

## A MUST HAVE FOR INTELLECTUAL ADVANCEMENT

Photo-Cat AOP+ is an advanced reactor platform utilizing slurry-based TiO<sub>2</sub> photocatalysis.

This unique chemical free technology is used in the purification of water, phase separation, particulate removal, and driving chemical reactions capability. Novel sensor applications and automation techniques incorporated in the system allow detailed examination of physical phenomena.

Photo-Cat L represents an advanced alternative to other methodologies and is actively demonstrating its capabilities in a variety of municipal and industrial sectors since 1993.



Sectors			
Municipal	Agriculture	Pharmaceutical	Marine
Nuclear	Manufacturing	Remediation	Military
Mining	Petrochemical	Aerospace	Food

Capabilities		
Metals Recovery	Oxidation/Reduction	Purification
Disinfection/Sterilization	Catalytic Research	Verification
Chemical Manufacturing	Process Control	Sterilization

Technology of the Future	
Novel processes inherent in the Photo-Cat L are not typically exposed to students until they enter the work force. The Photo-Cat L provides exposure to the latest innovations in:	
Advanced Control Algorithms and Process Identification	Photocatalysis and Hydroxyl Radical Chemistry
Human Machine Interface (HMI) Design & Implementation for Supervisory Control & Data Acquisition (SCADA)	Mechanics of Organic Compound Oxidation & Reduction Highest Oxidation Potential 3.18-4.8 (ev)
PLC Operations and Ladder Logic Programming	Disinfection vs Sterilization
3 Phase, Variable Frequency Drive Motor Operation	Heat Transfer
Industrial ProfiNet	Fluid Dynamics
Fluid Mechanics & Feedback Control Loops	Mass Transfer & Control
PID Loop Tuning	Reactor Design (PFR/CSTR)





Specifications:

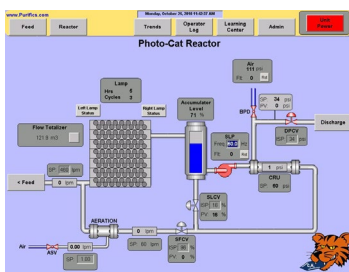
<b>Smart Control Valves</b>	Compact Design Integrated Positioner Process Feedback Control	<b>Mass Flow Controller</b>	Smart Sensor for Metering Vapour-phase Oxidant Source or Contaminant ProfiBus Network Interface
<b>Pumps</b>	Integrated Pumping and Flow Control Centrifugal Feed Pump (External) Variable Frequency Drive	<b>Heat Exchanger</b>	Integrated Non-contact Liquid-liquid Heat Exchange +/- 1°C Reaction Temp. Maintenance
<b>Dimensions</b>	2.1m L x 0.5m W x 1.7m H / 7' L x 20" W x 5'8" H	<b>PLC</b>	Siemens PLC Modular I/O, ProfiNet
<b>Weight</b>	136 kg / 300 lbs	<b>Power</b>	1.8 kW / 2.4 hp Single Phase, 208-240 VAC, 50-60 Hz, Fused for 30A
<b>Certifications</b>	NSF / ANSI 61 available	<b>Electrical</b>	UL 508A, NFPA70, NFPA79



Features:

Simultaneous Oxidative & Reductive Pathways	Automated, Unattended Operation
Batch & Single Pass Operation (CSTR/PFR) Configurable	TiO <sub>2</sub> Separation (Membrane)
Remote Control & Diagnostics via Internet/Intranet	Generic Parts, No Quartz Tube or Wiper Service Required
Process Feedback Control for Valves and Sensors	Continuous pH Measurement
Temperature Control	Fluid Flow & Control
High Mass Transfer Reactor Design	Integrated Pumping & Flow Control for 3/4 hp, 3 phase Outboard Pump

Computer Interface:



- Touch-Screen Panel Mounted, Human-Machine Interface (HMI)
- Fully Developed Supervisory Control and Data Acquisition (SCADA)
- Configurable Setpoints & Operating Parameters
- Real-time Data Logging
- Parameter & Diagnostic Trends
- Easily Upgradeable Technology
- Remote Online Support available through Worldwide Support Program



Full Scale Industrial System

