

MegaTrend™ Slurry Metrology Sensor Package

Chemical Distribution System

- » Full, replicated analysis in less than 10 minutes per sample
- » Zero set-up time between samples
- » Manual and automatic operation
- » Display 0.5 - 500 micron particles
- » Up to 8 sample streams from various points
- » Data output in spreadsheet format
- » Self-cleaning and validation between sampling
- » Auto-flush and purge

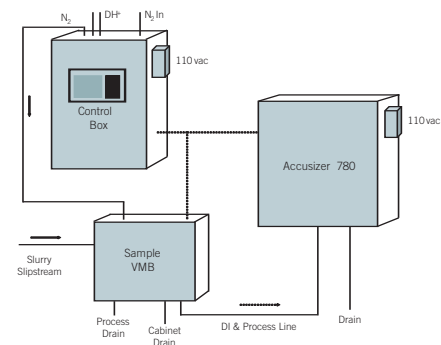


System Features

Past research in process monitoring shows the importance of maintaining a uniform particle size distribution within a slurry delivery system. Particle distribution fluctuations result from several variables and can lead to particle growth in the 'tail end' portion of a typical slurry sample. Current techniques to gauge the quality of the slurry used in the entire system require sample collection and verification by particle sizing devices. These processes typically yield a median size distribution, which may not detail the scratch causing particles. Celerity's MegaTrend system provides detailed outputs of particle size and quantity through the patented Autodilution™ process.

Current technology allows for on-line particle counting of CMP slurries utilizing single particle optical sensing. The system operates by drawing samples from selected points within a bulk slurry distribution system (BSDS) via slipstreams to a sample valve manifold. The slurry is diluted 30:1 and passed through the particle counter for data analysis. Sample time is less than 10 minutes per sample run with zero set-up time between samples. The analyzer package includes an automatic flush routine and nitrogen blow-down in between sample collections to minimize any cross contamination of subsequent samples. An additional port is supplied for analysis of incoming drums or grab samples from throughout the system.

This modular system is designed to support from 1 to 8 slipstreams and allows for user-defined settings such as sample location, time stamps, and sample sequence. Data is exportable in a Microsoft Excel™ spreadsheet format.

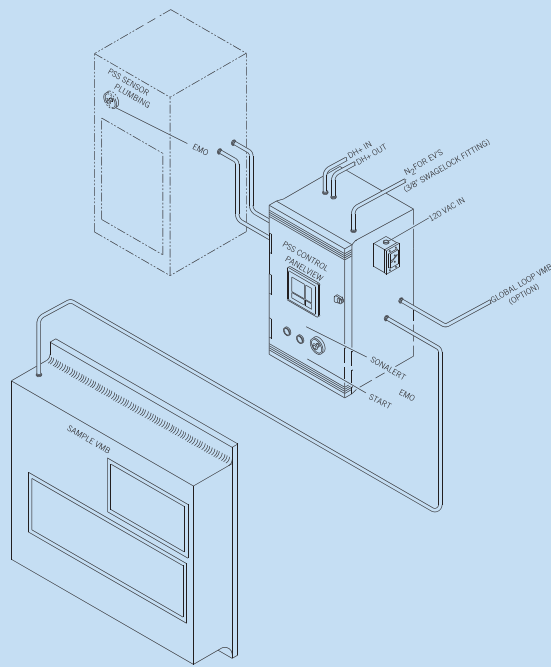


Reliability

- > 2,500 hrs MTBF
- > 1,250 hrs MTBA
- < 3 hrs MTTR
- > 99.5% availability

Performance

- Size ranges: 0.5 - 500 μm (or microns)
- Background count minimum:
<25 particles @ >0.2 μm



Controls

- Allen-Bradley SLC 500 series PLC
- Allen-Bradley Panelview 550 operator interface
 - System P&ID/status
 - Alarm and warning screens (active and historical)
 - Password protected maintenance screens
 - Valve manifold and cabinet overview
 - Analyzer and system status displays
 - User-definable automatic sample sequence
- Connectivity to system PLCs & MegaView™ Supervisory via DH+ or ethernet network
- Local and remote EMO capability

Components

- Optical Particle Sizer with:
 - Autodilutor System
 - Sample Valve Manifold Box
 - Controller with Operator Interface
 - All Teflon™ construction

Model	Slurry Metrology Sensor Package
Application	Silica Slurries

Component	Control Box
Size	24" x 30" x 12"
Type	NEMA 4X
Materials	Fiberglass
N2	2 SCFM @ 90 psi 3/8" Swagelok SS
Power	110 VAC, 10 AMPS 50/60 Hz, 1" Conduit
Communications	3/4" Conduit

Component	Sample VMB
Size	22" x 15" x 38"
Type	Polypro
N2	3/8" Flaretek
DI	5 GPM @ 25 psi 3/8" Flaretek
Exhaust	20 SCFM 2" FNPT
Process Drain	3/4" FNPT
Cabinet Drain	Gravity 1/2" FNPT
Tool Interface Flowpath	3/4" PFA 450 3/8" Slipstreams

Component	PSS Accusizer 780
Size	20" x 36" x 8"
Type	304 Stainless Steel
Power	120 VAC, 15 AMPS 50/60 Hz
Drain	1/2" FNPT



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