LONE ★ STAR

sMAC-PRO™
Process Contol Panel

Complete Blower Process Control System

Description

The sMAC-PRO™ master control panel provides a quick and easily deployable solution for installations in need of automated blower sequencing and process control. By interfacing with multiple process variable inputs the sMAC-PRO™ can provide automated sequencing of the blowers as well as automated control of system flow control valves, thereby giving you fully automated control of the entire aeration process. The sMACPRO™ utilizes Most-Open-Valve (MOV) control philosophies to minimize system pressure and significantly reduce operating costs. The system is fully configurable to fit your application and has additional features such as remote monitoring and control capability, ethernet or hardwired connectivity, and a 15" touch screen interface.

Control Methods

Blower Sequencing + Process Control via Aeration Flow Control Valves

Control Modes

DO, Ammonia, Flow, Pressure

Available Protections & Functionality

Process Control via DO and Ammonia
Aeration Zone Valve Control
Aeration Zone Flow Meter Monitoring
Equipment Sequencing
Run Time Balancing
Communication Monitoring
Equipment Monitoring
Header Temperature Monitoring
Header Pressure Monitoring
Header Blow-Off Valve Control

Documentation, Testing & Startup Services

Operation Manuals
System Integration Support Documents
Factory Acceptance Testing (witnessed available)
Installation Support
Commissioning & Training

Standard Panel Specifications*

*Customization may affect the standard listed specifications

Approvals .... UL / ULC 508A
Warranty............................... Lifetime Warranty with Standard Hardware
Enclosure Type .... 36H x 30W x 10D
Enclosure Rating .... TYPE 4
HMI...................................... 15" Phoenix Contact WP 6156-WHPS

PLC

Model .... Phoenix Contact PLCnext AXC F 3152
Programming Software... PLCnext Engineer (Free Software)
CPU .... Intel Atom™ x5-E3930, 2x 1.3GHz
Internal Memory 1GB
Expansion Memory .... SD Card - 2GB
Communications .... ProfiNet, EtherNet/IP, Modbus TCP, MQTT, OPC UA (more options available)
Ethernet Connections...... x3 RJ45
Operating Temperature ... -25°C to 60°C

I/O

Discrete Inputs................ x16
Discrete Outputs x16
Analog Inputs.................. x40
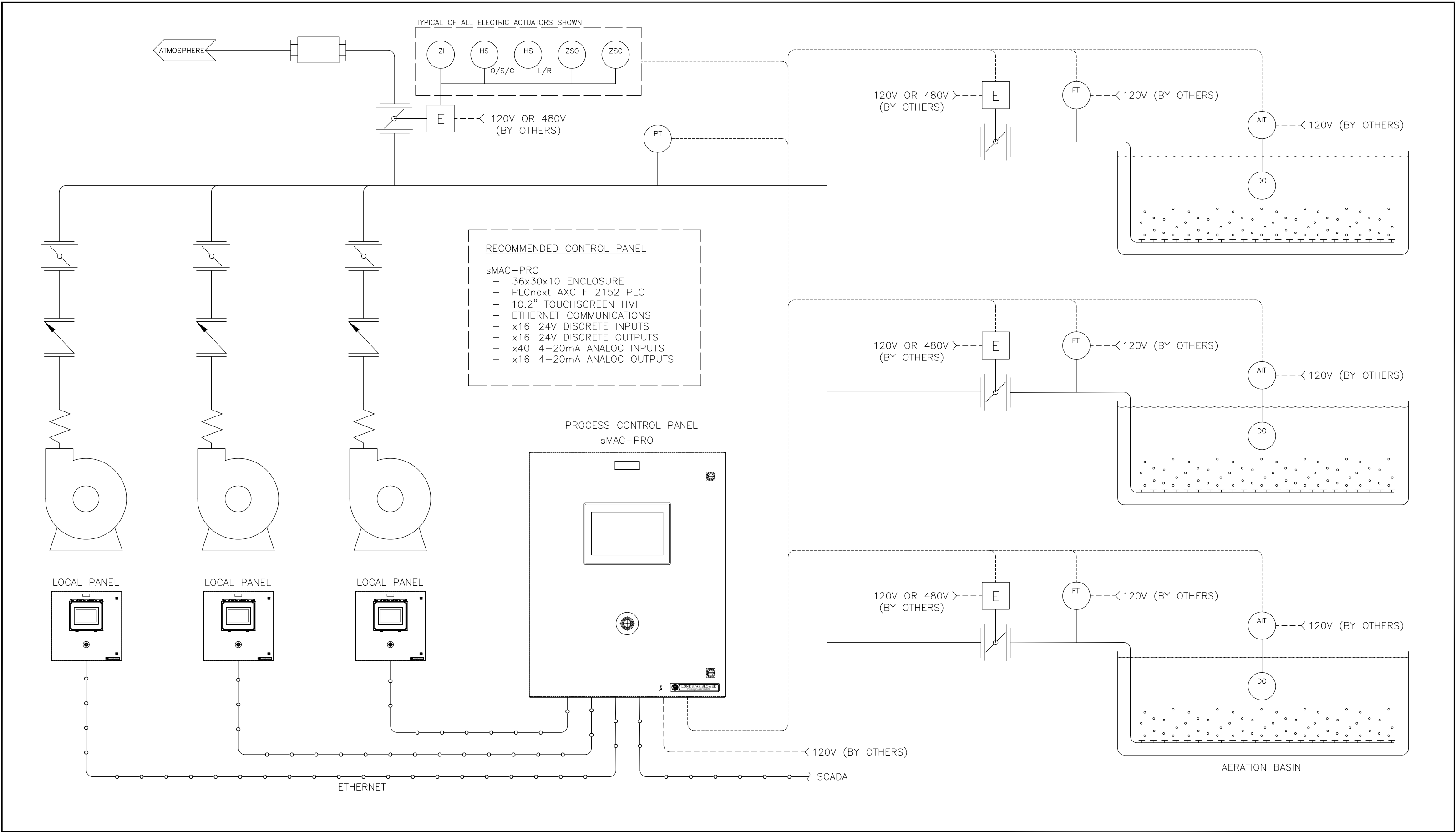Analog Oututs x12

Other Product Features

High-Resolution Analogs
LED Fuse Blocks
120V Convenience Outlet
Ethernet Switch
Electrical Surge Protection
Isolated Instrument Ground

Available Options

Alternate PLC Brand (Allen Bradley, Siemens, Schneider, Other)
Alternate HMI Brand (Allen Bradley, Siemens, Schneider, Other)
Type 4X or Type 12 Enclosure
Hinged HMI Cover
Interior Light
Alarm Beacon or Siren
Pilot Devices - Push Buttons, Switches, or Indicator Lights
Ethernet Switch - Managed or Unmanaged
Cooling - Fans, Vortex Cooler, or Panel Mount A/C
Panel Heater
Purge Systems
Other Approval Ratings

TYPICAL OF ALL ELECTRIC ACTUATORS SHOWN

ATMOSPHERE

ZI   HS   HS   ZSO   ZSC
      O/S/C L/R

E ─< 120V OR 480V
      (BY OTHERS)

PT

120V OR 480V ─< E   FT ─< 120V (BY OTHERS)
(BY OTHERS)

AIT ─< 120V (BY OTHERS)

DO

RECOMMENDED CONTROL PANEL

sMAC-PRO
  – 36x30x10 ENCLOSURE
  – PLCnext AXC F 2152 PLC
  – 10.2" TOUCHSCREEN HMI
  – ETHERNET COMMUNICATIONS
  – x16 24V DISCRETE INPUTS
  – x16 24V DISCRETE OUTPUTS
  – x40 4–20mA ANALOG INPUTS
  – x16 4–20mA ANALOG OUTPUTS

120V OR 480V ─< E   FT ─< 120V (BY OTHERS)
(BY OTHERS)

AIT ─< 120V (BY OTHERS)

DO

PROCESS CONTROL PANEL
sMAC-PRO

LOCAL PANEL   LOCAL PANEL   LOCAL PANEL

120V OR 480V ─< E   FT ─< 120V (BY OTHERS)
(BY OTHERS)

AIT ─< 120V (BY OTHERS)

DO

LONE STAR BLOWER

─< 120V (BY OTHERS)

─> SCADA

ETHERNET

AERATION BASIN

NOTES:
1. COMMON INSTRUMENTS SHOWN. ADDITIONAL
   INSTRUMENTS AVAILABLE.
2. AS DESIGNED, sMAC-PRO CAN SUPPORT UP TO 15
   AERATION BASINS OR AERATION ZONES.
   CUSTOMIZATION TO SUPPORT MORE IS AVAILABLE.

BUTTERFLY   CHECK   EXPANSION   INLINE   BLOWER
VALVE   VALVE   JOINT   SILENCER

E   PT   FT   AIT   DO

ELECTRIC   PRESSURE   FLOW   ANALOG   DISSOLVED
ACTUATOR   TRANSMITTER TRANSMITTER INDICATING OXYGEN
                                      TRANSMITTER SENSOR

LONE STAR
BLOWER & COMPRESSOR

DYNAMIC SPECIALTIES

TYPICAL P&ID
sMAC PROCESS CONTROL PANEL
COMPLETE AERATION CONTROL

					DATE	BY	
					MADE		

DRAWN: BCQ
CHK. DR.
DWG. NO. sMAC-PRO-P&ID
DATE: 6/15/21
SCALE: NTS

DATE / BY
DESCRIPTION
DATE / BY
APPROVED
REVISIONS

NO.