached by a rare earth magnet at each end. If the belt is ripped or damaged the wire is pulled away releasing the magnet connection which in turn will activate a switch to trigger an alarm or shut down.

Features

- E asy installation without calibration
- Solid construction
- Triggers an alarm at 20° and a shutdown of the machine at 35°
- Wire rope for optional belt rip detectio n

Supply voltage

- 110-240 VAC

Compatible 4B control unit

- Watchdog
- T500
- B400

Approvals

- UK - UKEx
- Europ e – ATEX
- China - CCC
- Worldw ide – IECEx

Applications

- Op en belt conveyor alignment monitoring
- Belt rip detection

CONVEYOR SAFETY STOP SWITCH

PULLSWITCH

Pullswitch
Conveyor Safety Stop Switch

The Pullswitch is a failsafe taut wire emergency pull cord stop switch for open conveyors. PVC coated steel pull wires and pigtails connect between the switches to provide easy installation and continuous emergency stop access along the length of the entire conveyor. Pullswitches can be installed at 60m intervals, reducing overall system cost. Quick location of a tripped switch is provided by a flag marker or optional reflector, and the tripped signal can be wired back to a PLC or one of 4B's controllers.

Features

- Pullwi re safety switch provides a safe and reliable means of stopping conveyors
- Double ended pull mechanism as standard
- Slack or taut wire operation
- Tough UV stabilised lightweight polycarbonate enclosure
- Designed for arduous environments e.g. quarries, open cast mines

Approvals

- UK - UKEx
- Euro pe – ATEX
- USA, C anada – CSA

Applications

- Safety stop switch for open belt conveyors

Pullswitch installed on open belt conveyor

SPEED SWITCHES

M100 STOPSWITCH

Stopped motion monitor

The Stopswitch is a straightforward shaft speed monitoring device. The 2-wire technology saves you time and makes installation hassle-free. If the shaft stops rotating, the Stopswitch will provide an output. It requires no calibration to operate and is a great tool for process control, motion verification and stopped shaft indication.

Features

- Small 1 8mm diameter
- Totally sealed
- 3m cable
- Status LED's

Style

- 18mm cylindrical

Supply voltage

- 24 to 240 VAC/VDC

Output

- Stopped motion detection

Approvals

- UK - UKEx
- Europe - ATEX
- Brazil - InMetro
- Russia - EAC
- China - Nepsi, CCC
- Worldwide – IECEx

Applications

- Proc ess control
- Provides a signal when the shaft has stopped rotating

M300 SLIPSWITCH 2 OR 5-WIRE

Intelligent underspeed switch 2 or 5-wire version available

User friendly and easy to install, the Slipswitch is a simple shaft speed monitoring device. Available in 2-wire and 5-wire models, the Slipswitch is self-calibrating and provides a 20% underspeed output to protect against dangerous belt slip and underspeed conditions.

Features

- Totally sealed
- Auto calibration
- 2 or 5-wire connection
- 3m cable
- Status LED's

Style

- 30mm cylindrical

Supply voltage

- 24 to 240 VAC/VDC

Output

- 20% underspeed detection

Approvals

- UK - UKEx
- Europe - ATEX
- Brazil - InMetro
- Russia - EAC
- China - Nepsi, CCC
- Worldwide – IECEx

Applications

- Convey ors, bucket elevators, any speed sensitive shaft for automatic 20% underspeed detection

M800 SPEEDSWITCH

Intelligent underspeed switch with three outputs

A solid state unit with no moving parts, the M800 is maintenance free. The unit operates using an inductive sensing device and requires no contact with the monitored machine. The M800 is calibrated to the machine's normal RPM. If the shaft speed falls by 10%, the M800 will alarm, and by 20% it will shut the machine down.

Features

- Totally sealed
- Auto calibration
- 1/2-inch conduit entry with 2m cable
- Status LE D's

Style

- DIN (40mm x 40mm)

Supply voltage

- 24 - 240 VAC/VDC

Output

- 1 x 10% underspeed relay
- 1 x 20% underspeed relay
- 1 x opto-isolated pulse (All 3 outputs in 1 unit)

Approvals

- USA, Canada - CSA

Applications

- Conveyors, bucket elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown and pulsed output.

All 4B speed and inductive sensors are compatible with the Whirligig universal shaft sensor mount.

HEADQUARTERS 514.886.5270
12985 Rue Brault, Mirabel Quebec, Canada J7J 0W2
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SPEED SWITCHES

MILLISPEED - EU

Intelligent underspeed switch
with three outputs

The Milli-Speed Switch with 4 - 20 mA output is designed to detect belt slip, belt underspeed, stop motion, and zero speed on bucket elevators, conveyors, airlocks, mixers, fans, grinders and many other rotating machines. Totally sealed and simple to calibrate.

Features

- 4 - 20 mA output
- Normalised output
- Simple magnetic calibration
- Loop powered (2 wire)
- Totally sealed construction: submersible
- Easy installation with Whirligig® mount
- SpeedMaster™ compatible for accurate testing

Style

- 30mm cylindrical

Supply voltage

- 24 to 240 VAC
- 17-30 VDC

Output

- Over s peed 20 mA (of calibrated speed)
- Calibrated speed 17 mA (100%)
- Zero speed 4 mA (0 - 10% of calibrated speed)

Approvals

- UK - UKEx
- Europe - ATEX
- Brazil - InMetro
- Russia - EAC
- China - Nepsi, CCC
- Worldwide – IECEx

Applications

- Conveyors, elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown

MILLISPEED - US

Monitors Rotating Machinery for
Dangerous Underspeed Conditions

The Milli-Speed Switch with 4 - 20 mA output is designed to detect belt slip, belt underspeed, stop motion, and zero speed on bucket elevators, conveyors, airlocks, mixers, fans, grinders and many other rotating machines. Totally sealed and simple to calibrate.

Features

- 4 - 20 mA output
- Normalised output
- Simple magnetic calibration
- Loop powered (2 wire)
- Totally sealed construction: submersible
- Built in conduit adaptor (1/2" NPT)
- Easy installation with Whirligig® mount
- SpeedMaster™ compatible for accurate testing

Style

- DIN (40mm x 40mm)

Supply voltage

- 17 - 30 VDC

Output

- Over speed 20 mA (123% or more of calibrated speed)
- Calibrated speed 17 mA (100%)
- Zero speed 4 mA (0 - 10% of calibrated speed)

Approvals

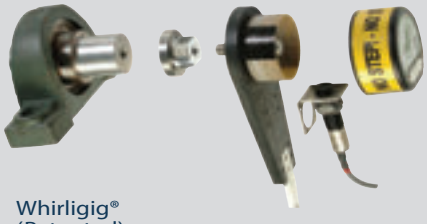
- USA, Canada - CSA

Applications

- Conveyors, elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown

ACCESSORIES

WHIRLIGIG



Whirligig®
(Patented)

The Whirligig is the new standard for shaft speed monitoring. It is a three-in-one universal shaft sensor mount that makes installation simple and more reliable for all inductive shaft speed sensors.

Your sensor mounts to the Whirligig and the complete assembly bolts to the machine's shaft. Machine and shaft vibration does not affect the performance of the sensor, as the whole assembly moves with the shaft. Personal safety is also improved since the rotating target is completely enclosed behind a tough plastic cover.

- Fully Guarded Target for Easy Mounting of Motion Sensors
- For DIN Style and Standard Cylindrical Inductive Sensors
- Easy Installation – Only Requires M12 Tapped Hole in the Machines Shaft or Use a Mag-Con™ for Magnetic Connection
- Available with 1, 2 or 4 Targets
- Imperial version available
- ATEX, UKEx, EAC

MagCon™ Magnetic Connector (Patented)

50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.

>Imperial version available

TEST TOOLS

SpeedMaster™ Speed Switch Tester

The Speedmaster is a calibration and testing device that 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.

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INDUCTIVE SENSORS

P100 INDUCTIVE SENSOR

Inductive Proximity Sensor

Inductive proximity sensors used to signal the position of equipment in conveyors, elevators and other mechanical assemblies. Also used as pulse generators for speed detection.

Features

- IP 65
- Watchdog and PLC compatible
- Visual indication of output state by LED

Style

- 18mm cylindrical

Supply voltage

- 24 to 240 VAC/VDC
- 10-30VDC

Output

- FET transistor output
- PNP or NPN output

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Conveyors, elevators and other mechanical assemblies, and other proximity detection and speed applications.

P300 INDUCTIVE SENSOR

Inductive Proximity Sensor

Inductive proximity sensors used to signal the position of equipment in conveyors, elevators and other mechanical assemblies. Also used as pulse generators for speed detection.

Features

- IP 65
- Watchdog and PLC compatible
- Visual indication of output state by LED

Style

- 30mm cylindrical
- 2 and 4 wire

Supply voltage

- 24 to 240 VAC/VDC
- 10-30VDC

Output

- FET transistor output
- PNP or NPN output

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Brazil - InMetro
- China - Nepsi, CCC
- Russia - EAC
- Worldwide – IECEx

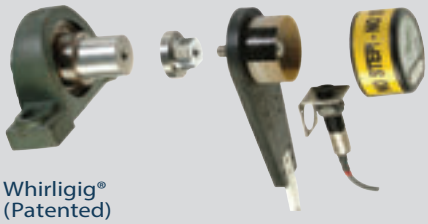
Applications

- Conveyors, elevators and other mechanical assemblies, and other proximity detection and speed applications.

Compatible with the Whirligig speed sensor mount

ACCESSORIES

WHIRLIGIG



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50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.

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TEST TOOLS

SpeedMaster™ Speed Switch Tester

The Speedmaster is a calibration and testing device that 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.

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ROTECH ENCODERS

The 4B heavy duty Rotech rotary shaft encoders are used primarily for protecting equipment and personnel from dangerous underspeed/belt slip conditions in extreme environments. Other applications include accurate speed control, direction of rotation detection, gate position indication and counting the number of revolutions of the shaft.

POLYPROPYLENE SHAFT ENCODER

Features
- Heavy duty design
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP66

Style
- Polypropylene (reinforced with 30% glass)
- Totally self-contained (no guards required)

Supply voltage
Model dependent:
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & Canada - CSA

Applications
- Conveyors, bucket elevators or any shaft speed measurement

ALUMINIUM SHAFT ENCODER

Features
- Ultra heavy duty
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP67

Style
- Cast aluminium construction
- Totally self-contained (no guards required)

Supply voltage
Model dependent:
- 8.2Vdc for intrinsically safe version
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & Cana da - CSA

Applications
- Conveyors, bucket elevators or any shaft speed measurement

STAINLESS STEEL ENCODER

Features
- Ultra heavy duty
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP67

Style
- 304 or 316 stainless steel
- Totally self-contained (no guards required)

Supply voltage
Model dependent:
- 8.2Vdc for intrinsically safe version
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & C anada - CSA

Applications
- Conveyors, bucket elevators or any shaft speed measurement

WHEEL ENCODER

Features
- Heavy duty design
- 1 to 1,000 PPR
- Multiple outputs
- Intrinsically safe option available
- IP67

Style
- Trailing arm and wheel

Supply voltage
Model dependent:
- 8.2Vdc for intrinsically safe version
- 10-30Vdc
- 20-240VAC

Output
Model dependent:
- Intrinsically safe
- NPN
- PNP
- Quadrature

Approvals
- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx
- USA & Canada - CSA

Applications
- Belt speed monitoring applications

ACCESSORIES

MAGCON

MagCon™ Magnetic Connector (Patented)

50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.

- Imperial version available

SPEED RELAY

DIN rail mounted speed relay can be used with any PNP or NPN pulsed output sensor for providing a user adjustable underspeed relay contact output to alarm or shutdown machinery.

TACHO DISPLAY

Bright 25mm high 4-digit LED display unit for connection to any PNP or NPN transistor output sensor to indicate shaft speed. The unit incorporates a user-adjustable under speed relay contact output. Quadrature display also available.

ACCESSORIES

The ADB Sensor Tester has been designed to test 4B adjustable depth bearing (ADB) temperature sensors in the field. This hand held test unit features an integrated heating block specifically designed to have a 4B ADB sensor directly inserted. 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.

During planned maintenance or periodic testing, the ADB Sensor Tester can be used as a diagnostic tool to verify the alarm and shutdown sequences of the control unit are functioning as expected. To test, the heater block should be set above the control units alarm operating temperature. Remove the ADB bearing sensor probe from the housing and insert it into the heater block. As the heater block reaches the alarm temperature, the ADB sensor will relay this data to the control unit, allowing you to verify that the alarm and shutdown sequences run as expected.

Features

- ADB Bearing Sensor Tester
- Hand Held Portable Unit
- Exact Alarm Point Testing
- Exact Shutdown Point Testing
- Easy To Read Display

ADB WRENCH

Used to loosen and tighten the ADB bearing temperature probe for proper depth adjustment.

ADB Sensor Installed on Conveyor Bearing

BEARING TEMPERATURE SENSORS

ADB

The ADB series have been designed toallow the depth of the sensor to be adjustable depending on your application. Three standard versions are available with probe lengths of 50, 100 and 200mm (other lengths available for special order). The sensors screw directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The ADB style sensors are available with a standard NTC thermistor for 4B's Hotbus and Watchdog systems, or a Pt100 - RTD type for PLC and DCS systems.

Features

- Screw in positive mount installation
- Grease zerk for bearing lubrication
- Adjustable depth (50, 100, 200mm probes)
- 1/4" NPT (brass body)
- NTC or Pt100 RTD versions – continuous temperature

Sensor options

- NTC Thermistor
- Pt-100 4-wire RTD
- Selectable probe length: 50, 100 and 200 mm

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- China - CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Bearing temperature control
- Temperature measurement

MILLITEMP

The Milli-Temp is a loop powered analog sensor with a 4-20 mA linear output that is scaled across a temperature range for continuous temperature monitoring. The sensor has been designed to allow the depth of the probe to be adjustable depending on your application. The sensor screws directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a zerk to allow lubrication of the bearing without the need for removal of the sensor.

Features

- 4-20 mA output
- Screw in positive mount installation
- Grease zerk for bearing lubrication
- Lug style adaptor (surface temp.)
- 1/2" NPT conduit entry
- 304 stainless steel body

Sensor options

- Selectable probe length: 50, 100 and 200mm
- 4-20 mA loop

Input supply voltage

- 15-28 VDC (24VDC nominal)

Compatible 4B control unit

- Watchdog
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- China - CCC
- Worldwide – IECEx

Applications

- Bearing temperature control
- Temperature measurement

BEARING TEMPERATURE SENSORS

WDB7 LUG STYLE

The WDB7 series is a lug style NTC, Pt-100 or PTC thermistor type for surface temperature monitoring and has been designed to bolt directly onto a bearing housing, motor, gearbox, or machine casing. The mounting hole is 8mm from the factory, but can be drilled up to 13mm if needed. The sensor can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connections requirements are eliminated.

Features

- Surface mount installation
- 8mm to 13mm bolt entry
- 1/2" NPT conduit entry
- Continuous temperature monitoring

Sensor options

- NTC Thermistor
- Pt-100 4-wire RTD
- PTC (trip temperature selected at time of purchase)

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Worldw ide – IECEx

Applications

- Surface temperature measurement and control

MDB

The MDB series is a range of bearing sensors manufactured to screw directly into a bearing housing through the existing 1/4" BSP threaded grease zerk (can be installed in 1/8" NPT grease zerk fitting with an adapter). Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The sensor is fitted with a M12 connector for use with a separately supplied cable and socket assembly which can be connected directly to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated.

Features

- Screw in installation
- Grease zerk for bearing lubrication
- Wiring connector

Sensor options

- NTC Thermistor
- Pt-100 4-wire RTD
- PTC (trip temperature selected at time of purchase)

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400

Approvals

- UK - UKEx
- Euro pe – ATEX

Applications

- Bearing temperature control
- Temperature measurement

WDB8

The WDB8 series is a range of bearing temperature sensors designed to screw directly into an existing 1/4" BSP 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.

Features

- Screw in positive mount installation
- Grease zerk for bearing lubrication
- 1/4" BSP (brass body)
- Cable with protective anti-bend cover

Sensor options

- NTC Thermistor
- PTC (trip temperature selected at time of purchase)

Input supply voltage

- 12/24 VDC (current limited)

Compatible 4B control unit

- Watchdog
- T500
- T400
- IE-NODE

Approvals

- UK - UKEx
- Europe – ATEX
- USA, Canada – CSA
- Worldwide – IECEx

Applications

- Bearin g temperat ure control

LEVEL INDICATORS

AUTO-SET™

A user friendly, reliable point level indicator for bulk granular solids, powders and liquids. Digital display, push-button calibration and material build-up compensator make this unit the elite point level sensor.

A selection of screw-on stainless steel probes to suit your application.

AUTO-SET™ REMOTE

A user friendly, reliable point level indicator for bulk granular solids or powders where there is high vibration and/or temperature involved. Remote electronic display/control unit allows for remote calibration/set-up away from vibration or heat.

ATS8

ATS8
RF capacitance point level indicator

Features
- Push button calibration
- Digital display
- Internal timer
- Automatic material build-up compensator
- Attachable SS probes

Style
- 1 inch BSP

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- UK - UKEx
- Europe - ATEX
- USA, Canada - CSA

Applications
- Material point level indication in silos, bins and other vessels.

ATS8 & EXTENDED POWER SHIELD

ATS8 with Extended Power Shield
RF capacitance point level indicator for thick-walled silos

Features
- Push button calibration
- Digital display
- Internal timer
- Automatic material build-up compensator, 12 or 16 inches long
- Attachable SS probes

Style
- 1 inch BSP

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- UK - UKEx
- Europe - ATEX
- USA, Canada - CSA

Applications
- Material point level indication in thick-walled concrete silos.

ATS8 FLUSH PROBE

ATS8 Flush Probe
RF capacitance heavy-duty plugswitch

Features
- Push button calibration
- Digital display
- Internal timer
- Automatic material build-up compensator
- No moving parts

Style
- 100mm dia. probe with integral mount

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- UK - UKEx
- Europe - ATEX
- USA, Canada - CSA
- Worldwide - IECEx

Applications
- Plug condition in chutes, discharges and pipes.

AUTO-SET™ REMOTE PROBE

Auto-Set™ Remote Probe
Polyprop probe - 120°C
PEEK probe - 250°C
Ceramic probe - 600°C

Features
- No moving parts
- No electronic components
- Automatic material build-up compensator
- Attachable SS probes
- High temp available

Style
- 1 inch BSP

Supply voltage
- From control unit

Output
- To control unit

Approvals
- Not approved

Applications
- Material point level indication in surge bins, vibratory feeders and high temperature processes.

AUTO-SET™ REMOTE CONTROL

Auto-Set™ Remote Control
Remote control unit with digital display and calibration push buttons

Features
- Push button calibration
- Digital display
- Internal timer
- DIN rail mountable

Style
- DIN rail mountable enclosure processes

Supply voltage
- 120/240 VAC
  24 VDC
  (universal supply)

Output
- 1 set of voltage-free changeover relay contacts

Approvals
- Not approved

Applications
- Material point level indication in surge bins, vibratory feeders and high temperature processes.

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LEVEL INDICATORS

BINSWITCH

The Binswitch is a capacitive sensor for the detection of blockages in chute, discharges and pipes. Available in 2-wire and 5-wire models. Simple semi-automated calibration process using magnets.

Features

- Capacitance probe
- Detects presence or absence of liquids & free-flowing bulk granular materials
- Easy installation & self-containing
- Magnet calibration

Style

- 30mm cylindrical
- 2 or 5 wire options

Supply voltage

- 24 to 240 VAC/VDC

Output

- Programmable high or low level detection

Approvals

- UK - UKEx
- Europe - ATEX
- China - CCC
- Russia - EAC
- Worldwide – IECEx

Applications

- Plug condition in chutes, discharges and pipes.

RLI

The RLI is designed to signal the presence or absence of bulk materials such as: chemical products, wood chips, grain, granules and powders. It is ideal for use as a point level indicator in tanks and silos as well as a blockage detector in conveyor chutes.

Features

- High or low level indication
- Automatic power shut off
- Limit switch contact output
- 14 foot vertical extensions (maximum)

Style

- Rotary level indicator with 1 1/4-inch NPT mounting thread
- Glass-fibre reinforced nylon housing

Supply voltage

- 24 VDC
- 110VAC
- 240VAC

Output

- 1 set of voltage-free changeover relay contacts

Approvals

- No explosive environment approvals

Applications

- Material point level indication in surge bins, vibratory feeders and high temperature processes

RG SERIES

The RG Level Sensors series is designed to indicate the presence or absence of bulk materials such as grains, pellets, chemicals, wood chips and other powders.If material impedes the rotation of the paddle, the motor topples of its axis and triggers an alarm. The RG has a variety of compatible paddles which offer the ability to detect a wide range of products.

Features

- Can be top and side mounted
- Easy installation
- Wide range of paddles available
- Optional extensions and shard guards for more challenging applications

Style

- Rotary level indicator

Supply voltage

- 10/240 VAC
- 24 VDC

Output

- 1 set of voltage-free changeover relay contacts

Approvals

- UK - UKEx
- Europe - ATEX
- Worldwide - IECEx

Applications

- Material point level indication in surge bins, vibratory feeders and high temperature processes

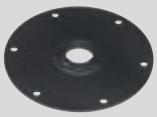
ACCESSORIES

BINSWITCH ACCESSORIES

BAS3 Abrasion Shield

Polyethylene abrasion shield for ATEX Binswitch.

Mounting Plate



Powder-coated mild steel mounting plates with 11/4-inch NPT or 1 inch BSP, half or full coupling. Use with Autoset, Roto-Level / RG Series Indicators and Binswitches with adapters. (Also available in stainless steel.)

PADDLE SWITCH ACCESSORIES

Rotary Level Paddles

Complete range of stainless steel paddles for Roto-Level Indicators.

Binswitch Installed on Bucket Elevator Spouting (with SMP, BAS & conduit adapter)

Auto-Set™ Flush Probe Installed on Belt Conveyor Discharge

Auto-Set™ Flush Probe Installed on Screw Conveyor Discharge

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4B COMMISSIONING SERVICE

After 4B products have been installed by a qualified electrician, 4B's commissioning service is available to inspect and certify proper installation of our sensors and control units prior to operation. A brief overview of the service is listed below -

Features

- All rigid and flexible conduits inspected for: cracks, breaks, tightness of connections, and suitability for purpose.
- All wiring inspected for: ground faults, shorts, suitability for purpose.
- All sensors and controls inspected for correct installation and wiring.
- All sensors and controls inspected for any signs of damage, and tested to insure proper working order.
- Detailed written inspection and testing report with any recommendations given to client.

Belt & Pulley Alignment Sensors

- Sensors are removed from their location to ensure that they were centered on the belt.
- Each sensor is physically inspected for damage and wear.
- Sensor LED and alarm contacts are tested.
- Wire terminations are inspected.

Temperature Sensors

- All sensors are inspected and resistance is checked.
- Sensors are also checked for correct identification, location and sensor type.
- Sensors are checked for proper temperature alarm and shutdown trip points using 4B's ADB Tester.
- Wire terminations are inspected.

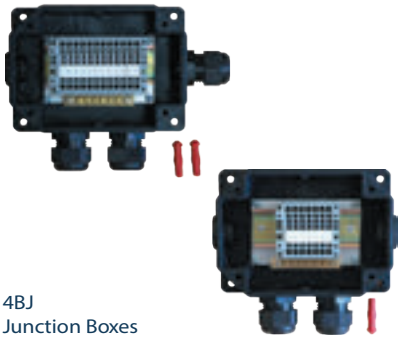
Speed Switches

- All speed switches are checked for proper installation.
- Sensors are checked for proper underspeed alarm and shutdown set points using 4B's SpeedMaster™.
- Wire terminations are inspected.

Warning: 4B recommends that all sensors are wired to provide automatic shutdown of monitored equipment, when a hazardous condition is detected.

JUNCTION BOXES

4BJ JUNCTION BOXES



4BJ
Junction Boxes

4B Atex approved junction boxes allow for the easy installation of sensors in potentially explosive dust hazard environments.

Features

- Rob ust glass reinforced nylon casing
- Up to 4 gland inputs
- Dust and water tight seal
- Detachable cover for easy terminal access

Terminal springs

- 6 x 2.5mm ^{2} or 12 x 2.5mm ^{2}

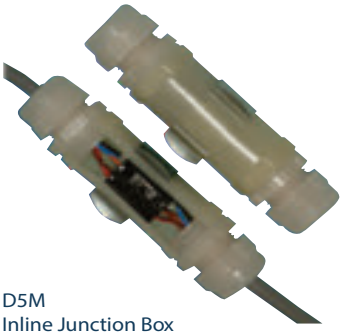
Approvals

- UK - UKEx
- Europe – ATEX
- Worldwide – IECEx

Applications

- Electrical installations in dust – explosive environments

D5M INLINE JUNCTION BOX



D5M
Inline Junction Box

The D5M's unique moulded body with Atex approved glands and mounting clip/ bracket allows for in-line connection closer to the sensors simplifying connections and reducing the time of intervention during maintenance operations or repairs.

Features

- Ideal for extending sensor cables within Atex hazard areas
- Complete with Atex glands and mounting bracket

Terminal springs

- 5 x 2.5mm ^{2}

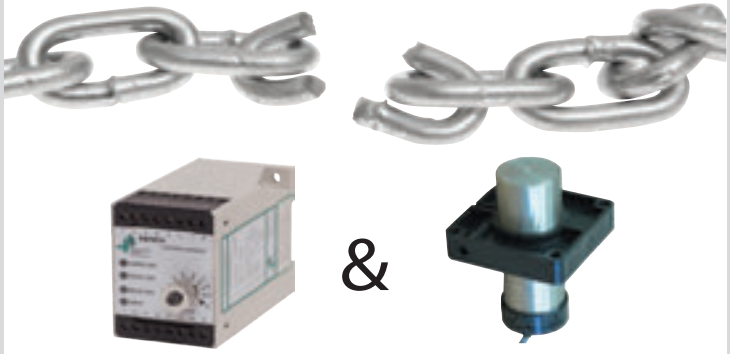
Approvals

Applications

- Electrical installations in dust – explosive environments

BROKEN OR SLACK CHAIN

MONITORING FOR DRAG CHAIN CONVEYORS



&

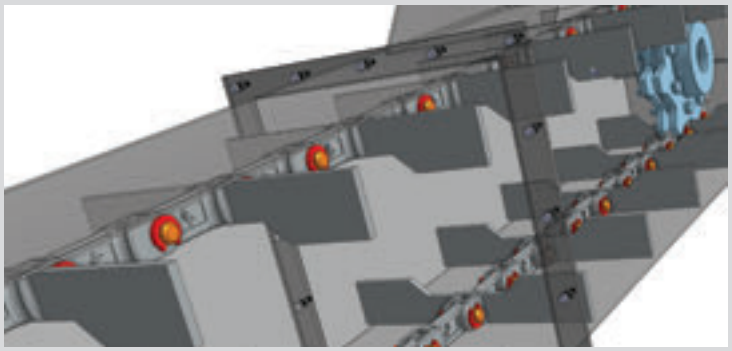
Speed Relay WDA Sensor

By using a WDA sensor in combination with a speed relay, ferrous steel flights or bolts on plastic paddles are used to monitor for broken or slack chain issues on drag conveyors.

The WDA is a non-contacting extended range magnetic proximity sensor, not affected by dust or material build up, used to detect moving ferrous material up to 75mm away from the sensor. The speed relay is used to monitor the speed of a rotating shaft and detect if it rises or falls below a preset safety level.

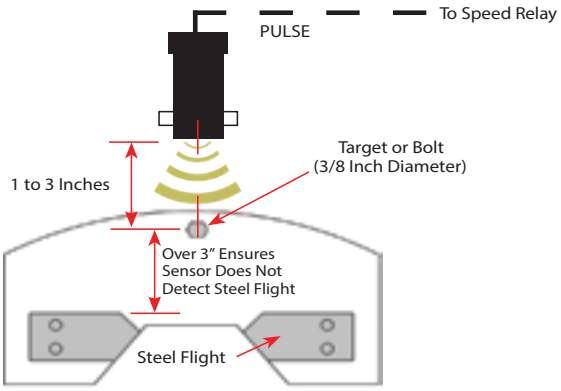
Features

- Solutio n for drag chain conveyors
- Monitor for chain slack or breakage
- Detects movement of steel flights or bolts on plastic paddles
- Prevent costly equipment damage and downtime
- Simple sensor and speed relay solution



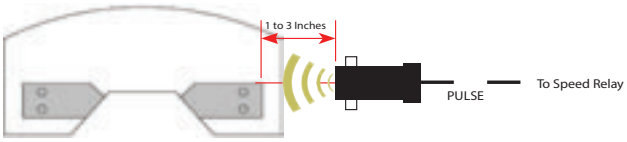
OPTION 1 > Sensor Detecting Bolt Installed on the Paddle

Under normal running conditions, the target bolt passes through the sensor's field and a pulse is sent to the speed relay. If the chain becomes slack, the target bolt will drop below the field and the pulses will stop, causing the relay contact to change state.



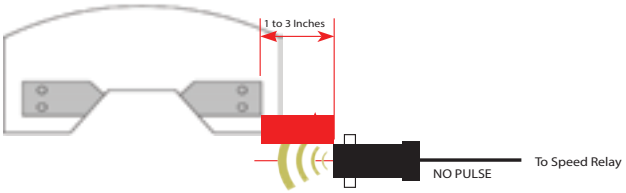
OPTION 2 > Sensor Detecting Steel Flight

Under normal running conditions, the steel flight passes through the sensor's field and a pulse is sent to the speed relay. If the chain becomes slack, the steel flight will drop below the field and the pulses will stop, causing the relay contact to change state.



OPTION 3 > Sensor Waiting to Detect Steel Flight

Under normal running conditions, the steel flight is out of the sensor's field, so no pulses are sent to the speed relay. If the chain becomes slack, the steel flight comes into the sensor's field and a pulse is sent to the speed relay, causing it to change state.



Warning: - Make sure that there is no ferrous steel (such as the machine's frame) within the sensing field.