



+ Oil & gas process safety solutions

CLOSING THE GAP BETWEEN PROCESS SAFETY
AND OPERATIONAL EFFICIENCY

+ + + + + + + +

sensia

Rockwell Automation + Schlumberger

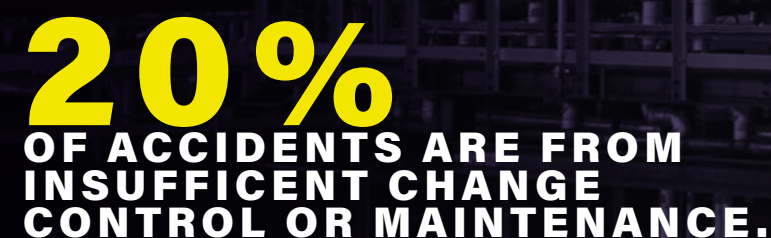
Protect operational efficiency.

By positioning process safety as a strategic resource – Sensia connects process safety and operational excellence to protect business performance, reputation, operational uptime and efficiency.

It's not uncommon to discover a disconnect between process safety performance and day to day operations. Risk increases between planned hazard review periods leading to lagging safety indicators and increased safety risks. While competing pressures and priorities push operational needs and process safety practices even further apart.



44%
**OF SAFETY INCIDENTS ARE
 A RESULT OF INADEQUATE
 SPECIFICATION.**



20%
**OF ACCIDENTS ARE FROM
 INSUFFICIENT CHANGE
 CONTROL OR MAINTENANCE.**



CLOSING THE GAP WITH REAL-TIME OPERATIONAL PROCESS SAFETY

We understand that safety is most effective when it is fully integrated with operational process over time. Sensia closes the gap between operations and process safety to continually evaluate and reduce risk from planning to operations.

The Sensia real time safety approach overcomes organisational and operational barriers to enhance collaboration – keeping pace with operational demands to enable operators to maintain the ability to always effectively react to potential hazards.

By effectively monitoring the performance of the process safety system in real time, you can ensure you are operating with the required safety integrity at all times. Plus, our process safety approach guarantees exceptional levels of security – every step along the way

DON'T PLAY CATCH UP WITH PROCESS SAFETY

Whether you need to scale mature assets up or down without compromising safety or get process safety right, right from the start – Sensia has the experience and domain expertise to keep your operation on track. Unlike other process safety providers, we are just as effective at managing the unique challenges of aging equipment as we are with phased development from the very start of a project.

GO FASTER. AT SCALE. WITHOUT COMPROMISE.

Our strategic approach to process safety has been carefully designed to support your business objectives by delivering maximum value for the lifetime of the asset. By empowering you to operate faster, safer, at scale and without the fear of catastrophic failure – our solutions have been created to seamlessly scale up or down with your operation. Without compromising safety. Ensuring a smart CAPEX process safety investment that will reduce total cost of ownership of the plant over time.



+ Solving process safety challenges. From wellhead to refinery.

Our team of domain experts integrate digitally enabled process safety solutions alongside intelligent automation to help you minimize risk, improve efficiency and enhance performance. Operation-wide.

Sensia delivers engineered modular and turnkey automation solutions to manage costs, maximize up-time and extract the most value possible from new and existing assets. Maintaining the safety of your personnel, assets, and the environment in which you operate in the process.

Our process safety experts take the time to fully understand your process, control and safety needs to engineer scalable solutions that reduce safety shutdowns, improve performance and help oil & gas operators remain competitive.

SCALE MATURE ASSETS UP OR DOWN WITHOUT COMPROMISING SAFETY

Our domain experts understand the unique connectivity, reliability and security challenges posed by aging equipment. Whether you're looking to upgrade production, transportation or processing to meet new standards, upscale, downsize or overcome obsolescence – we can work closely with you to integrate the most effective off-the-shelf or bespoke engineered solutions.

+ Get process safety right from the start

Changing standards. Reducing emission targets. Catastrophic incidents. The earlier you engage our team, the more effective we can be. Early engagement and phased development can help to maximize your opportunity to avoid costly setbacks and reduce total cost of ownership of your plant over time. Meaning getting process safety right from the start really does pay - whatever your production, transportation or processing challenge.



PROCESS SAFETY FOR OIL & GAS PRODUCTION

- + Wellhead safety (including HIPPS, F&G)
- + Tank batteries overfill prevention
- + Burner management
- + Fire and gas systems
- + HIPPS systems
- + Processing facilities SIS
- + Offshore platforms ESD, PSD, Fire & Gas
- + Shutdown relay panel replacement
- + Non-compliant safety system migration
- + Obsolescent system migration



PROCESS SAFETY FOR OIL & GAS TRANSPORTATION AND STORAGE

- + Valve station shutdown
- + Small pump / compressor station ESD
- + Fire and Gas
- + Medium to large Pump / Compressor station ESD
- + Shutdown relay panel replacement
- + Non-compliant safety system migration
- + Obsolescent system migration



PROCESS SAFETY FOR OIL & GAS PROCESSING

- + Single Unit SIS
- + Multi-Unit SIS
- + Medium to large SIS
- + HIPPS
- + Fire and Gas
- + Shutdown relay panel replacement
- + Single unit SIS
- + Non-compliant safety system migration
- + Obsolescent system migration

+ A truly connected approach to process safety

Effective, efficient and economic process safety is an end-to-end journey. That's why we're dedicated to delivering secure solutions all the way from wellhead to refinery.

Analyze

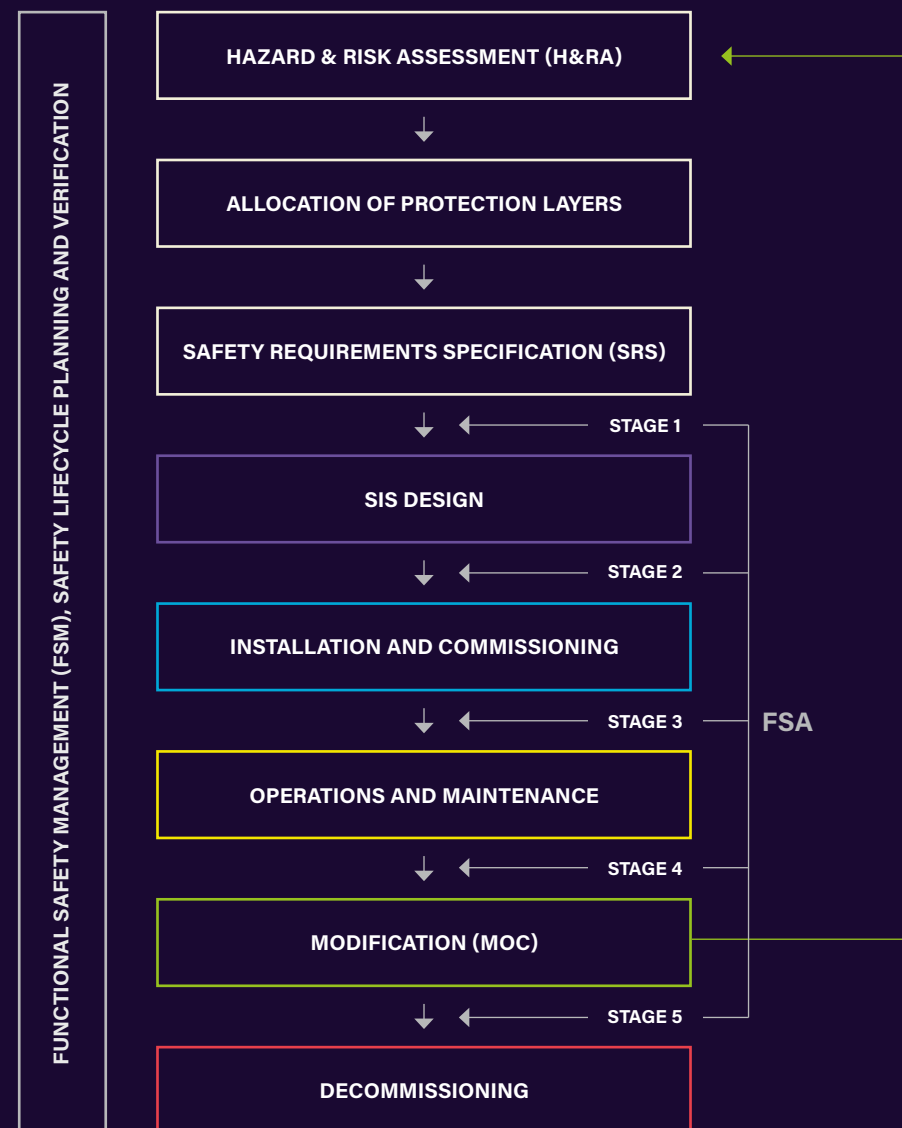
- + Identify Hazards, Define Consequences, Assess Risk Reduction Targets and Identify Safeguards
- + Allocate identified Safeguards to Protection Layers
- + Define Safety Instrumented Function (SIF) Operation and Function.

Realize

- + Select the Devices for each SIF (Sensors, Logic Solver and Final Elements), Hardware/ Application Software design and Implementation
- + Install, Commission and Validate the SIS

Operate

- + Operate, Maintain (Proof Testing, Life Cycle Management, etc.) the SIS and Monitor SIS Performance
- + Plan and implement modifications, returning to the H&RA if the proposed modification impacts Functional Safety.
- + Decommission the SIS (or SIF) if the Safety Functionality is no longer required and planning



Analyse. Realize. Operate.

This consistent, three-tiered approach enables our oil & gas domain experts to identify and implement the most effective way to close the gap between operational efficiency and process safety. With minimal interruption or downtime for your operation.

Explore our full range of process safety solutions

Process safety solutions from Sensia have been developed by the best of the best to help you solve challenges all the way from wellhead to refinery. One challenge at a time.

Each of our process safety solutions has been carefully designed to be irreducibly simple. From seamlessly integrating with your legacy systems to adding intelligent, reliable, automation for a smooth operation that keeps you in touch with your safety status – our approach gets you on the right path early. And keeps you there.

+ SAFETY LIFECYCLE SERVICES

As a world leader in process safety solutions, we have a team of knowledgeable and experienced engineers who understand the entire process safety lifecycle. Years of experience in the design, deployment and maintenance of process safety systems enable Sensia to help you get process safety right from the start and keep it that way – throughout the entire lifecycle.

+ CONNECTED SAFETY INSTRUMENTED SOLUTIONS

Sensia positions process safety as a strategic resource – connecting process safety and operational excellence to protect business performance and reputation. Our process safety approach helps maintain operational uptime and efficiency without compromising safety.

+ Safety lifecycle services

Whether you're looking to support your risk assessment or process safety planning, generate sound safety specification or design and deploy your safety system – we can help. Empowering you to get it right from the start and functioning at its best, long into the future.

Safety is most effective when it is fully integrated with operational process over time. Sensia closes the gap between operations and process safety to continually understand and reduce risk – from planning to operations.



SENSIA ICS TRIPLEX LEGACY PRODUCT SUPPORT AND MAINTENANCE

Upgrade options are available on most ICS Triplex legacy process safety systems – enabling customers to replace the processors only. This approach retains the installed I/O and field wiring, with the option to upgrade to meet operational requirements later. This valuable option offers enhanced capabilities, minimal downtime, and can be executed with the existing systems live in some cases.

For customers of the Plantguard systems and modules, we have a direct, factory-set replacement. Simply install the Alternative Trusted® Modules as you would a regular spare replacement. In doing this, you maintain full product support.

In addition, we can provide a range of support services, including: technical, product, and system support, product repairs, routine and special maintenance, system modifications, extensions, and upgrades. A system upgrade can be simple when the originally installed legacy I/O and field installations are retained.

CASE STUDY

Repsol SIS migration

UNEARTHING OPERATIONAL BENEFITS ON A GLOBAL SCALE

CHALLENGE

- + Replace existing safety instrumented systems (SIS) at two production facilities to comply with new, internal safety standard
- + Reduce risk of downtime associated with aging equipment and improve visibility into system performance

SOLUTION

- + SIS provides easy integration with existing installed base in SIL 2 application
- + System alarm and event capabilities provide better visibility into the systems' performance and downtime issues

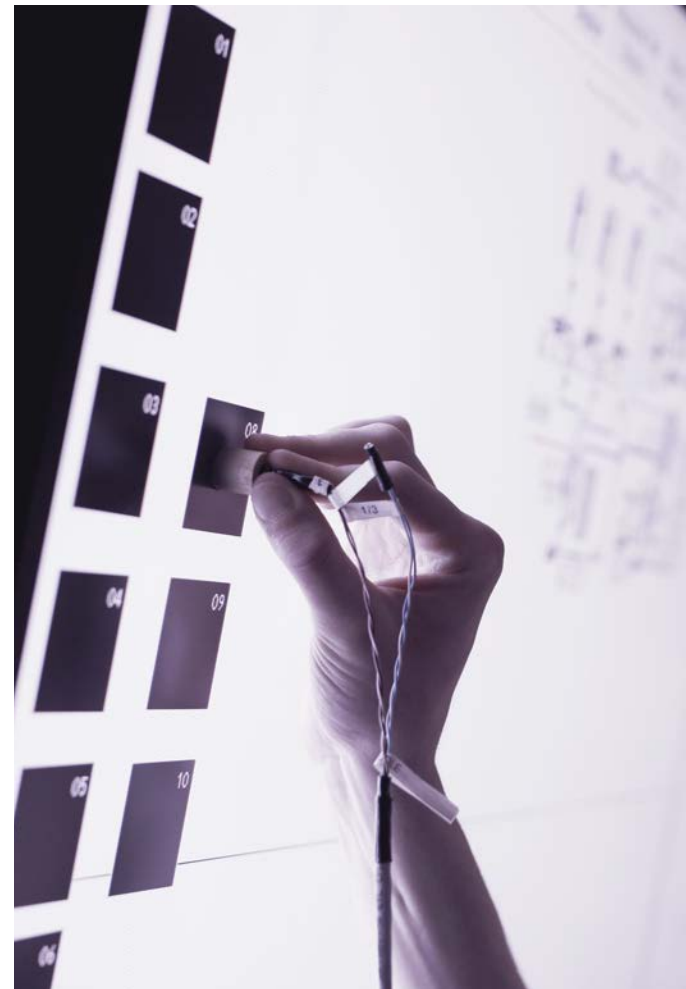
RESULTS

- + SIS complies with Repsol's new, corporate safety standard
- + Migration to new technologies reduces risk of downtime
- + Reduced spare-parts inventory by standardizing on one platform
- + Improved system visibility helps operators more quickly troubleshoot and predict failures
- + Ability to meet higher SIL requirements provides greater system flexibility

+ Sensia process safety

The safety and productivity of people, machines, and the environment is a key element of any sustainable business.

After all, studies show that best-in-class performers achieve higher overall plant efficiency – with less unscheduled downtime and safer operations – without compromising performance. Our best in class process safety knowledge and expertise can help you develop safer, more productive solutions.



MEET YOUR OPERATIONAL GOALS. SAFELY.

By bringing together our range of process automation solutions with our team's deep process safety expertise – we have all the tools you need to optimize plant performance while meeting your operational and safety goals. Giving you the power to meet operational targets without compromising your people's safety.

A FULLY INTEGRATED APPROACH

Having multiple systems to control your process, manage electrical devices or provide safety in your plant makes it more difficult for any operator to simultaneously maintain tight and effective control of all processes while maximizing output. With Sensia you can rely on completely integrated systems to provide complete visibility into your plant – allowing full control of all your assets while maintaining the highest levels of safety. All in one operating environment.

CASE STUDY

E&P overcome obsolescence

IMPLEMENTING TRUSTED SOLUTIONS TO RAISE STANDARDS

CHALLENGE

- + The delivery of an upgraded control and safety system with minimal disruption to operations and, critically, they had to carry out all upgrade activities in a safe manner.

SOLUTION

- + Trusted TMR ESD controller
- + Trusted TMR F&G controller

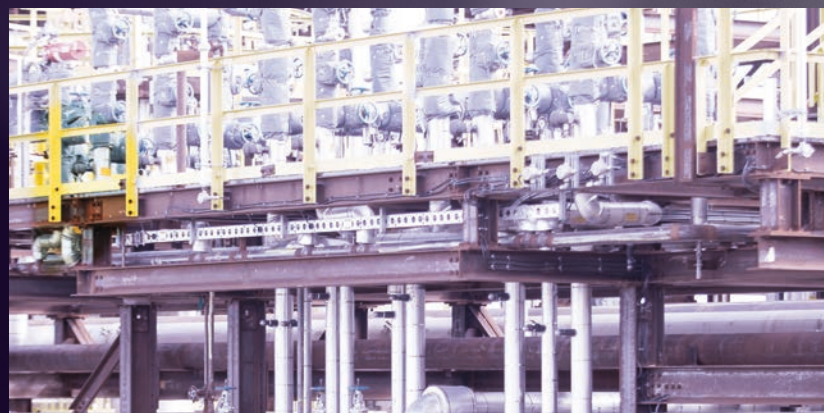
RESULTS

- + Concurrent installation and effective use of scheduled downtime meant there was negligible impact on production
- + Remote platform control
- + Commonality of spares, maintenance and vendors across sites
- + Utilisation of existing equipment, such as safety system infrastructure and cabinets
- + Nominated for HSE safety award

+ Connected safety instrumented solutions

Minimize risk, shorten lead times and cut costs with our irreducibly simple integrated oilfield automation and SCADA solutions for process control, motor control, safety and asset management.

By taking a fully integrated approach over time, we close the gap between operations and process safety – keeping pace with your operational demands to effectively react to potential hazards. Helping you meet your operational goals without compromising on process safety.



SCALABLE FAULT-TOLERANT SAFETY INSTRUMENTED SOLUTIONS FOR EVERY SIL LEVEL

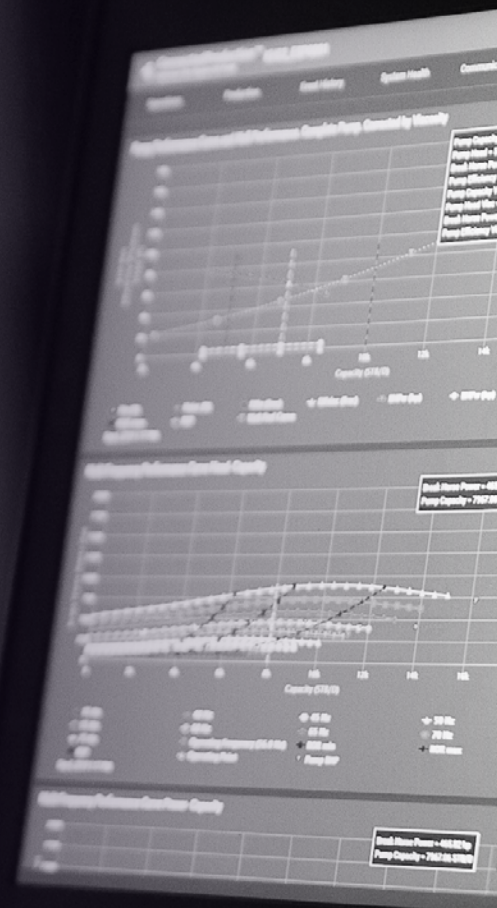
AADvance® control system delivers unparalleled performance and value as well as a truly distributed process safety architecture. A cost-effective system – it can be scaled up or down to meet the requirements of multiple SIL levels. Allowing you to satisfy SIL 1 through SIL 3 in the same control strategy.

TRIPLE MODULAR REDUNDANCY FOR LARGE PROCESS SAFETY SYSTEMS

Trusted* is a technology with a Triple Modular Redundant (TMR) architecture – providing the optimum combination of high availability (minimizing spurious trips) and safety integrity (maximizing PFDavg capability). Certified for use in applications with Safety Instrumented Functions (SIF) up to SIL 3.

SAFETY CONFIGURED PLC FOR SIL 2 SAFETY FUNCTIONS

The ControlLogix® SIL 2 solution makes a safety configured and certified logic solver available for fail safe or low SIL 2 safety functions where the process owner prefers the use of a standard off the shelf PLC platform.



CASE STUDY

Ensuring minimal shutdown

RETROFITTING AND UPGRADING PLC FOR IOCL INDIA

CHALLENGE

- + Retrofit & upgrade of the PLC system for Critical Refinery of Crude Dist. Unit (CDU) with a limited shutdown period.
- + As the customer wanted to upgrade the system to SIL3 through open tender, the existing installation of Honeywell FSC was at risk.
- + Following technical qualification, the project was to be awarded to the lowest price bidder with a proven track record.

SOLUTION

- + AADvance SIL3 system with 450 IO for two plants CDU III & VBU furnace along with SOE station and interface with ABB DCS over redundant Modbus communication.
- + Detailed engineering, FAT, installation, commissioning, SAT and handover.

RESULTS

- + Completed the replacement of existing system panel and erected new panel with termination and commissioning during the scheduled shutdown period – with smooth startup.
- + Received a customer appreciation letter citing excellent engineering, project management & execution.

CASE STUDY

Implementing large scale SIS

EXPORT TERMINAL EXPANSION FOR SUNOCO LOGISTICS

CHALLENGE

- + Deliver a large-scale PlantPax ICSS to Sunoco Logistics for the NGL export facilities under construction at their Marcus Hook terminal in PA.
- + Work closely with S&B Engineering (EPC) and supervise scope of work for three different systems integrators – ensuring seamless project execution.
- + Design a secure and robust process network.
- + Integrate phase two of the terminal expansion while first phase is delivered by different contractors.

SOLUTION

- + 15,000 I/O PlantPAX ICSS for NGL export terminal expansion.
- + 2 x AADvance SIS for Fractionation Plant (300I/O total).
- + 6 x AADvance SIS for terminal expansion – ME-2 (350 I/O total).
- + Overall system design including network design, implementation of cybersecurity policies and server virtualization.
- + Cabinet build for compressor and PCS being programmed by system integrators.

RESULTS

- + On-time start-up of export terminal expansion – ensuring export contracts are fulfilled and ships are loaded with product.
- + Coordination of internal (SSB) and external resources (system integrators) in close cooperation with (3) EPCs and end-user to ensure compliance with technical and performance requirements.

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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Add intelligent action to your oil & gas solutions

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