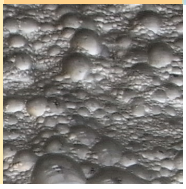
Product Specifications

Thermo Scientific PSM-400MPX

Particle Size Monitor for Mineral Slurries

The Thermo Scientific PSM-400MPX, provides real-time, in-stream particle size analysis of up to three streams. Measuring up to five particle size fractions simultaneously, the PSM provides valuable feedback for the optimization of grinding circuit performance. This will maximise throughput while improving recovery, product quality and energy efficiency.



Benefits

- Detects process upsets such as cyclone disturbances
- Enhances mineral recovery
- Increases energy efficiency

Features

The PSM-400 MPX continuously measures and reports:

- Five particle size fractions simultaneously
- Slurry density or percent-solids
- Up to three streams with a multiplexer
- Period averages, trends and historical data logging
- Data accurate to 0.75% absolute at one sigma
- Handles P80s between 290 and 25 microns

The Thermo Scientific PSM-400MPX is a robust analyzer providing particle size distribution and percent-solids of mineral slurries. The PSM utilizes ultrasound attenuation technology, a highly accurate analysis technique that has proven very reliable and requires little maintenance. Measuring up to three streams with a multiplexer, the particle size analyzer requires no dilution of the slurry stream. The PSM-400MPX provides optimization of both recovery and throughput by assisting with grinding circuit control. This is achieved through continuous feedback alerting you instantly to any feed changes or cyclone disturbances, such as blockage and roping in cyclone underflow.

The PSM can be easily calibrated through its use of a modern user interface and communication links that are fully compatible with plant information and control systems.

The PSM-400MPX is skid-mounted for simple and efficient plant installation. It comprises three main components:

1. The sample conditioner is a vacuum assisted slurry centrifuge for sampling and de-aeration,
2. The sample analysis module includes the flow cell for the ultrasonic transducers, a calibration sampler which doubles as a production composite sampler and a system of valves for standardization and by-pass,
3. The control and display module.

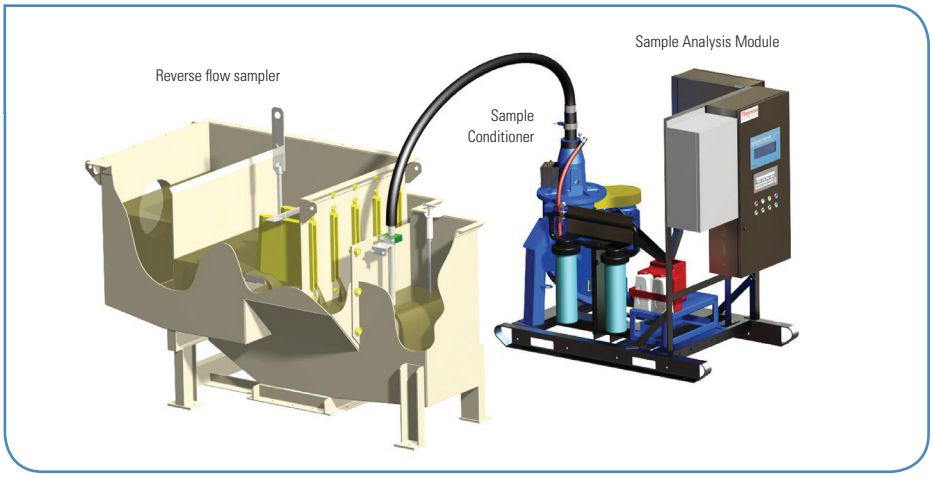
Integration With a Sampling and Analysis System

The PSM-400MPX can integrate with the AnStat-230 and SamStat-30 range of products, including the SamStat-30R which is a dedicated Reverse Flow Sampler. The integration of sampling and analysis is a powerful and effective solution, particularly at the cyclone overflow stage of mineral processing.

Thermo Scientific PSM-400 MPX

Analysis Performance	
Number of Streams	One stream standard; Two or three streams multiplexed optional at extra cost; Up to five size fractions and percent-solids for each stream may be analyzed
Size Fractions Ranges	Distributors with p80 of 25-290 microns, top size less than 1 mm. Minimum measurement of 8 mm
Sample Flow Rate Required	2 m3/hr to 4.5 m3/hr of representative sample from process (e.g., via Thermo Scientific SamStat reverse flow sampler); Slurry can be 4% to 60% solids by weight and solids specific gravity of 2 to 5.5
Ultrasonic Transmitters	Six frequencies selected at design stage to suit process particle size and percent-solids range
Accuracy Typically	0.75% absolute one sigma at target grind for both size and percent-solids; Output percent by weight, passing or retained, correlated to laboratory screening
Utilities Required	
Electrical Power Sample Conditioner	3.8 kW (5 HP), 50/60 Hz, 190-575 VAC, 3-phase, heavy-duty motor; Peak power 4.6 kW with water heater on
Instrument Air	Instrument-quality air; Clean and dry to 0.1 µ with dew point <+2°C (<+35.6°F); Pressure nominally 690 kPa (100 psi) with 450 kPa to 800 kPa allowable; Maximum consumption = 303 liters per minute
Cooling Air	Instrument air used for cabinet cooling; Intermittent service; Duty cycle depends upon maximum plant ambient operating temperature; Duty cycle will be in excess of 60% at +45°C (+113°F) ambient
Standardization Water	Only clean, fresh, potable water may be used; Volume dependent upon frequency of standardization, normally once per day, requiring about 12 liters (3 gallons) per day
Water for Sample Acquisition (Vacuum)	Clean plant water (gland water); Eductor/aspirator needs 275-550 kPa (40-80 psi) and flow rate of 2.7 m3/hr; Can be recirculated as an option
Communications Links	
External:	PSM-400 to Control System 4-20 mA analog current loops; Up to 16 x 12-bit channels
PC to Customer Control System and LAN	Ethernet link using TCP/IP protocol including OPC or EIA; RS-232, RS-422 serial lines (MODBUS)
Off-Site Modem	One data-quality phone line or VPN internet link
Dimensions	
Standard MPX	1840 mm (72.44 in) H x 1770 mm (69.69 in) L x 1120 mm (44.09 in) W
Weight	950kg (2100 lbs)
Standards	
Electrical Rating	IP66
Quality Assurance	Adelaide manufacturing facility ISO-9001:2000 certified

PSM-400MPX slurry particle size analyzer



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