

Volumetric Ore Scanner

Product Outline

Reliable, scalable and robust volumetric ore measurement using industry proven equipment.

The Volumetric Ore Scanning (VOS) system developed by X2 Engineering uses industry leading technology and intelligent design to allow seamless integration into new and existing plant systems. VOS gives a reliable volumetric flow on ore transport systems to allow correct control of downstream devices and increased operator visibility.

Applications Include:

- Predictive control of crushing and sizing circuits to prevent blockages and high load situations
- Accurate control of feed conveyors and belt filters using an instantaneous measurement system
- Ore profile monitoring for optimised restarts and interlocking situations.
- Advanced ore tracking based on Volume.
- Train Loading applications including freeboard distance, volumetric measurement and profile scanning
- Real-time data for advanced process control techniques including constraint control and bottleneck optimization
- Non contact measurement of belt slippage, belt drift and product slippage

Complete system integration

Modular design of the VOS system allows integration to all major plant control systems and SCADA packages. Standard function blocks allow seamless integration to all major brands of PLC's including Allen Bradley, Siemens and Schneider. X2 Engineering's team can integrate the volumetric scanner system to any application including control code to achieve greater throughput and increase uptime.

Built tough

Working with existing mining standards from leading companies, the VOS system has been developed using industrial components and is built to last in extreme environments. The laser sensor is under positive pressure to minimise dust ingress and maximise maintenance intervals.

Minimal install requirements

The VOS system can be fitted easily to existing equipment with minimal downtime due to the size, weight and wide range of scanning options. Electrical connections are minimal to the existing plant system with all units supporting communications bus.

Industry leading technology

The bulk scanning unit supplied by SICK is a proven, industry leading product that boasts impressive features and unmatched reliability.





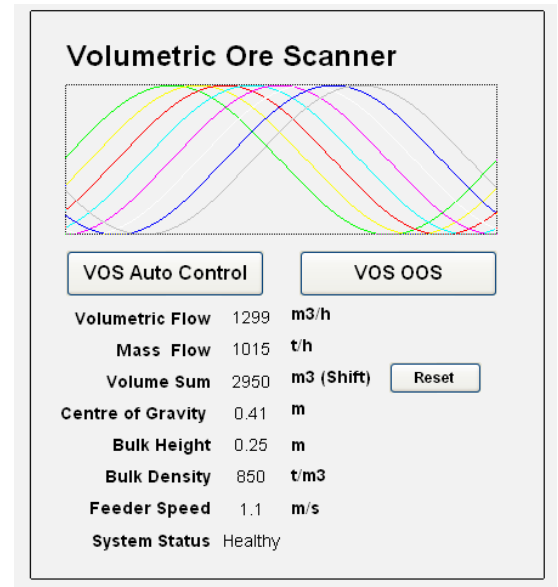
Available Data

The system can output the following data to the process control system

- Volume Flow Rate (m³/h)
- Mass Flow Rate (t/h)
- Volume Sum (m³)
- Centre of Gravity (0 to 1)
- Point Profile
- Bulk Height (m)
- Bulk Density (t/m³)
- Belt Speed (m/s)
- Error Codes

Technical Details

- Power Supply: 240VAC, 6A
- Communications: Modbus TCP / Ethernet IP / Profinet / Profibus DP / Optional fiber connection available.
- Cabinet: IP66 Orange, Aluminum Gland Plate 6mm B&R Pilbara Series. Optional stainless steel cabinet available
- Controller Options: Allen Bradley L23E / Siemens ET200 / Schneider M340
- Compressed air requirements: 6Bar @ 10L / h minimum.
- Mechanical: Engineered mounting structure to suit site requirements.



Typical Application 1: Apron Feeder control for Sizer optimisation

The VOS system is an ideal instrument to control feed from a Rom bin apron feeder to a primary sizer. Using the Volume Scanner process control system can measure and limit ore flow. This method is more effective than working off the sizer current draw as the feeder is slowing before the ore fills the sizer chute. Working with the downstream belt scale, tonnage throughput rates can be calculated at the sizer.

The following control methods can be implemented:

- Limiting the flow (feeder speed) in a high load situation to reduce the chances of sizer blocking and ensure the sizer operates within its wear limits
- During a high lump fines split scenario, controlling the primary sizer using flow rather than weight allows for a higher throughput
- Increase the life of the sizer by optimising feed while maintaining throughput
- Limit the maximum flow during bedding in periods to reduce blockages and increase throughput
- Assist Anti Surge logic by slowing the feeder to achieve metered flow

Typical Application 2: Conveyor Optimisation

The VOS system is an ideal instrument to assist in optimizing the performance of existing conveyor system. A Single volume scan unit can provide:

- Monitoring and feedback of the material bulk edge and feedback when material exceeds this limit. This allows a conveyor to be run at maximum capacity based on volume alone.
- Monitor and provide early warnings for belt drift. In this scenario tonnage can be reduced to try and avoid the trip condition.
- Advanced ore tracking based on volume.
- Accurate bulk density calculations when coupled with existing belt scales