



HIPPS Solutions

Safe and profitable operations

SAFETY
NONSTOP



HIMA Process Safety



How can you achieve maximum safety and maximum profitability?

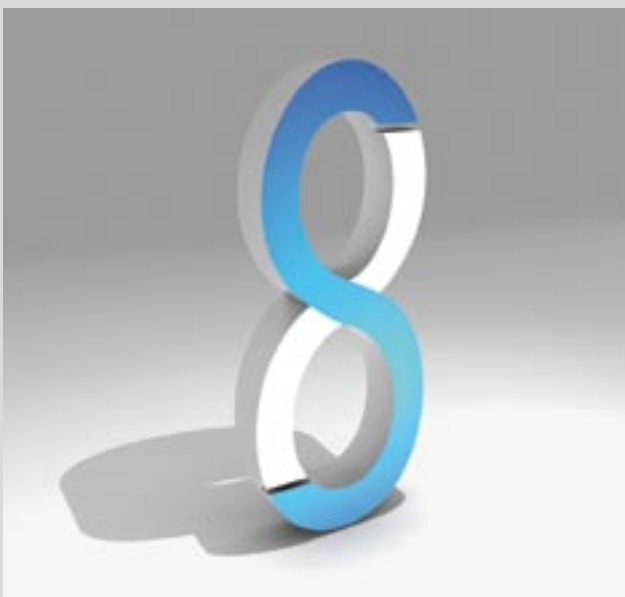
HIMA HIPPS solutions Safe operation and nonstop availability

Based on decades of experience with globally-implemented HIPPS projects, we know what is important for our customers: safe AND profitable solutions.

We know that the main reasons for using HIPPS (high-integrity pressure protection systems) are safety, environmental and economic. Safety to ensure that you can confidently operate close to design limits. Environmental to avoid unnecessary flaring and thereby limiting air emissions. And economic to reduce costs, because it is always cheaper to use HIPPS than to install full-flaring capacity and full-schedule piping and equipment. The continuous operation of equipment is a prerequisite. Nonstop operation - this is the advantage offered by HIMA HIPPS solutions. All applicable standards up to SIL 3 and even SIL 4 are also met.

Complete solutions for safe processes

Customers using HIMA HIPPS solutions benefit from working closely with our special HIPPS application group, offering a unique combination of HIPPS application and instrumentation knowledge as well as our process-safety expertise.



HIMA. Safety. Nonstop.

It's a philosophy 100 years in the making. It's built on HIMA's singular focus on safety and is proven by decades of technology breakthroughs. It represents our commitment to providing maximum safety and uninterrupted plant operations. Our goal isn't just to design the world's best safety systems. It's to help keep your business safe and running. No shutdowns. No failures. Maximum uptime. Maximum profitability.

$$\infty + S = 8$$

Infinity Safety Safety Nonstop



Our Customers

A partial list of our customers includes:
Aventis, AFC, Agip, Air Liquide, BASF, Bayer, Borealis, BP, Celanese, Clariant, Chevron, DOW Chemical, DSM, Evonik, ENI, ExxonMobil, Hoffmann-La Roche, HOLBORN, Huntsman, HydroStatoil, INEOS, KOC, LANXESS, Mauell, MERCK, MIRO, PETRONAS, PDO, QP, OMV, Pemex, SABIC, SASOL, Shell, Thai Petrochemical, Thyssen Krupp Uhde, TOTAL, UNOCAL, Vinnolit, Yara

The best solution is always different

Support across all process phases

Your success depends on safe operations, but it also requires profitability. HIMA HIPPS specialists help you achieve continuous pipeline operation without unnecessary interruptions.

They identify the exact amount of protection required – no overspending and no under-protection. Based on a variety of safety-system platforms, HIMA solutions can be adapted to meet any application requirement, which means optimal capital expenditure.

Always customised, extremely flexible

HIPPS solutions by HIMA are extremely flexible, operating either as standalone technology or integrated into all leading control systems. HIMA offers a complete HIPPS solution from one source for process safety functions up to SIL 4 and in accordance with IEC61508/61511 standards.

The HIMA HIPPS solution includes the logic solver and all field instruments such as pressure transmitters, DBB valves with maintenance interlocking, HIPPS valves and actuators.



Customer benefits

- Solutions. Nonstop.

Coordinated, proven integrated solutions from one source

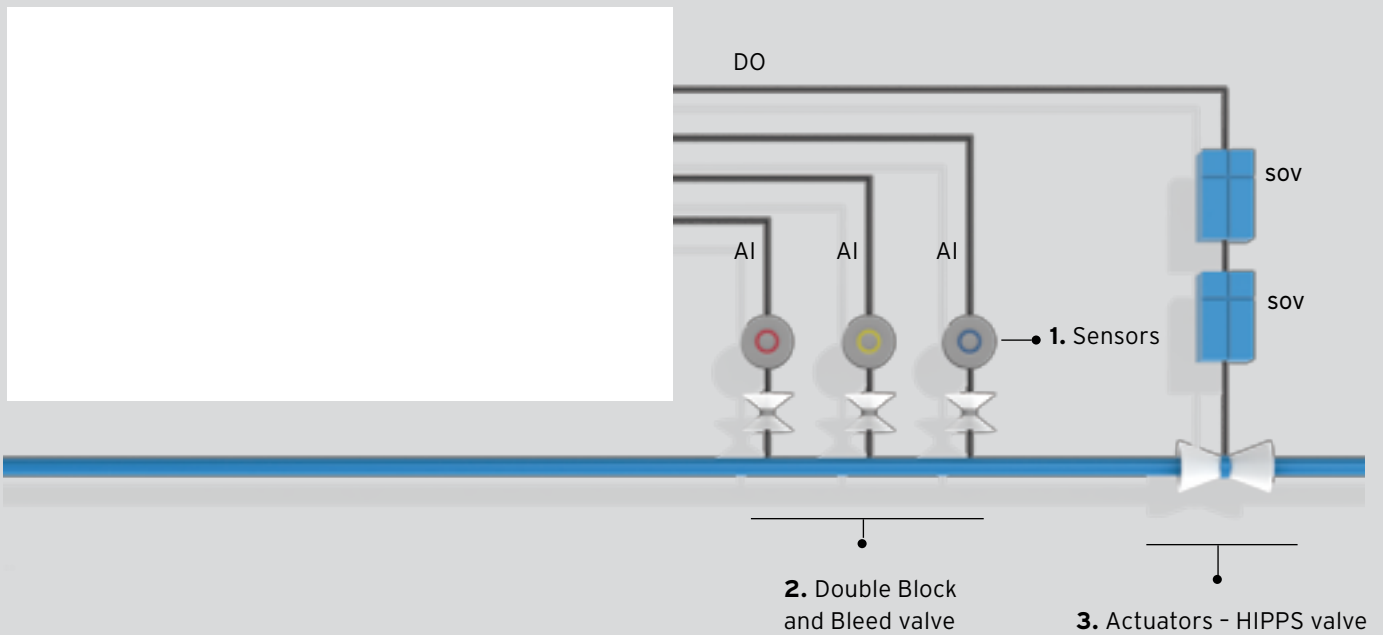
- Safety. Nonstop.

Reliable, extremely robust safety-control systems with a high degree of operational availability that do not cause unwanted shutdowns and ensure uninterrupted system operation

- Safety Lifecycle Support. Nonstop.

Full safety life-cycle support to ensure you meet your legal, moral and economic responsibilities

Better technology for safe operations

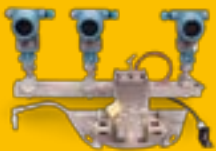


Logic solver

HIMA safety controllers are the key components of the HIMA HIPPS solution. Based on the most proven technology HIMA offers four platforms to meet the assigned SIL.

Planar4 are the world's only SIL 4 systems for the highest safety requirements. High-availability, flexibly configurable SIL 3 systems HIMax, HIQuad and HIMatrix meet requirements of maximum safety

and uninterrupted plant operation. HIMA controllers provide a high level of self-diagnostics and fault tolerance.



1. Process sensors

Typically, three SIL 2 pressure transmitters, in diversity or not, are located in the pipeline measuring the process pressure and send the data to the logic solver.



2. Double Block and Bleed valve

The HIMA HIPPS solution includes double-block-and-bleed functionality also available in association with an interlocking manifold. Individual transmitters, fitted on isolation and vent valves, can be isolated one at a time for calibration or maintenance without compromising the safety of the system.



3. Actuators – HIPPS valve

In the event of confirmed overpressure, the system initiates a HIPPS valve shutdown. The HIPPS final elements typically are made up of a valve/actuator/solenoid configuration, as prescribed by the required SIL, in the desired fail-safe configuration.

One technology – always the right solution



The HIMA product range

Based on the same proven safety technology, HIMA offers a broad range of products that can be flexibly adapted to match the very different application requirements – the foundation for safe, highly-available AND cost-effective HIPPS solutions. On the basis of cross-manufacturer and open-communication standards, HIMA systems can be integrated easily and comprehensively into any automation environment.

Planar4

- SIL 4
- Hard-wired system
- Programming: solder, Termipoint and Wire Wrap
- Extremely robust
- Scalable redundancy

HIMax®

- SIL 3
- Nonstop operation
- Maximum performance
- Maximum configuration flexibility - for life
- Various mechanical concepts
- Mid-sized and large applications



For more information about Planar4, HIMax, HIQuad and HIMatrix visit our website www.hima.com or ask for our product data sheets.

HIQuad®

- SIL 3
- For highest fault-tolerance requirements
- Scalable redundancy
- Central and distributed installations
- Broad range of I/O modules

HIMatrix®

- SIL 3
- Fast, flexible, compact
- Very cost-effective
- Distributed applications
- Applications with just a few I/O points
- Deep-sea applications, 40° to 60°, shock-resistant



Meet the constant safety challenge



Operating pipelines or vessels safely calls for compliance with best engineering practices as defined by internationally-recognised standards. All these complex standards, like IEC 61508, IEC 61511, ANSI/ISA S85.01-1996, etc., require a life-cycle approach to identify, manage and reduce risk across all phases of a safety-critical installation.

The HIMA HIPPS life-cycle approach

HIMA works with you to ensure that every aspect of the safety life cycle is addressed, to guarantee safe operation and full compliance with the latest standards. Moreover, HIMA engineers deliver results quickly and thereby free up your own engineers to focus on business issues other than safety.

■ Consulting & safety management

HIMA can help guide customers through all necessary procedures and obligations of the safety life cycle. This can include:

- Risk assessment
- Development of risk mitigation strategies
- Installation of a Functional Safety Management
- Qualification and training sessions for your personnel
- Selection, design, integration, installation and operation of the right equipment
- Review of operation, maintenance and repair procedures

■ Project management & engineering

HIMA offers comprehensive services, from the selection of field instruments and modelling of the HIPPS loops for PFD calculations to the SIL reliability calculation and design validation/acceptance tests.

HIMA provides functional analysis and HIPPS architectures for the implementation of safety functions, guaranteeing flexibility in every phase and constant control of costs and deadlines.

■ Service & training

With its global network, HIMA guarantees the best possible service, 24 hours a day. In addition, the HIMA training program offers you everything you need to be up-to-date – from standard training for various target groups to customer-specific training.

■ Integration

HIMA HIPPS solutions can be integrated into any automation environment and DCSs using open, vendor-independent communication standards and offering long-term investment protection.

HIMA HIPPS Solutions. Success stories

Ultimate protection for Norway-UK gas-export pipeline: Ormen Lange project

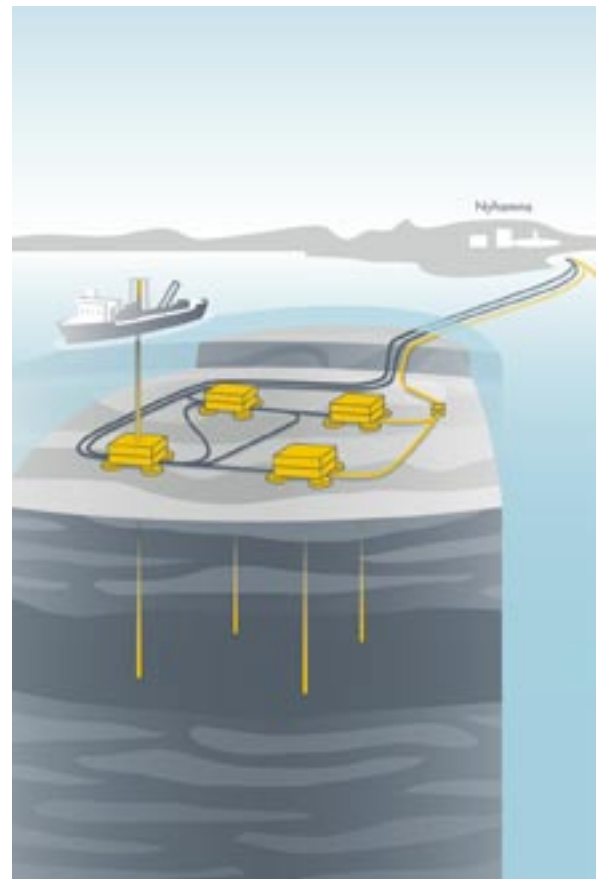
On the Ormen Lange project in Norway, HIMA delivered three SIL 4 HIPPS systems to protect the Langeled gas export pipeline between Norway and the UK. At full capacity, the pipeline will transport nearly 20% of the UK's gas needs. HIMA also delivered the associated pressure transmitters and the key interlock systems for the transmitter manifolds. The signals from the interlocking proximity switches are also used in the HIPPS logic to achieve SIL 3 under test and service conditions.

The HIPPS systems use a HIMA Planar4 system to shut down the compressors. This solution also includes logic for discrepancy monitoring between the transmitters. The logic is fully redundant throughout, so that no single failure will cause a trip nor lead to a deterioration of voting integrity in the redundant leg of the logic.

The HIMA solution also ensures that the HIPPS system maintains SIL 3 integrity during testing and maintenance, when one transmitter is isolated or removed.

Ormen Lange project overview

- Application
HIPPS for onshore/offshore applications
- Hardware
11 Planar4 systems
- Number of I/O
500
- Communication
MODBUS interfaces to the control system



Safety solutions for the South Pars Iranian gas field

Approximately 60% of Iran's natural gas deposits are located in the South Pars gas field in the Persian Gulf. For phase 1 and also phases 4-8 of the exploration of the gas field, HIMA delivered the complete ESD, F&G and HIPPS systems. The ESD systems take over the monitoring of typical process signals such as pressure or temperature and control the corresponding actuators.

The task of the HIPPS systems is to monitor the pressure in the gas pipelines. The F&G systems work as monitoring systems for the detection of fire and gas, the alarm processing and the initiation of evacuation, extinguishing and other countermeasures. In South Pars, memory-programmable, SIL 3-certified H51q HRS systems are used for the ESD and F&G applications, while the hard-wired, SIL 4-certified Planar4 systems are used for the HIPPS applications.

South Pars project overview

- Application
ESD, F&G and HIPPS systems for onshore/offshore applications as well as for pipeline monitoring
- Hardware
112 H51q HRS systems (ESD/F&G)
10 Planar4 systems (HIPPS)
- Number of I/O
35,000
- Communication
Redundant MODBUS interface to different control systems





Why HIMA?

HIMA is the world's leading independent designer and provider of automated safety solutions. During the past 40 years our systems have been protecting the assets of the world's major oil, gas and processing companies.

Now that same technology leadership is being applied to develop new, creative solutions for machine and building safety.

Founded in Germany in 1908, HIMA has a record of safety system innovation that began in 1970. No other manufacturer of safety-related automation technology invests such a large percentage of its annual revenues in research and development. Our first and only priority remains protecting the safety and availability of our customers' assets. This focus leads to unparalleled expertise, innovation and better solutions for customers.

Our reward is a century of customer trust. Over the past three years, our earnings have grown at a double-digit rate while the number of employees has increased by approximately 30 per cent.

Numerous development partnerships with world-leading companies further accelerate our capabilities. Unlike many other safety-system providers, we have remained independent. That independence and German family ownership contribute to a safety focus, a high level of quality, expert knowledge of our staff and customer responsiveness that competitors have not matched.

SAFETY
NONSTOP





96 900046 0509

© 2009 HIMA Paul Hildebrandt GmbH + Co KG

HIMax, HIQuad, HIMatrix and SILworX are registered trademarks of:
HIMA Paul Hildebrandt GmbH + Co KG

Albert-Bassermann-Str. 28

68782 Brühl, Germany

Phone +49 6202 709-0

Fax +49 6202 709-107

hipps@hima.com

www.hima.com



SAFETY
NONSTOP

For a detailed list of all our subsidiaries and representatives,
please visit our website: www.hima.com/contact

