



Open Local Controller for Rotary Screw/Reciprocating Compressors

DESCRIPTION

AirStarPD™ is an aftermarket local controller designed to manage one Rotary Screw or Reciprocating compressor for energy efficiency and machine safety.

Built on the Allen Bradley MicroLogix 1100 PLC platform to Nema and NEC standards, all components are housed in a Nema 12 enclosure and offer six standard analog inputs (expandable to eighteen), ten digital inputs and six digital outputs.

The processor has a native Ethernet port that connects to the Color HMI with an optional 5 port Ethernet switch to any other Ethernet compatible device. Modbus communications are also available optionally.

The HMI will serve as the operator interface for all machine control functions, all set-point entry and modification, all variable monitoring and event history.

The data table is configured to 3PX standards for easy access from the 3PX-Backbone™ data concentrator for master control (sequencing) solutions and SCADA or remote monitor routing.

FEATURES AND BENEFITS

- **Elaborate** HMI functionality allows complete configuration, tuning, troubleshooting and operation of the compressor.
- **Familiar** Allen-Bradley modular PLC platform that can be easily supported. No proprietary parts are used.
- **Support** whether on-site, by phone or modem connection is prompt, effective and available around the clock.
- **Documentation** thoroughly addresses set-up, tuning, troubleshooting and operations.
- **Ethernet communications** are native and Modbus is optional for connection to any third party DCS, MIS or SCADA systems.
- **Plug and Play** kits available for fast installation in your existing enclosure.
- **Variable Speed Drive** control is optional for Rotary Screw Compressors.
- **Compatible** with 3PX-Backbone™ which permits electronic integration with numerous third party controllers.



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Open Local Controller for Rotary Screw/Reciprocating Compressors

I/O CONFIGURATION

Analog Inputs (4-20ma/1-5VDC) loop powered

1	Oil Pressure
1	Line (System) Air pressure
1	Discharge Oil Temperature
1	Discharge Air Temperature
1	Motor Current CT (Optional)
1	Spare

Digital Inputs (120VAC)

1	Main Motor Aux contacts
1	Fan Motor Aux contacts
1	Emergency Stop Pressed
7	Field Configurable Spares

Digital Outputs

1	Main Motor Run
1	Fan Motor Run
1	Common Alarm
1-4	Load Solenoids



BASE SYSTEM

The base system is defined as having six analog inputs (4-20ma or 1-5 VDC), ten digital inputs (120VAC) and six digital outputs which are dry contacts.

Additional variables for display, alarming, machine trip, and start-permissive can be added and configured in the field.

When requested, the analog inputs can be increased to eighteen.

Instruments are not included as part of the controller and may be provided separately or existing instruments may be reused.



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HARDWARE SPECIFICATIONS

Enclosure

Rating..... Nema 12
Dimensions..... 36h x 24w x 12d
Color..... Pebble Gray
Weight..... 115 lbs

PLC Components

Processor..... A-B MicroLogix 1100
Analog Inputs..... six
Digital Inputs..... ten
Digital Outputs..... six

Front Panel Devices

HMI..... 6" Color
Emergency Stop..... push button
Control Power..... selector switch

Communications

Ethernet..... port used for connection to HMI
Serial port..... used for connection to Modem
Modbus..... connection optional
Ethernet switch (option)..... connection to others

Power Requirements..... 120VAC 15 amp

OPTIONS

Enclosure/ System

Nema 4 Enclosure Rating
Purge-able Instrument Access Door for HMI

PLC Components

Analog Inputs..... up to twelve
Analog Outputs..... two

Communications

Modbus..... connection optional
Ethernet switch (option)..... connection to others

Control Scheme

Variable Speed Drive..... optional



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Machine Alarms, Trips and Start Permissives (Default)

Event	Start	Alarm	Trip
Sump Pressure	✓		
High Oil Temperature	✓	✓	✓
High Pressure		✓	✓
High Sump Pressure		✓	✓
Discharge Air Temperature			
Main Motor OL			✓
Fan Motor OL			✓
Motor Current (optional)		✓	✓
Emergency Stop Button	✓		

HMI Front Panel Variables

Various Timer Adjustments

Load Unload pressure set-points

All analog variable set-points for Trip High and Low values

All analog variable set-points for Alarm High and Low values

All analog variable set-points for Start Permissive High and Low

All device scaling values

ALARM, TRIP, START-PERMISSIVES

Any analog or digital input can be factory or field configured to be an ATS (Alarm, Trip or Start Permissive) from the HMI front panel.

High and low thresholds for each ATS can be entered as well. Any variable crossing its ATS threshold will cause an alarm banner to take the screen, require acknowledgement and be logged in the event history.

The table (left) shows the default configuration for AirStarPD ATS.



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