

### CYCLONEtrac™ PST - Particle Size Tracking System

The CYCLONEtrac Particle Size Tracking (PST) system is the only system that provides real-time, direct measurement of particle size on individual hydrocyclones for grind circuit optimization. The technology's value lies in its ability to track the particle size of the entire overflow stream from a hydrocyclone battery based on the contribution from each individual hydrocyclone. This enables real-time closed-circuit grind control strategies targeting improved mineral recovery, increased grind efficiency, while maintaining or increasing plant throughput.

#### System Features

- Tracks Particle Size in Cyclone Overflow Stream
- One to Five Outputs Available (as percent passing or retained on a standard screen, e.g. 150µm)
- Minimal Hydrocyclone Downtime for Installation and Maintenance
- One-Time Calibration
- New generation CYCLONEtrac PST SMARTsensor with condition-based monitoring



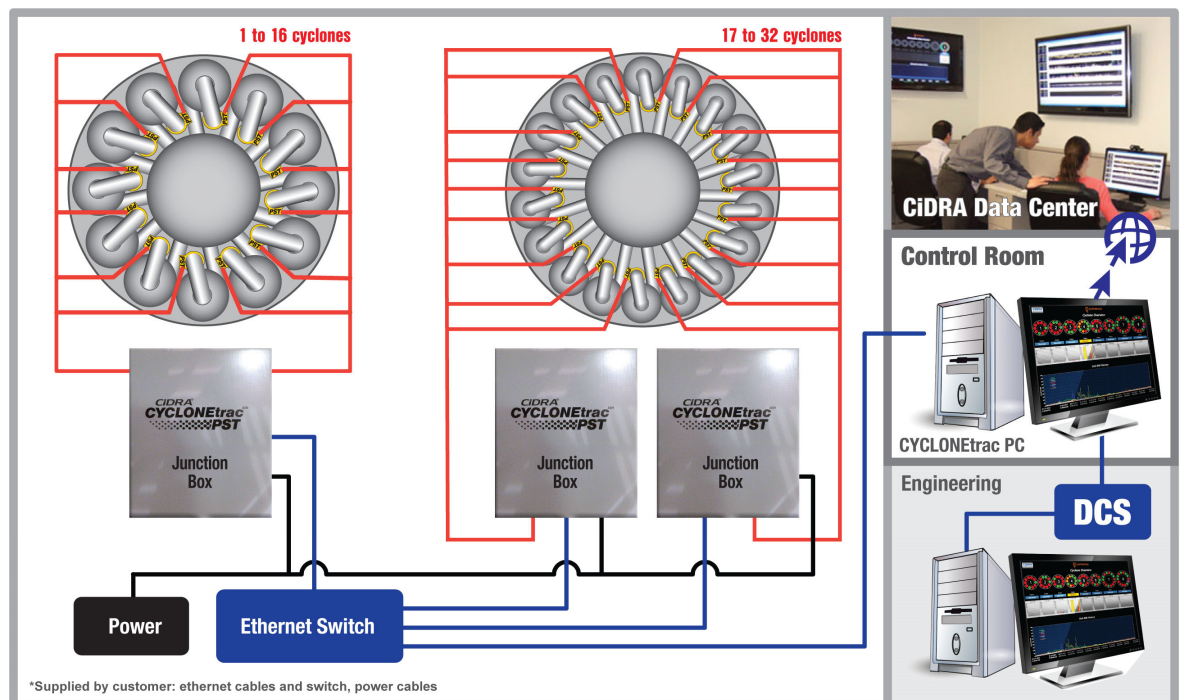
#### Plant Benefits

- Enables Real-Time Closed Grind Circuit Control
- Individual Cyclone Monitoring
- Enables Improved Recovery Without Loss of Throughput

The CYCLONEtrac PST system consists of individual sensor assemblies mounted to hydrocyclone overflow pipes, junction boxes, and a control room computer. The sensor assembly is made up of a ruggedized probe that is in contact with the overflow stream and an integrated electronics package that is protected by a sealed metal enclosure. The sensor assembly is wired to the junction boxes located near the hydrocyclone battery. The junction box receives 100-240 VAC power and supplies both 24V DC power and MODbus

communications to the sensor assemblies. The junction box also communicates with the CYCLONEtrac computer in the Control Room using industrial Ethernet.

The computer is connected to the internet to provide remote monitoring and support from the CiDRA Global Data Center. At the data center, technicians monitor and optimize the PST system performance and provide up-to-date information regarding the health of the PST system hardware.



## CYCLONEtrac™ PST Specifications

Parameter	Specification	Comments
Particle Detection Capability.	≥ 75um	Real-time tracking of target grind size. Contact CiDRA for smaller size
Update rate	4 sec	
Installation location	Hydrocyclone overflow pipe	Works with standard rubber-lined steel pipe, HDPE
Mounting style	Clamp-on, wetted probe through 2" (51mm) hole in overflow pipe	Clamp around pipe. Ten minute installation, minimizing cyclone downtime.
Hydrocyclone overflow pipe size range	Sizes available for 6"-18" pipes (152.4mm –	Contact CiDRA for pipe sizes above
Sensor assembly	Ruggedized SMARTsensor probe, attached to metal enclosure that houses electronics	Powered via CiDRA supplied cable from junction box
Junction box	Accepts up to 16 sensor assembly connections. Connects to Ethernet or fiber optic network and control room computer. Stainless steel construction.	One junction box for each hydrocyclone battery, mounted near battery; supplies power and communication to sensor assembly.
Operating Temperature Range: Junction box and power entry box Sensor assembly	-4°F to +140°F (-20°C to +60°C) +14°F to +130°F (-10°C to +55°C)	Inquire with CiDRA for temperatures outside these specified ranges
Storage Temperature Range: Junction box and power entry box Sensor assembly	-40°F to +185°F (-40°C to +85°C) -40°F to +185°F (-40°C to +85°C)	Inquire with CiDRA for temperatures outside these specified ranges
Cable between junction box and sensor assembly	Multi-conductor, PVC jacketed for EIA RS-485 Applications	CiDRA-supplied, for communication and power for sensor assembly. Cable length up to 150ft .
<b>Communication Interfaces</b>		
Communication between junction box to CYCLONEtrac PC in control room	Ethernet Cat 5e output	Up to 100m without repeater Custom interface available
Digital output from CYCLONEtrac PC to DCS	OPC via Ethernet	Up to 5 output sizes
Video output from CYCLONEtrac PC	Dedicated flat-screen	Matched to existing control room monitors
Communication with CiDRA Data Center	Over Internet via Virtual Network Communication (VNC) connection.	Between CYCLONEtrac PC and CiDRA office, for data transfer, remote monitoring and configuration.
Data logging capability	Yes	Data and system parameters logged to CYCLONEtrac disk drive every 4 seconds; transferred to CiDRA Data Center periodically.
Probe assembly enclosure	Certified to IP66; Designed to IP67	
Junction box, power entry box	NEMA 4, IP66	Junction box, power entry box and glands
Power requirements	AC version only, 100 to 240 VAC, 50/60 Hz, 200 watts., dual junction box 400 watts	External power supplied to junction box, and sensor assemblies
Area classification	Standard Ordinary Location Up to altitude of 5000m	Applies to system

### Contact CiDRA

To speak with an applications engineer about CiDRA's *SONARtrac* systems or other CiDRA industrial process measurement solutions, call +1.203.265.0035 or visit our web site at [www.cidra.com](http://www.cidra.com).

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