

VS 4000 Series Screen Vibration Sensor Application Information

From a pilot introduction starting in 2000, Rotech Systems now have over 10,000 'VS4000' Screen Vibration Sensors in operation.

Most modern screens are designed with the benefit of modern computer simulation techniques and can therefore cope with a wide range of operational conditions.

Variations in feed rates and composition of the material being fed to a screen (wet, sticky, etc.) can however in some circumstances result in an excessive amount of material being on the screen at any one time.

If as a result, the rate and speed of vibration of the screen slows down, even temporarily, problems can occur very quickly, causing severe blockage, stoppage, plant & manpower downtime etc, which can prove to be very costly!

Material continues to be fed to the screen at the normal rate but the slowdown causes the discharge rate to be reduced, a marginal overload can quickly enter a runaway situation with the material arriving at the screen causing an ever increasing overload and further slowdown, the discharge rate is then further reduced and the overload increases exponentially.

Mechanical Failure – "V" Belt damage or the intervention of the screen drive motors electrical overload is often the first thing the operator will know that all is not well!

Overloaded screens and feeders, V belt damage, spillage, cleaning up, etc. and their associated unnecessary downtime and lost production can now be a thing of the past with the fitting of the Rotech VS4000 vibration sensor.

Key elements in the VS4000 design brief were:-

Quarry environment construction to ensure long term reliability, easy installation and simple setting up.

A 'Rotech' vibration sensor, fitted to a screen, monitors its rate of vibration and will operate an alarm or switch the in – feed conveyor off if the screen slows down.

Accuracy is such that even a drop in speed of 5% for a few milliseconds can be detected and action taken almost instantaneously.

On V – belt driven screens, the screen drive motor can be switched off the instant any slippage occurs, preventing costly damage to drive belts.

The VS 4000 Vibration sensor is housed in heavy duty aluminium housing with all internal components and cable connections fully encapsulated & waterproof to IP67 rating.

It is supplied complete with a heavy duty galvanised angle bracket that is simply bolted or welded to the side of the screen or feeder. A heavy duty sealed liquid tight flexible conduit is then looped to a convenient electrical junction box for termination, and the sensor signal routed by standard PVC SWA cable back to the main plant control panel.

The associated SR 4000 Speed Relay Control Module has a single dial that can be adjusted to locate the actual running speed of the screen / feeder and then set to just below this speed.

Typically on a screen / feeder vibrating at 750 throws per minute the speed relay is set to 725, if the speed of the screen drops below this level the SR 4000 speed relay **operates in less than 10 milli – seconds**, resulting in instant protection of your plant **before** things start to go wrong.

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