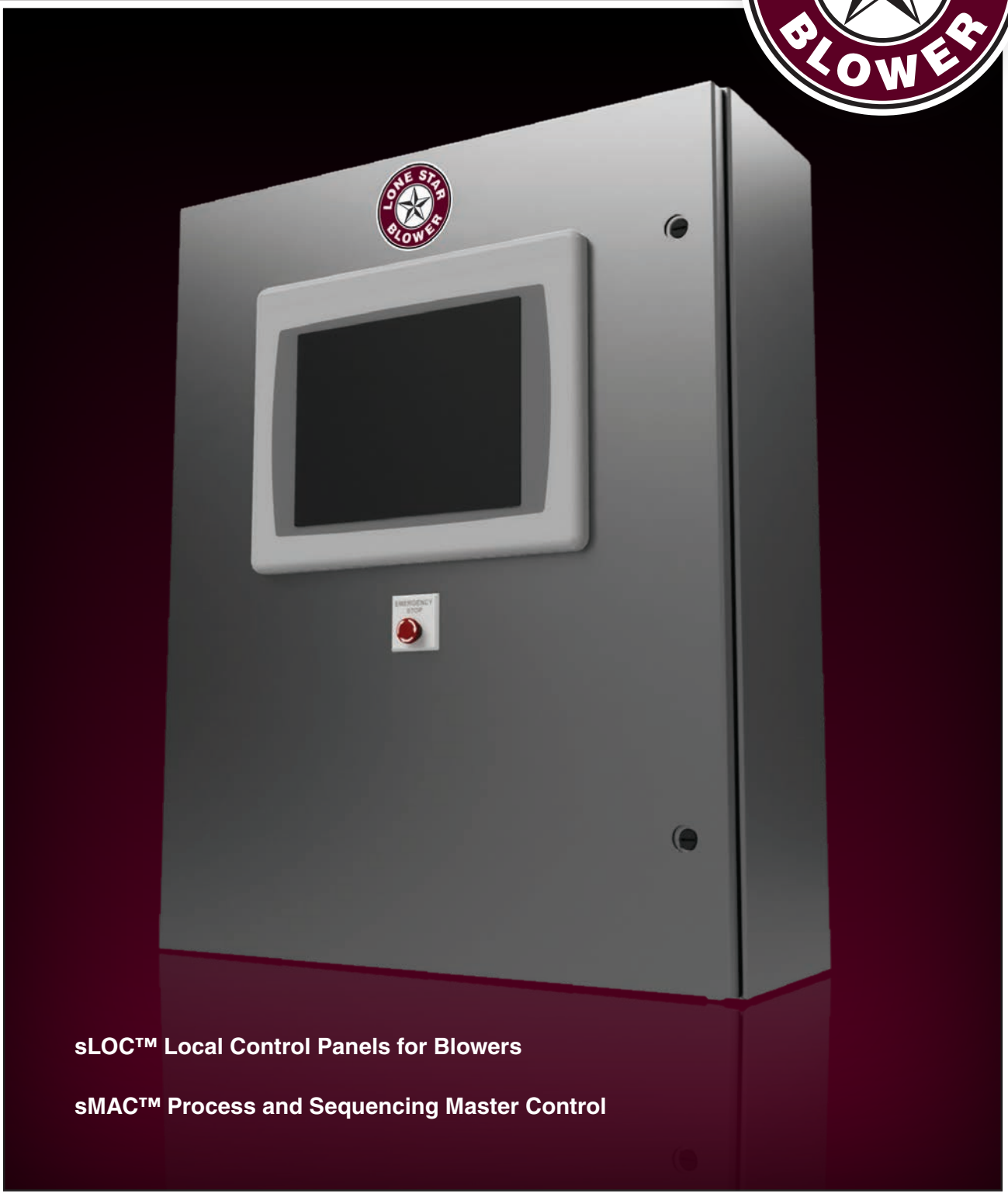
CS Series Control Systems



sLOC™ Local Control Panels for Blowers

sMAC™ Process and Sequencing Master Control

Your ONE Solution for Blower Systems

CS Series
Blower Control Systems

Lone Star knows Control

Efficient operation of any blower system is only as good as its control and integration to the process. Operating a very efficient blower inefficiently is very common when using 3rd party integrators. Lone Star offers a One Source Solution by offering not only local panels, but also including the process integration and a guaranteed pre-engineered and automated system.

Lone Star can field service or retrofit your existing blower and process control *no matter the brand or technology*.

sLOC™ Local Control

Automating your blower with a local control panel saves money through improved control functionality and protects your investment by monitoring critical inputs such as surge, vibration, or temperature. Local control panels can can also be provided with an integrated motor starter or variable frequency drive to save on installation and avoid integration issues. Systems are fully tested and warranted.

sMAC™ Master Control

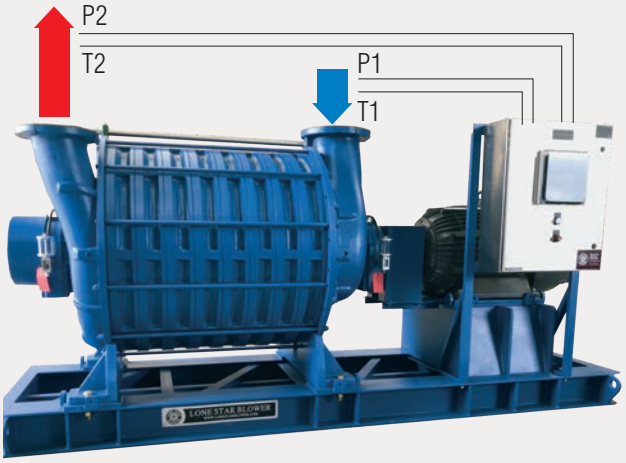
There are two levels of master control that a sMAC™ system can provide.

The first provides organizational control of the blowers through sequencing. Sequencing automates which blowers turn on and off, modulates them to provide the total desired output, balances run hours between units, and can automatically restart a system after a power outage or unplanned shutdown. Many systems have difficulty operating multiple blowers on a common header and a master control panel can solve this through active control.

The second level can provide complete automation of your blower process. Process control provides blower sequencing, combined with the automation of process valves and instrumentation, and results in maximized energy savings.

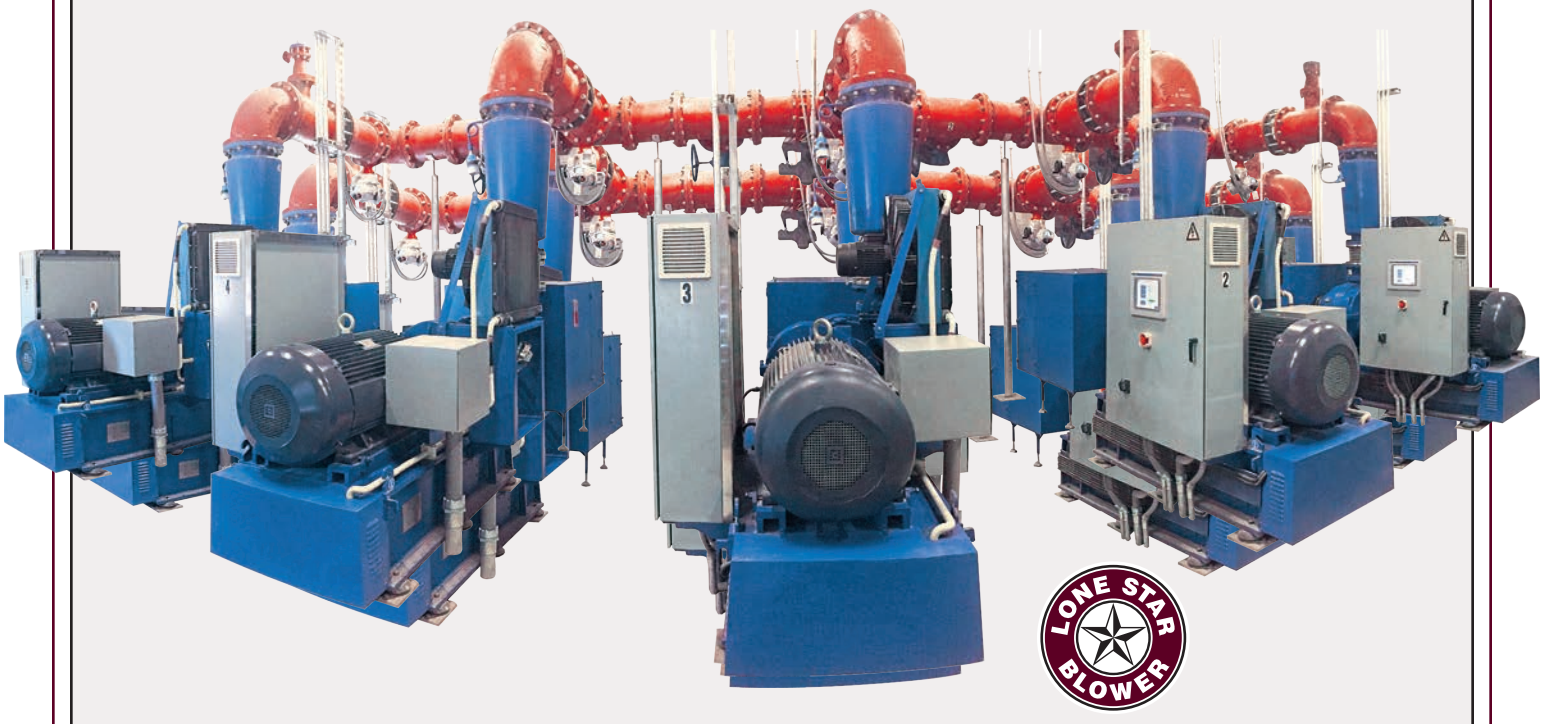
sLOC™ Local Control

sLOC™ local control panels are designed to monitor, protect, and automate the operation of a blower. They also have a unique ability to calculate mass flow more reliably and more accurately than by using a flow meter. By calculating enthalpy across the blower, and measuring speed and power, the controller can dynamically calculate a mass flow rate, even as temperature and pressure changes. This maximizes the blowers flow range and provides an accurate and consistent flow rate on demand.



sMAC™ Sequencing Control

Efficiency Optimization: sMAC™ sequencing can optimize your efficiency as blowers are not equally efficient throughout their operating range. A smart sequencer does not move all blowers up and down together, but will operate blowers in their most efficient "sweet spot" and allow only one blower to be a variable trim unit.

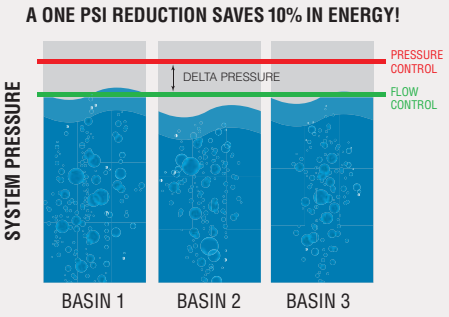


Auto Start/Stop Multiple Blowers

Balance Run Hours • Blend Multiple Technologies • Time Programmable

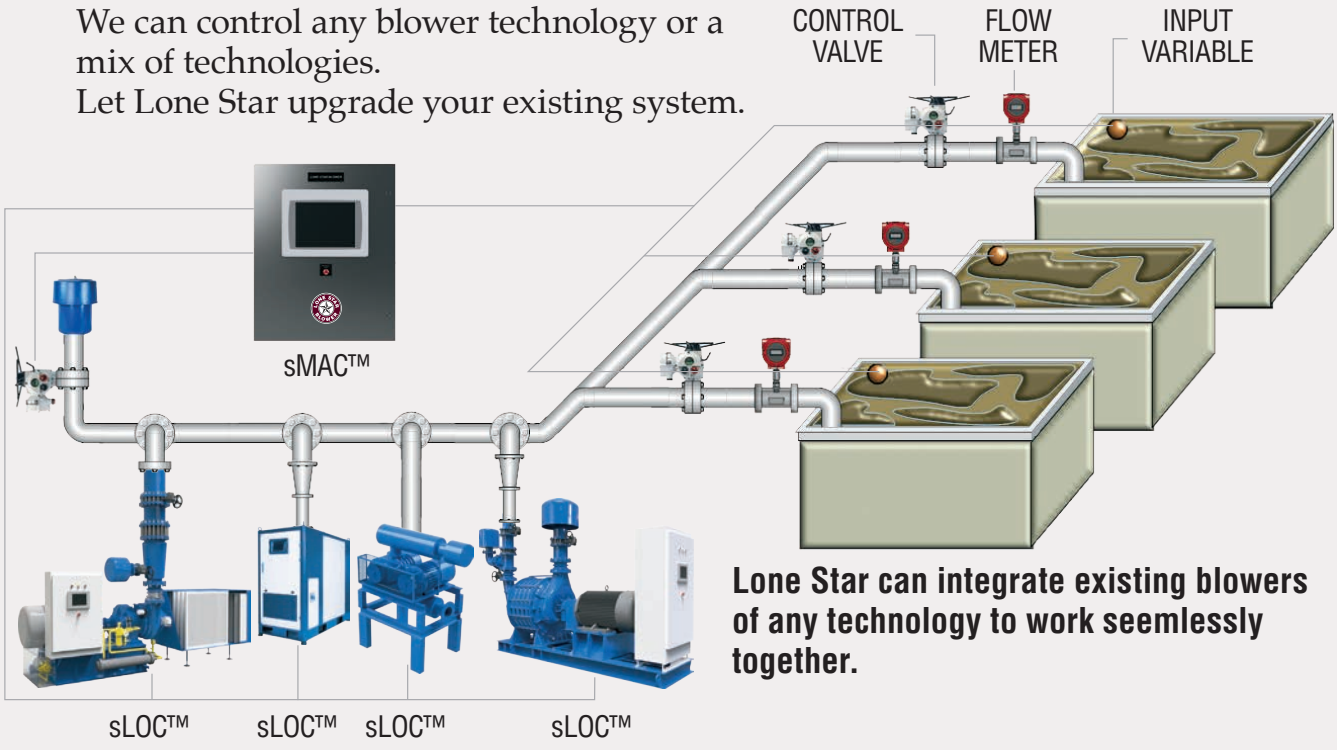
sLOC™ Local Control

Lone Star offers single point responsibility for the complete automation of your process including all hardware and on-site integration. The sMAC™ Process Controller can operate the blowers to a set point such as flow or pressure, but also to process control variables such as off-gas, ammonia or dissolved oxygen at many points of use.



sMAC™ utilizes FOV – Fully Open Valve control uses flow set points to lower your header pressure to only what is required. Lower header pressure means lower power consumption! However, we can also provide traditional MOV – Mostly Open Valve type control using pressure set points.

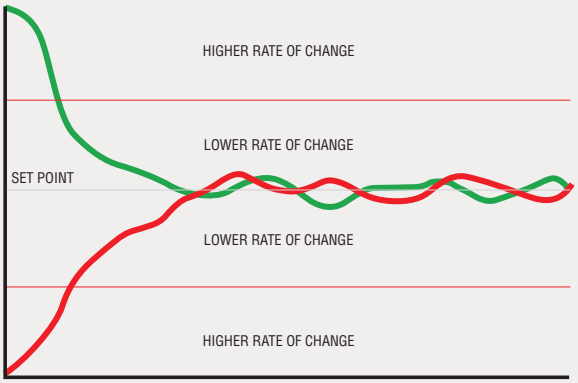
We can control any blower technology or a mix of technologies.
Let Lone Star upgrade your existing system.



Lone Star can integrate existing blowers of any technology to work seemlessly together.

sLOC™ and sMAC™ Controllers

Use an adjustable ramp control loop to operate with any control variable set point. This automatic adjustment keeps a process stable and saves energy.



Think Smart, Very Smart! Think Lone Star Blower!						
sLOC™ Smart Local Control System	Standard Controller Capabilities					
sMAC™ Smart Master Control System	sLOC™-LS			sLOC™-DT	sLOC™-GL	sMAC™
Functions/Options	sLOC™-LS-M (Monitoring)	sLOC™-LS-V (Valve Control)	sLOC™-LS-S (Speed Control)	sLOC™-DT	sLOC™-GL	sMAC™ (Sequencer/ Process Controller)
Blower Technology						
Multistage Turbo	S	S	S			S
Gearless Turbo				S		S
Geared Turbo					S	S
Positive Displacement	O		O		O	O
Retrofit to other brands	O	O	O		O	O
Number of Units	1	1	1	1	1	2+
Standard Controller						
Microprocessor Base Control	S	S	S	S	S	S
Allen Bradly, Siemens or Custom PLC	O	O	O	O	O	O
Touch Screen HMI	4"	7"	7"	4"	7"	10"
SCADA Network Communication - Ethernet/IP	S	S	S	S	S	S
Modem Connection	O	O	O	O	O	O
Enclosure Types NEMA 1,3R,4,4X,7,12	O	O	O	O	O	O
Electrical Ratings UL/ULC/CSA/CE Listed	S	S	S	S	S	S
Languages Supported (ALL)	S	S	S	S	S	S
Enclosure Types NEMA 1,3R,4,4X,7,12	O	O	O	O	O	O
Blower Surge Protection	S	S	S	S	S	
Motor Overload Protection	S	S	S	S	S	
Flow Control Method						
Variable Inlet Guide Vane					S	
Variable Discharge Guide Vane					S	
Inlet Valve Flow Control		S				
Blow Off Valve Control		O	O	S	S	
Isolation Valve		O	O	S	S	
Bleed Valve Control (Vacuum)		S	O			
Variable Frequency Drive Control			S	S	O	
Temperature Monitoring						
Blower Bearing Temperature Switch	S	S	S	S	S	
Blower Bearing Temperature Transmitter	S	S	S	S	S	
Blower Inlet and Outlet Temperature Transmitter	S	S	S	S	S	
Motor Bearing Temperature Transmitter	S	S	S	S	S	
Motor Winding Temperature Transmitter	S	S	S	S	S	
Oil Temperature					S	
Temperature Compensated Surge Protection	O	S	S	S	S	
Vibration						
Vibration Transmitter on Blower Bearings	S	S	S	S	S	
Vibration Transmitter on Motor Bearings	S	S	S		S	
Vibration Transmitter on Gearbox					S	
Proximity Probes				S	S	
Pressure						
Inlet Filter Pressure Differential Switch	S	S	S	S	S	
Inlet Filter Pressure Differential Transmitter	S	S	S	S	S	
Inlet Vacuum		O				
Outlet Pressure		S	S	S	S	
Inlet Pressure		S	S	S	S	
Oil Pressure					S	
Process Control Variables						
Dissolved Oxygen Control		S	S	S	S	S
Ammonia Control		S	S	S	S	S
Off Gas Control		S	S	S	S	S
Vacuum Pressure Control		S	S	S	S	S
Pressure Control		S	S	S	S	S
Flow Control		S	S	S	S	S
Process Control						
Multiple Units (all technologies/brands)						S
Fully Open / Mostly Open Valve Control Logic						S
Number of Control Variables		1	1	1	1	2+
Motor Starter and Control	Motor Starter and Control Combination					
Full Voltage or Soft Starter	S	S			S	
Variable Frequency Drive			S	S	O	
Mounted and Wired on Common Blower Skid	O	O	O	S	S	

Ⓢ standard Ⓞ optional (custom designed controls available)

Markets Served

Water and Waste Water

Utility Power

Mining

Food and Beverage

Oil and Gas

Pulp and Paper

Biogas

Hazardous Gas

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