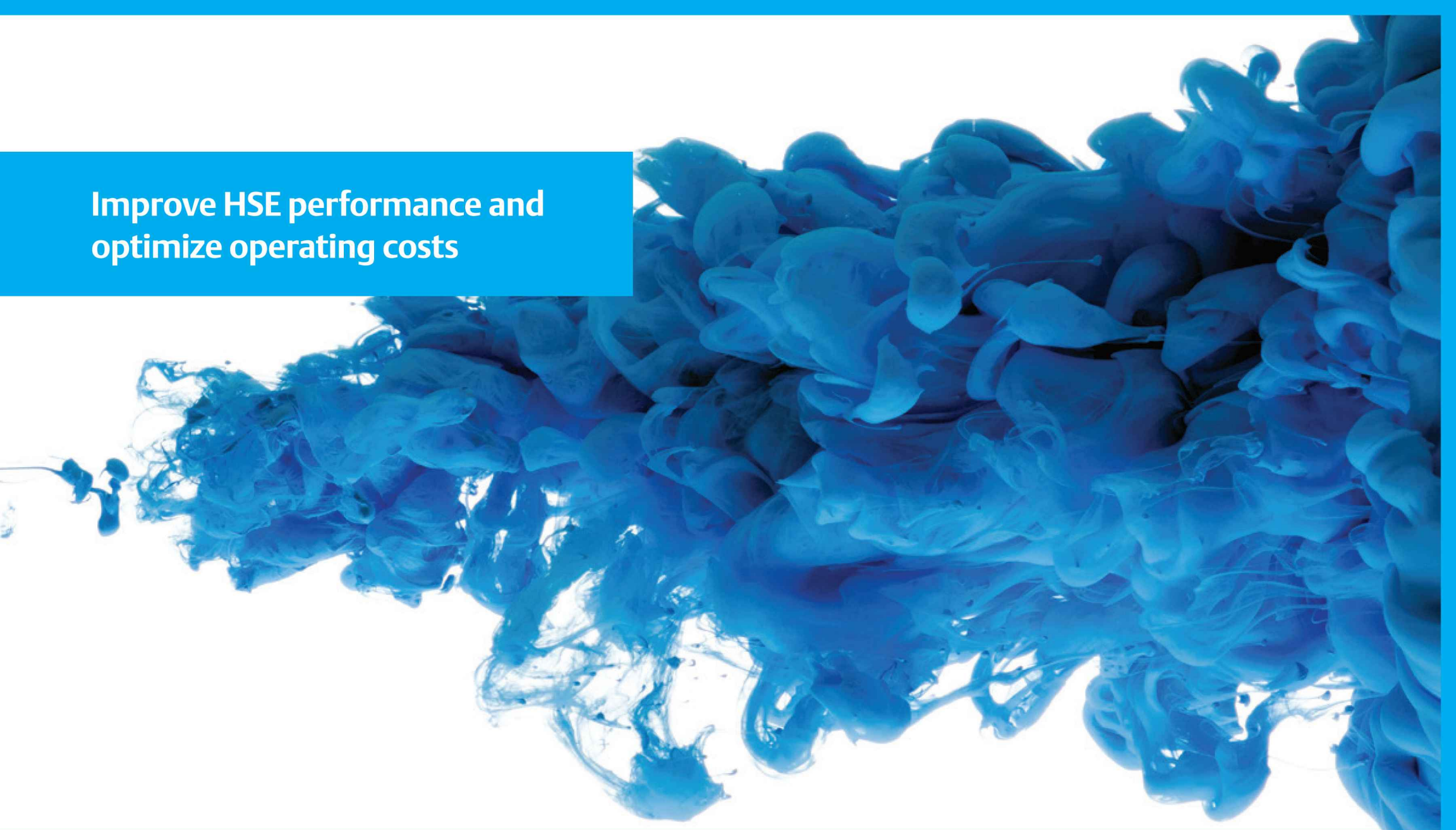


An abstract, high-contrast image of a blue ink splash or liquid cloud against a white background. The splash originates from the left and spreads towards the right, with intricate, swirling patterns and varying shades of blue, from light to deep navy. It fills the upper two-thirds of the frame.

**Improve HSE performance and
optimize operating costs**

Automated Odorizing Systems

Proven solutions to help you overcome the most difficult challenges while improving the efficiency of odorant injection systems





Operation costs increase due to safety risks, low HSE performance, and regulatory non-compliance

Natural gas is odorless, hence it is vital to odorize it for leak detection.

Non-odorized or insufficiently odorized gas can potentially cause safety risks and service interruption, resulting in fines due to non-compliance.

Controlling the quantity of injected odorizer and guaranteeing the correct concentration of odorizer in the gas is a complex process, and can lead to various problems.

Unplanned maintenance, increased injections, and damage to equipment can significantly increase operating costs.

Unplanned maintenance involves sending personnel to the construction site, with possible shutdown and increased costs.

“Spending on HSE alone in the global O&G industry will jump 60% to hit \$56 billion in 2030.”
– Lux Research, 2013



“The odorant injection is considered to be the simplest method of leak detection.”
– PHMSA, 2002



“The percent of releases in 2013 due to incidents caused by natural or outside forces, or 3rd party excavation damage, was 55%.”
– Assoc. of Oil Pipeline Operators, 2013



Accurate and reliable odorant injection systems

Emerson's automated odorant injection systems help customers meet their natural gas odorization objectives, by improving HSE performance for environmental protection, ensuring local regulations compliance and reducing operating costs.

Adequate safety and back-up systems ensure safe operation while providing the correct dosage of odorant.

Improve HSE performance

- Automated odorant injection systems
- Local and/or remote control
- Interface is compatible with existing supervisory systems
- Real-time alarms
- Easily accessible and modifiable
- Uniform distribution of liquid in the pipeline.

Reduce operating costs

- Reduce maintenance by using solenoid valves instead of dosing pumps
- Modular design for scalability
- Reduce odorant consumption, avoiding over-odorization
- Reduce labor on the construction site



Compliance to Directives

- Accurate odorant dosing to respect the ranges imposed by directives
- Damage to equipment, emergency calls and insufficiently odorized gas can be avoided
- Optimization of odorant consumption

Service Continuity

- Back-up systems:
 - Absorption type odorization
 - Second injection with Master and Slave panel

The DO200 system is at the center of Smart Grid management

National energy companies who have evaluated the quality of supplied services, have concluded that the handling of the odorization process can have a significant impact on operating costs.

Traditional technologies such as absorption systems or dosing pumps can cause several issues such as:

- Injection of an incorrect quantity of odorant in the system
- Unplanned downtime
- Costly service interventions in the field

The DO200 utilizes an injection system of odorant based on the use of solenoid valves which automatically maintains the correct concentration of odorant in the gas.

This provides greater ease of use, reduces complexity and maintenance, and allows for the option to control the system remotely.

The solenoid valves provide accuracy in the entire range of system flow rates.



Why utilize the DO200 system

The DO200 system has various advantages over the traditional pump system:

- Eliminates the need for external energy or electricity
- Needs less inventory of spare parts versus the traditional pump system
- Easier maintenance of the solenoid valve
- Verification of the correct odorant concentration at each injection
- Emptying of the pneumatic panel from the odorant liquid for “clean” maintenance operations
- Provides level measurement of the storage tank without installing additional instrumentation
- Remote system control without additional software due to integrated web server
- Interface with superior systems (SCADA, DCS) with MODBUS TCP/RTU communication protocol



Fully automated odorant injection systems

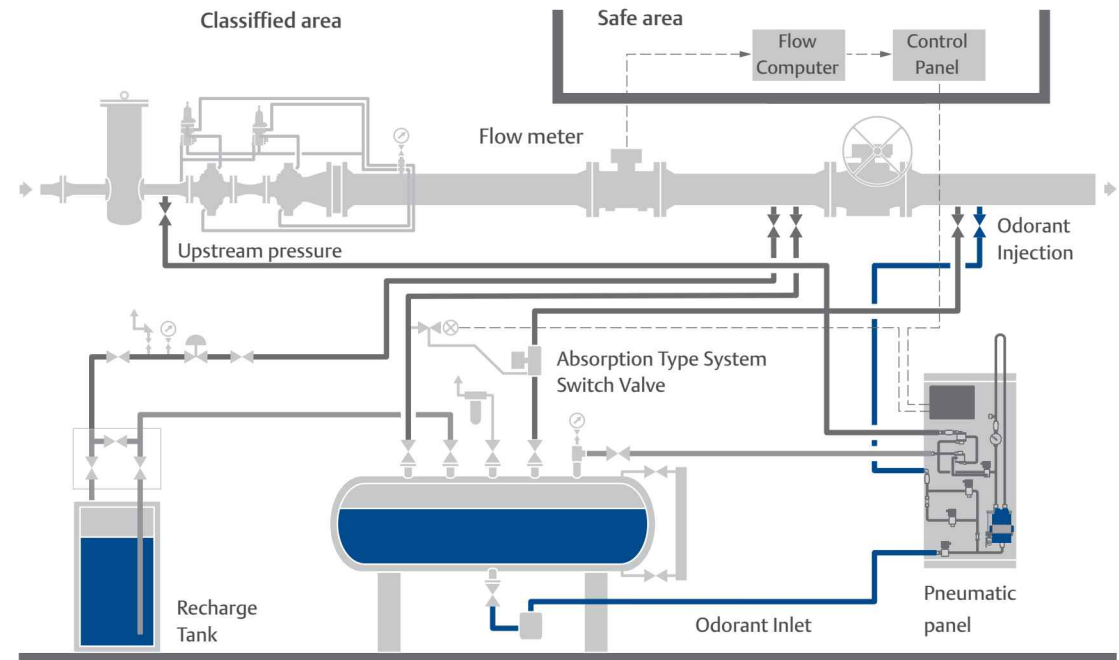
The DO200 system consists of the pneumatic injection panel installed in the classified area, a control panel installed in the safe area and an appropriate diffuser installed in the gas piping.

The pneumatic panel injects the odorant liquid into the main gas pipe through the diffuser.

The control panel controls the pneumatic injection panel through a logic based PLC and automatically manages the dosage of the odorant liquid proportionately to the gas flow rate.

The backup odorant system is installed in the classified area and consists of an absorption tank which also serves as the service tank of the main injection unit.

The DO200 provides two back up options: the absorption system or the double injection with two panels in master/slave configuration.



Pneumatic Injection Panel

Installed in a Classified Area close to the withdrawal point of the odorant (service tank)



Control Panel

Installed in Safe Area and consists of:

- Control panel
- UPS
- Heater
- Terminal Blocks



Backup Systems

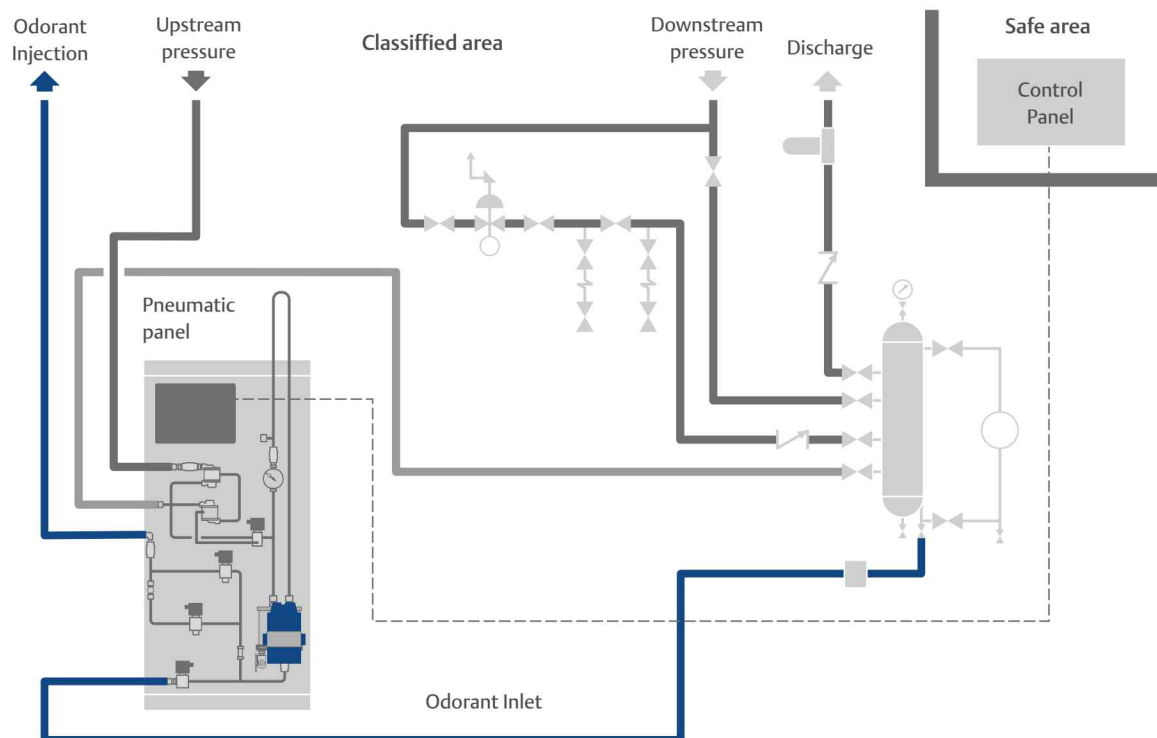
- Absorption type system (also serving as a service tank of the main injection system)
- Double injection system (Master/Slave configuration)



Compact solutions on skid

Emerson can design and implement complete solutions that adapt to a wide range of plant requirements. Among these are the delivery of compact plug & play skids that can include:

- Storage/service tank both horizontal or vertical, with multiple capacities (from 24 to 250 liters)
- Integrated pneumatic injection panel
- Collection basin with a variable capacity
- Pressurized liquid filling system with quick couplings
- Active carbon filters for abatement of loading gas
- Safety accessories for odorant injection systems
- Advanced monitoring systems
- Control panel with customized control logic



Dosaodor DO200 System

Tartarini™ SA/2 Pressure Stabilizer



Accurate and reliable pressure stabilizers to ensure the correct pressure feeding to the solenoid valves. SA/2 are equipped with a 5 μ filtering degree filter, and they are designed to be used with different fuel gases.

ASCO™ Solenoid Valves



Where flow control meets pneumatics to create fluid automation solutions that maximize efficiencies, optimize applications, and enable customers to fulfill their true potential.

ROSEMOUNT™ Transmitters



Pressure, flow and temperature transmitters with industry leading performance, help improve operations in a wide range of applications. The instrumentation provides solutions for critical measurements even in the most severe conditions.

Additional Systems

Pressure Reducing and Metering Stations



Complete pressure reducing and metering stations with optimized solutions and reduced costs for each application.

- Compliance to local/global regulations standards
- Reduce vendor complexity and unclear responsibilities

PLC, SCADA, Control Systems



Equipment and systems for complete control of your plant.

- Flow Computers, RTU, SCADA systems
- Seamless integration with centralized control networks
- Intuitive and configurable platforms, and software applications

Smart Systems



A complete solution for management of natural gas smart grids.

- Applicable to all existing controlled regulators
- Open/expandable modular architecture
- Low impact installation (does not require modifications of the existing piping)
- Online troubleshooting



For more information visit: www.Emerson.com

Solving the process industry's challenges, with predictable success, any time, any place



Emerson provides innovated and tested solutions for the odorant injection into the grid. Contact us regarding our technologies and our global level services, capable of improving HSE performance for environmental protection, meeting compliance with local requirements and reducing operating and ownership costs. Starting is easy. Visit [Emerson.com](https://www.emerson.com)

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