SENSIA
Rockwell Automation + SLB

Efficient control
of multi-well pads for the
entire production lifecycle

IntelligentCore Suite

INTELLIGENT ACTION

Bring Intelligent Action and industrial-level efficiency to your multi-well pads

Control system changes and modernization throughout the well lifecycle can be both a time consuming and costly process to design and test.

Meaning many operators are looking at the bigger picture to prioritize flexible, scalable and reusable solutions that enable them to design once and build many.

Our IntelligentCore suite of production applications have been engineered to bring you unparalleled control over multiple wells, lifecycles and production analysis – which can be implemented throughout all of your assets.

A true end-to-end digital multi-well pad production automation solution, the IntelligentCore suite can control multiple gas lift and plunger lift wells as the lifecycle demands. Flexible, seamless to integrate and easy to reconfigure – the IntelligentCore suite has been designed to scale right alongside your ambitions.

Pre-engineered modules make getting started seamless
You'll find that our library of applications will help you grow your unique control and automation strategy – whether that's gas lift or plunger lift. Our pre-engineered applications, reusable code modules and an consistent operator interface make integration and application effortless. You can also customize your own projects to integrate with other artificial lift control systems like RPC or ESP to gain further efficiencies.

Take the next step on your automation journey

A Sensia first, powered by Rockwell Automation

Sensia was born from bringing together the best of the best. Unifying the deep oil & gas domain knowledge of SLB and the automation excellence of Rockwell Automation to create game-changing oil & gas innovations.

IntelligentCore has been built on the Rockwell Automation field-proven and industry-leading ControlLogix PLC and HMI architecture to bring you best-in-class industrial automation.

Benefits

+ Enjoy effortless edge control
+ Increase throughput and uptime
+ Reduce total cost of ownership
+ Make edits while online
+ Expand and scale – your way

IntelligentCore Suite

Pre-engineered applications for seamless integration

Our IntelligentCore suite brings you a set of pre-engineered, pre-written pre-tested applications that allow you to get to first production faster.

Thanks to our flexible to deploy pre-programmed applications, Sensia can help you architect a system that is fit to scale to your requirements now, while allowing for growth over time. Choose only the applications that you need at the moment and add more later as new wells and equipment are added over time.

Powering your multi-well production with one controller and program file that includes all process control logic and IntelligentCore Activations.

Explore the potential of our four pre-programmed applications

+ Cause & Effect Charts – Excel based configuration tool that can configure up to 25 charts with 30 inputs x 16 outputs.

+ Automatic Well Testing – configurable well test sequences to schedule multiple wells to test through a separator.

+ Gas Lift – automatic unloading and flow injection control with tubing and casing alarm overrides of the flow injection valve.

+ Plunger Lift – intermitter and plunger control with multiple settings for open and close criteria of the sales valve and optimization of plunger cycles.

SAVE UP TO

30%

on the engineering labor of designing, building and testing of a control system with our pre-programmed applications.

Typical Architecture

Main control panel

Wellhead remote I/O

Separator remote I/O

Wells

Separators
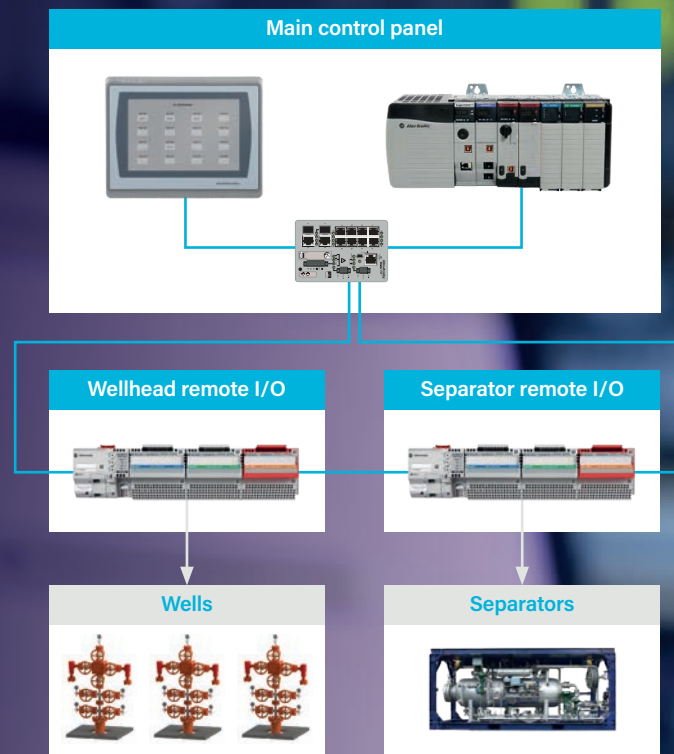
# Cause & Effect charts

Get the full operational picture.

Communicate directly from our Excel based tool to upload and download runtime configuration. Perform backup operation, and compare online v.s. offline configurations with built in chart comparison tools.

Utilize pre-built HMI template to view first out notifications and identify which instrument on what equipment caused a shutdown.

- + Provides accurate documentation of runtime C&E logic
- + Excel configuration tool writes configuration directly to PLC
- + 25 logic charts with 30 causes & 16 effects each
- + I/O descriptions, alarm set points and tag usage documentation
- + Dozens of useful configuration tools built into the configuration tool: Copy, Paste, logic validation, upload, download, compare
- + HMI display is read only – no configuration available
- + HMI displays chart logic, I/O information
- + Easily determine First Out shutdowns
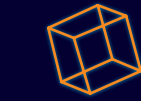
25
LOGIC CHARTS
of
30
INPUTS
by
16
OUTPUTS
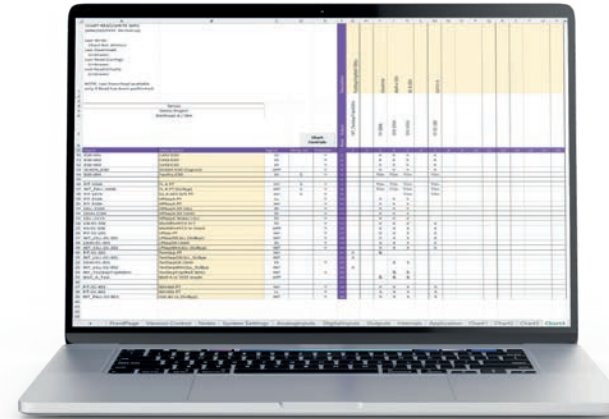
Offline Configuration Tool

Runtime Monitoring

Automatic well testing

Gain well production knowledge.

Seamlessly control well test schedule, configure test timing and capture test report data for up to 16 wells.

Operation Modes

+ Single well test
+ Automatic test sequence

Well Test Control

+ Purge time, test time, well testing sequence
+ Enable or disable well on sequence
+ Start Test, Hold Test, Abort Test
+ Test well out of sequence
+ Customizable well test auto accept criteria

Test Header Sequencing

+ Control well test actuators to ensure the correct well is flowing through the separator
+ Control Mulit-selector valve, or individual valves
+ Up to 16 wells per test separator
+ Up to 4 well test separators per controller
+ Last 5 well tests from each well stored in the controller

Example Operation Display
View the status of well test for all wells and the current test data.

Example Report Display
View the last 5 well tests of each well.

Gas lift

Enable autonomous unloading, injection and analysis of up to 16 gas lift wells in a single controller.

Control your gas lift injection valve and perform automatic unloading of your gas lift well based on API Gas Lift Handbook recommendations.

Autonomously unload a well

+ Using API Handbook recommended practice
+ Detect U-Tube through top valve
+ Detect maximum depth and switch to continuous injection control

Control gas lift injection at desired setpoint

+ Maintain injection flow setpoint
+ Override flow injection when Injection Pressure or Production Pressure exceed safe limits

Monitor and report injection flow total

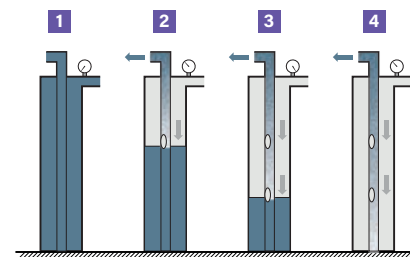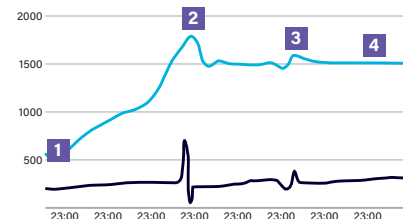+ Injection Pressure & Production Pressure
+ Annulus valve information
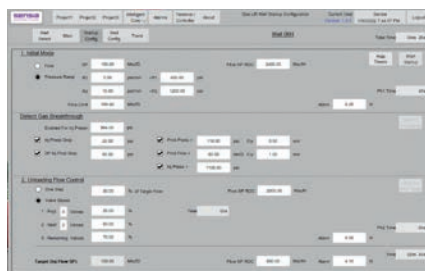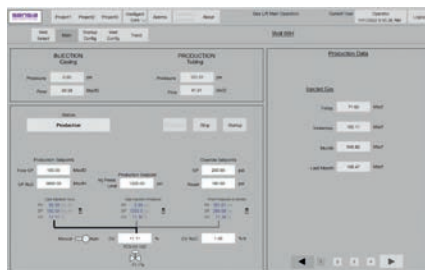
Startup mode screen
Choose how to unload a well, they can choose either static flow injection or pressure ramp control.

Gas Lift main display
Start and stop the injection to the well. Tubing and casing override control can also be configured.

Autonomous unloading procedure
The Gas Lift application unloads liquid from the injection space to ensure annulus valves are not damaged – ramping injection rate as it detects valves being uncovered.

SAVE UP TO

8hrs

when starting up a loaded well, the IntelligentCore algorithm autonomously unloads liquid out of the injection space by following the API recommended practice.

Plunger lift

Optimize based on plunger cycles – with up to 16 plunger lift wells per controller.

Control intermitter and standard plunger wells with customizable open and close criteria and optimization based on plunger arrival times.

Well Types
+ Intermitter, Intermitter with Criteria, Plunger

Well Operation
+ Stop, Automatic, Force Open, Force Close

Sales Valve Operation
+ 7 open criteria + 1 custom criteria
+ 6 close criteria + 1 custom criteria
+ Select 1 open/close criteria for cycle optimization
+ Selectable fallback criteria

Reporting
+ Cycle logs (56), Daily logs (9), Monthly (2), Plunger Arrival Statistics
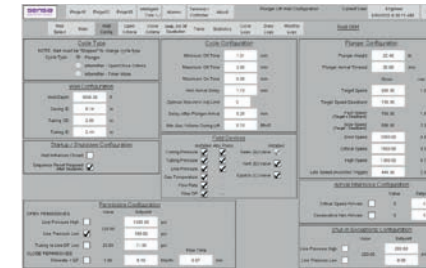+ Historical trend display on HMI
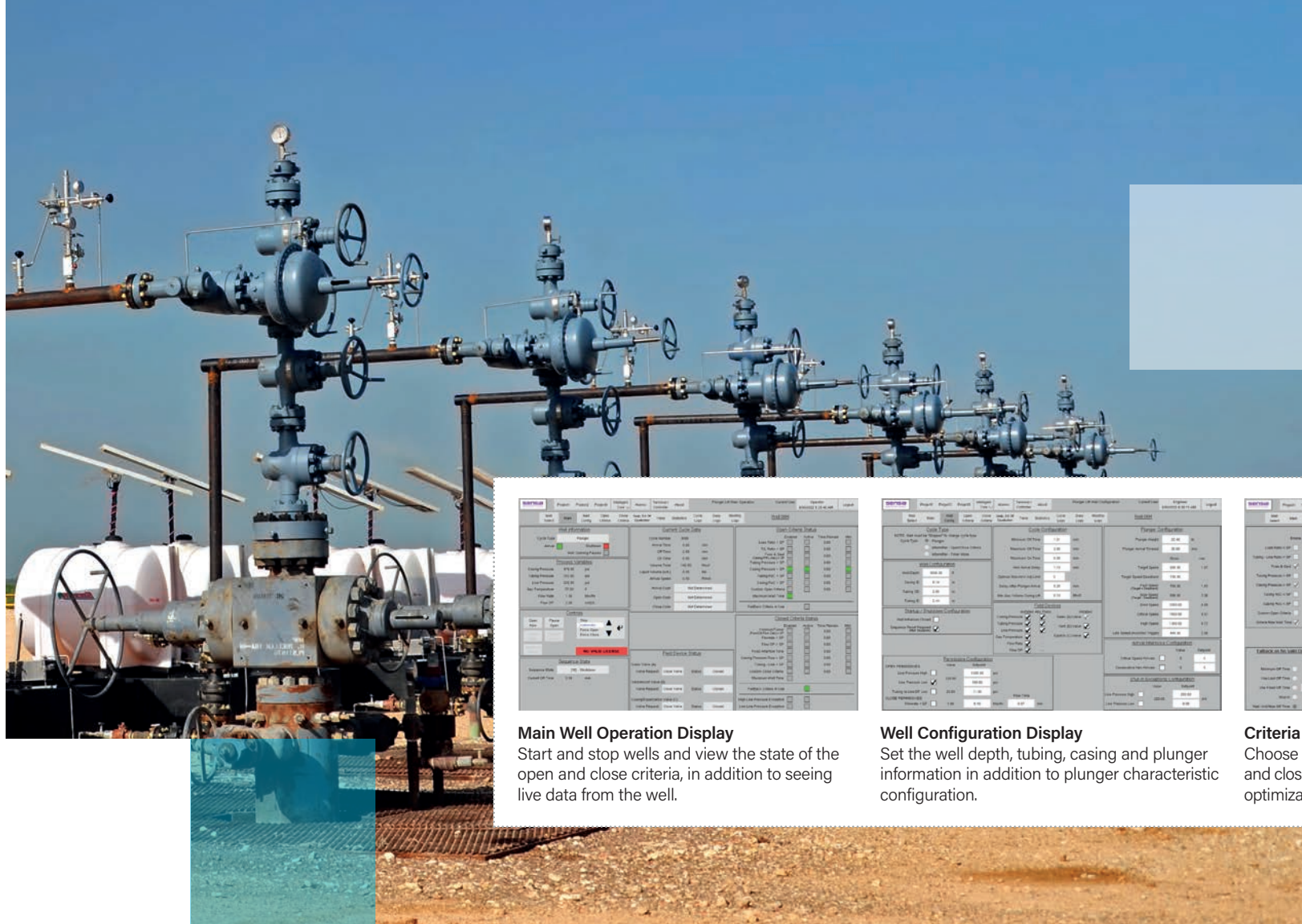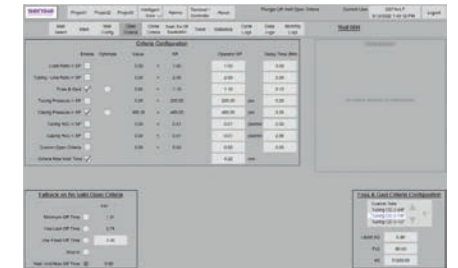
16
PLUNGER LIFT WELLS PER CONTROLLER

Main Well Operation Display
Start and stop wells and view the state of the open and close criteria, in addition to seeing live data from the well.

Well Configuration Display
Set the well depth, tubing, casing and plunger information in addition to plunger characteristic configuration.

Criteria Display
Choose when valves open by configuring open and close criteria. One criteria can be selected for optimization when operating in plunger mode.

Solving challenges from the reservoir to refinery. One challenge at a time.

We collaborate with all stakeholders to make the production, transportation and processing of oil & gas simpler, safer, more secure, more productive and better understood from end-to-end. Sensia is making the advantages of industrial-scale digitalization and seamless automation available to every oil & gas company.

Now every asset can operate more productively and more profitably.

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