

CRITICAL SYSTEMS' CALLISTO™ PROCESS EXHAUST SCRUBBER

POINT-OF-USE PROCESS EXHAUST SCRUBBER

Callisto Technology:

Critical Systems' Callisto Dry Scrubber is a highly advanced Abatement System that provides Guaranteed scrubbing of the Target Gases to levels well below the (TLV) Threshold Limit Values. With medias selected specifically for the gases and flow rates of your unique process applications, and flow rates to 1,000 SLPM, the Callisto family of scrubbers utilize proprietary adsorbent medias to assure the maximum abatement of the hazardous gases from the process gas stream. Custom layering of the media beds ensures that hazardous gases are removed in stages, maximizing the efficiency of the canisters.

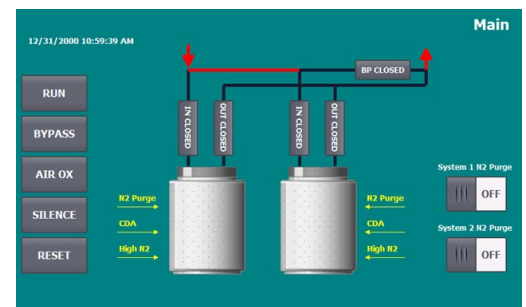
The Callisto's sophisticated control system operates the canisters to peak efficiencies to assure the longest life of the canisters at the lowest destruction temperatures, while automated purge cycles insure that the canisters are safe to remove when it comes time for replacement. The Callisto's controller also maintains a history of all scrubber alerts, temperatures and exhaust concentrations to verify performance and compliance with regulations.

The Callisto's Dual Canister option employs two canisters and logic controlled bypass valves to continually direct exhaust to the canister with the highest state of readiness, or can be set to operate in an oscillation mode where the canisters share duty with temperature scheduled switching to maximize canister life.

Key Features of the Callisto Point-of-Use Process Exhaust Scrubber:

- *Sub-TLV Removal Efficiency of (HPM) Hazardous Production Material Target Gases - Monitored at Outlet with 3rd Party Gas Monitor & Data Logged*
- *Integrated Vacuum Pump - Assures Optimal Residence Time in Media Bed!*
- Control Logic Assures Steady Conductance to the Process Tool's Exhaust
- Integrated Cabinet & Exhaust Monitoring System to Ensure Safety & Compliance
- Ethernet Communications to End User
- Tool Interlock Connections to Prevent Reactor Operation when Callisto is Offline
- Integrated Temperature, Pressure & Exhaust Monitoring with Data Logging
- Widest Offering of Catalysts & Adsorbents of any Dry Bed Scrubber Supplier
- In-House Creation & Blending of Custom Adsorbents
- *Lowest Cost Canister Disposal of Any Dry Bed Canister Provider!*
- *Only Dry Bed Scrubber Made in the USA!*

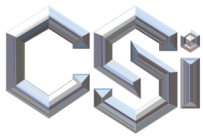
Service & Maintenance performed by Certified CSI Field Technicians



Callisto Main Screen - Dual Canister

Since 2000, Critical Systems, Inc. (CSI) has been supporting the breakthrough technologies of our customers with practical, cost effective solutions that “surround the process tool”.

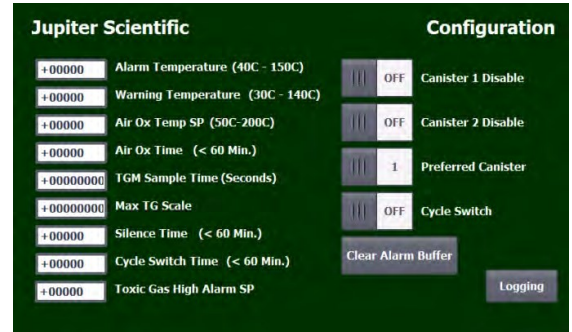
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CALLISTO DRY BED SCRUBBING SYSTEMS (cont.)

PERFORMANCE:

- Color Touch Screen Display
- Real Time Flow Schematics
- User Settable Alarm Limits and Functions
- Automated Cycle Purge Routines
- Visual and Audible Fault and Shutdown Alarms
- Digital Inputs for Cabinet Shutdown
- Multiple Password Level Access
- Ethernet and Analog Outputs
- Z-Purge Options for Class 1 Div 2 Compliance
- Digital Customer I/Os
- Integrated Vacuum Pump



Callisto Dual Canister Configuration Screen

ALARMS: *

Canister Not In Place	Shut Down
Over Pressure	Shut Down
Lost Nitrogen	Shut Down
HPM Gas In Cabinet	Shut Down
HPM Gas Breakthrough	Notification Alarm
HPM Gas at TLV in Exhaust	Shutdown with Interlock
Over Temp / Missing TC	Shut & Purge with N2 until Clear
Warning Temperature	Maintenance Alarm

FACILITATION INFORMATION:

Connections:

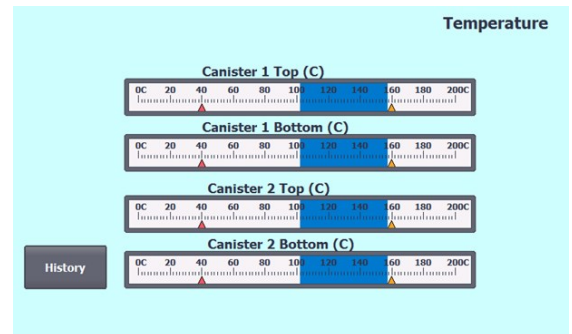
Process Inlet / Flow	KF40 SS / 180 SLPM (KF50 for Dual)
Process Exhaust / Flow	KF40 SS / 180 SLPM (KF50 for Dual)
Cabinet Exhaust / Flow	4" OD x 3" High / 140 CFM @ 1/2" W.C.
N2 High Purge / Flow	1/2" SS Swagelok @ 60-80 psi
N2 Purge / Flow	1/4" SS Swagelok @ 60-80 psi
N2 Valves / Flow	1/4" SS Swagelok @ 60-80 psi
CDA Air Oxidation	1/4" SS Swagelok @ 60-80 psi
Customer Alarm	7/8" Through Hole

Power:

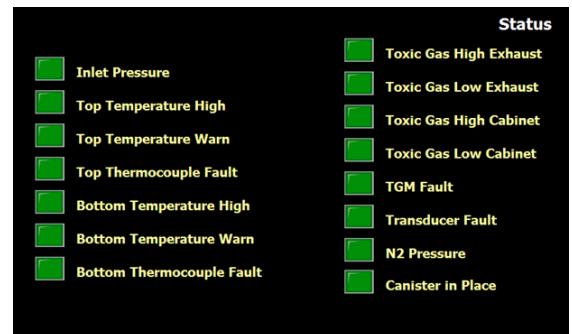
7/8" Through Hole - 110/220 VAC, 5 Amp

Overall Dimensions:

Single Canister	60" Tall x 28" Wide x 30" Deep
Dual Canister	68" Tall x 48" Wide x 30" Deep



Callisto Temperature Screen



Callisto Status Screen

* With the Dual Canister Callisto, the control system will automatically switch to the second canister if the maximum temperature setting of the active canister is reached, making it the ideal choice for critical MOCVD applications.