Ingersoll Rand

SYSTEM CONTROLS

Air System Manager (ASM) 3.0

System Description

The Air System Manager (ASM) provides integration, monitoring and control of all compressor room equipment. The ASM provides the capability to monitor and control centrifugal, rotary and recipro-cating compressors as well as additional compressor room equipment such as air dryers, cooling towers and water pumping systems. The ASM software features intuitive dashboards that allow users to quickly and precisely identity the status of your entire integrated air system, as well as the individual assets.

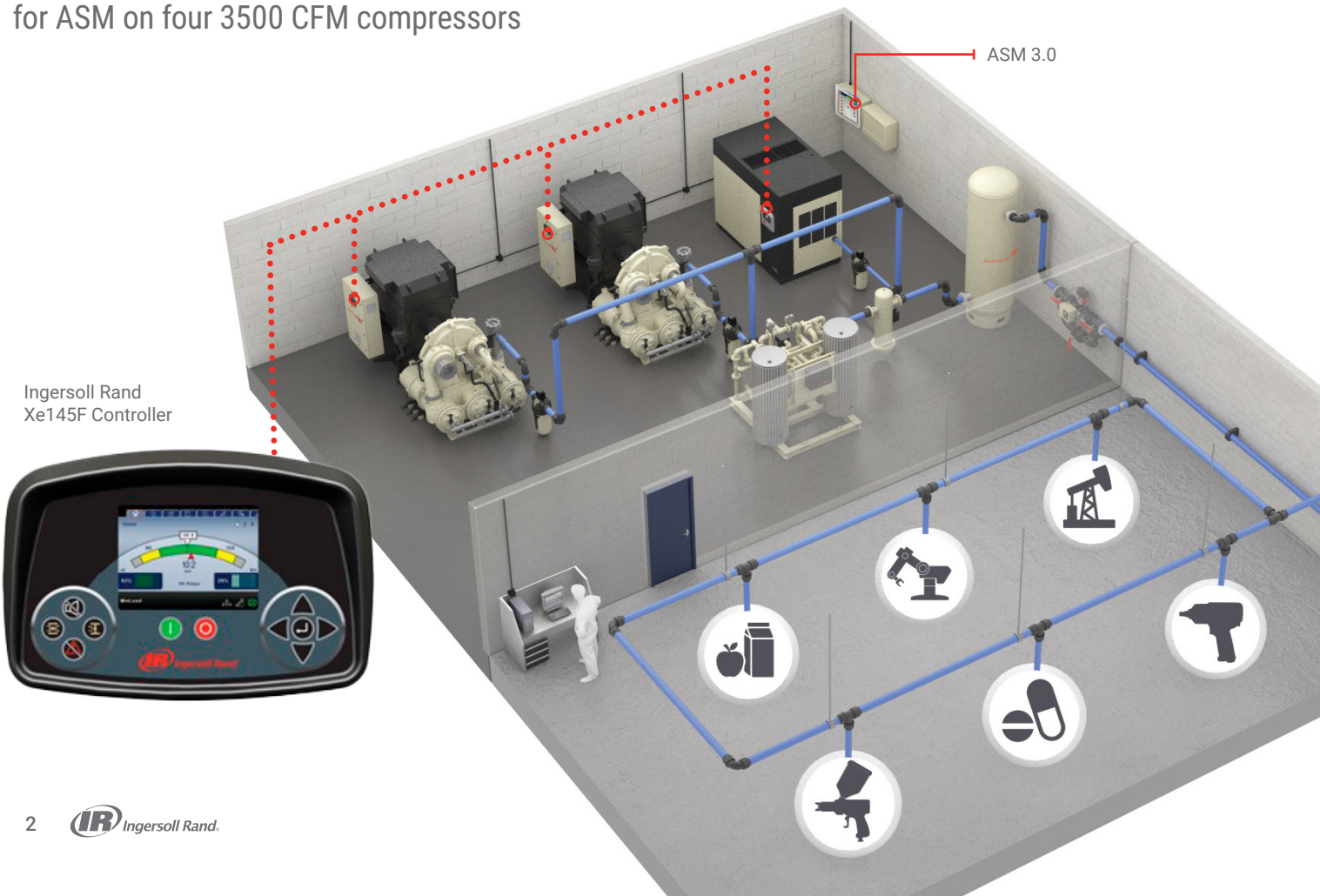
Major Advantages

- Integration of all air compressor and ancillary equipment
- Initiates load sharing operation to eliminate wasted energy
- Continuously monitors the system to identify equipment status
- Automatically starts and operates compressors and support equipment to match demand
- Automatically shuts down a compressor and support equipment if not required

Typical Annual Energy Savings:

$150,000

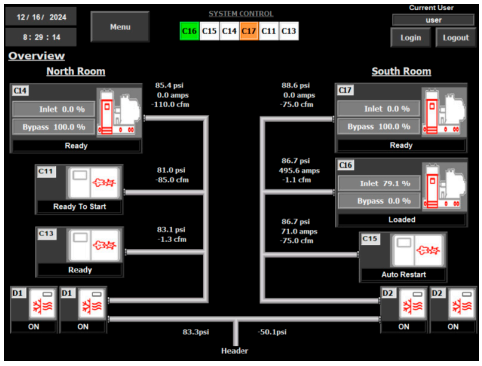
for ASM on four 3500 CFM compressors



Visibility into Your Entire System

ASM is an integration tool specifically developed to meet a wide array of system requirements. The ASM provides a customized solution to meet most compressed air system needs. The primary goal of the ASM is to maintain stable system pressure, to integrate, monitor and control all compressor room equipment, and to accomplish this task in the most energy-efficient method possible. The features and benefits of ASM are:

Quickly and precisely identify the status of individual compressors



Integrate, monitor and control all compressors in your system

Energy Management

- Maximize savings by operating the minimum number of compressors
- Reduce energy costs by utilizing available throttle range of each compressor, reducing bypass
- Reduce energy costs by utilizing individual compressor control schemes to shut down units

Information Management

- Real-time and historical data collection and trending
- Event and alarm logging with time and date stamp
- Protection through multi-level security
- OPC compliant

Flexible Platform

- Integration of all compressor types and sizes (centrifugal, rotary, reciprocating)
- Integration of ancillary equipment (dryers, pumps, cooling tower)
- Designed to specific customer requirements
- Supports special conditional logic

Graphical Interface

- Object-oriented graphics for appealing visual icons
- Dynamic icons react to actual conditions
- Data presented in tabular and graphical format

Remote Communications (optional)

- Interactive modem communications
- VNC and WebPortal access to HMI
- Local Area Network (LAN) compatible

Industrial PLC Based Platform

- CompactLogix controller and I/O modules
- Available upgrade to ControlLogix PLC and I/O
- PanelView Plus 15” touchscreen
- Full access to PLC logic, with the exception of the proprietary ASM algorithms

Full System Support

- Instruction manuals and drawings for each system
- Online help screens

PERFORMANCE IMPROVEMENTS	VALUE FOR YOUR BUSINESS
Energy Savings Publication—ASM 3.0 includes new instrumentation to monitor true power of each compressor. With this information, the ASM 3.0 will store the power consumption of the system and calculate energy savings viewable per day, per month, and per year.	This new feature will provide both continuous true power consumption readings with the additional benefit of actual, measured energy savings. The ASM 3.0 system will store and display the data, including energy savings and real cost savings.
Quick Start—The ASM 3.0 will start the next compressor based on rapid decay of System Pressure, System Pressure hitting the Critical Low Pressure limit, or a non-responsive compressor.	These new features prevent System Pressure dips in the customer air header which could lead to production disturbance or machine downtime.
Minimum Run Timer—a new timer has been included to prevent excessive compressor cycling, without forcing the unit to run unload-ed for extended periods of time.	This new feature is two-fold in nature. First, the ASM will prevent quick cycling of the compressor, eliminating too many starts per hour. Second, it allows the compressor to shut down sooner, preventing wasted power consumption.
Expanded Sequence Scheduler—The ASM 3.0 now includes up to 150 sequence scheduling triggers per year, up from the previous three triggers per week. Sequence triggers include the date, time, and required compressor sequence.	With this new feature, the user can schedule compressor sequence changes around weekly schedules, holidays, plant downtime, or compressor maintenance schedules.
Expanded Security Levels—ASM 3.0 now has the ability to create up to six different access levels with varying and increasing authority, compared to the single level in the previous version.	This feature gives the customer the opportunity to create increasing access to plant personnel and management, as well as preventing changes being made to the system by non-authorized team members.
Remote Connectivity—For built-in visualization, there are two preferred methods: VNC and WebPortal. Both of these functions can be configured easily and give the user the ability to have the same interface as standing in front of the HMI. • For service and troubleshooting, a cellular modem is an option that allows for service and engineering to connect to the system to observe or make minor modifications. • For data collection or in plant monitoring, any number of communication modules are available. These modules are selected based on the customer's required protocols. A full PLC tag list is included.	All of these offerings provide multiple and varying methods to collect data and monitor the entire system. Remote connectivity by the customer to their assets is critical in today's data driven world. Please consult the Control Account Manager in order to determine the best solution to meet the customer requirements.
System Performance Manager Powered by Ecoplant—Optional external web access upgrade for the ASM 3.0. In addition to the local PC and WebPortal, customers will be able to access their ASM 3.0 anywhere, through our secure Ecoplant web server. Using any web browser, users can stay up to date with a live view of their equipment, historical data, graphs, usage trending, and the ability to compare multiple time windows.	This new feature gives the customer all of the web based visualization of the system, while leaving the compressor control and load-sharing in the local PLC controller. Customers can see their entire system status at a glance. Data archives can also be downloaded in CSV format.
Synchronized Real-Time Clock and Improved Event Log—The time clocks of the PLC, HMI, and compressor controllers are all coordinated. The Event Log includes more data per entry.	Additional data, with updated descriptions, and coordinated timestamps between local controllers and the ASM 3.0 simplify the effort to troubleshoot problems.

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