

Choosing the right hazard monitoring system for your bucket elevator

When 4B introduced their Watchdog Elite bucket elevator monitoring system in the early 1980's, they were the first on the market to offer a system that could monitor a complete bucket elevator or conveyor system. No more need to monitor different hazards separately. -Taking the hassle out of hazard monitoring, the Watchdog Elite has quickly established itself as the industry reference in hazard monitoring.

Today, there are a number of systems on the market, and customers may find it more difficult to establish which system is best for them. When you add up all the additional costs of adding sensors and servicing the system, then this decision becomes even more complicated. And when you consider the cost of the potential downtime and even damage, then it is absolutely crucial to get this decision right!

So what should customers look out for when selecting a system to monitor their bucket elevators and conveyors?

Firstly, scalability:

Make sure that the system is able to grow with your operations. You might just want to monitor one elevator, for a start, but what happens if you want to monitor an additional elevator, or if you want to add more sensors to the monitoring system?

Secondly, sensor options and interfaces:

What hazards is the system able to monitor? Belt and pulley misalignment? Underspeed & Overspeed? Belt slippage? Blocked chute condition? Bearing temperature? – And what is the choice of compatible sensors? Do you have to use the supplier's range of sensors, and are they up for the job? Does it have a communication interface, to be connected to a PLC or PC?

Thirdly, user friendliness and support:

How easy is the system to use for the people who have to operate it? Is there an in-built test and diagnostic function? And how are potential hazards displayed and identified? Is there a well-documented instruction manual available? Does the supplier offer a commissioning service? And what level of support can you expect, if there is a problem?

Fourthly, compliance:

Does the system have the necessary hazardous area approvals for the region where it is to be used: ATEX for Europe, CSA for North America & Canada and IECEx for the rest of the world?

At 4B, 25 years of experience have shown that there is no "one size fits all" hazard monitoring system. The company's approach to product development is very much bottom-up through discussions with the end-user upwards, rather than sales-driven. -And it is this industry driven approach to product development that has led the engineering team to develop 2 distinctive multi-function hazard monitoring systems, each of them well researched and tested and using the same high quality components, but different in the variety of sensor options and the scope of the applications they can cover.

The T500 Elite Hotbus System

This is 4B's top of the range system, able to monitor entire plants where the bucket elevators and conveyors being monitored are spread out across large distances. A multi-function hazard monitor, it can monitor belt speed/alignment, bearing temperature, pulley alignment and plug condition. It has been designed as a serial communication system, to monitor up to 256 sensors, with a scan time of only 4 seconds! 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.

It is ATEX, CSA and IECEx certified.



The Watchdog Elite System

A well proven multi-functional hazard monitor for bucket elevators and conveyors, the Watchdog Elite has recently been relaunched with continuous bearing temperature monitoring.

The Watchdog Elite allows complete monitoring of multiple hazards in a bucket elevator or conveyor, including belt and pulley alignment (top and bottom), bearing temperature, belt speed and blocked chute conditions.

The Watchdog Elite system uses a range of compatible sensors to monitor different hazards, such as the belt misalignment sensors "Touchswitch", BAP2" and WDA3", the WDB bearing temperature sensors and the "Binswitch" capacitive sensor.

An LCD screen displays elevator status messages (available in four different languages) and a super-bright LED screen displays belt speed. RS485 communication is also available for connection to plant computers / PLCs. Calibration and parameter adjustment are all menu-driven and kept simple.

The system is ATEX, CSA and IECEx certified.



The following table compares the features of the 2 systems:

	T500 Elite	Watchdog Elite
Bearing temperature	✓ (continuous) max. 256 sensors*	✓ (continuous) max. 6 sensors
Belt speed	✓ (continuous) max. 256 sensors*	✓ (continuous) max. 1 sensors
Belt alignment	✓ max. 256 sensors*	✓ max. 4 sensors (Touchswitch)
Plugged condition	✓	✓
Communication interfaces	RS485 API	RS485 API
Test function	✓	✓
Alarm & shutdown function	✓	✓
Logging & trending software	✓	✓
Applications	Multiple elevators & conveyors; remote monitoring across site	Several elevators & conveyors
Certifications	ATEX CSA IECEX	ATEX CSA IECEX

* total number of sensors, all sensors combined

4B has an extensive range of CSA / ATEX / IECEx approved sensors that work with these control units, including bearing temperature sensors, speed sensors, misalignment switches, level indicators and choke switches. The range is constantly evolving to offer customers the best technical standard.

4B's technical team can recommend the ideal combination of sensors and monitoring systems to suit their customers' requirements and budget. They can also offer a scalable solution starting with carefully chosen equipment and systems that can be expanded at a later date to encompass other machines in the plant.

4B also offers a commissioning service as well as a competent after-sales technical service to help customers overcome any technical problems with their monitoring equipment.

www.go4b.com

Email: 4b-uk@go4b.com