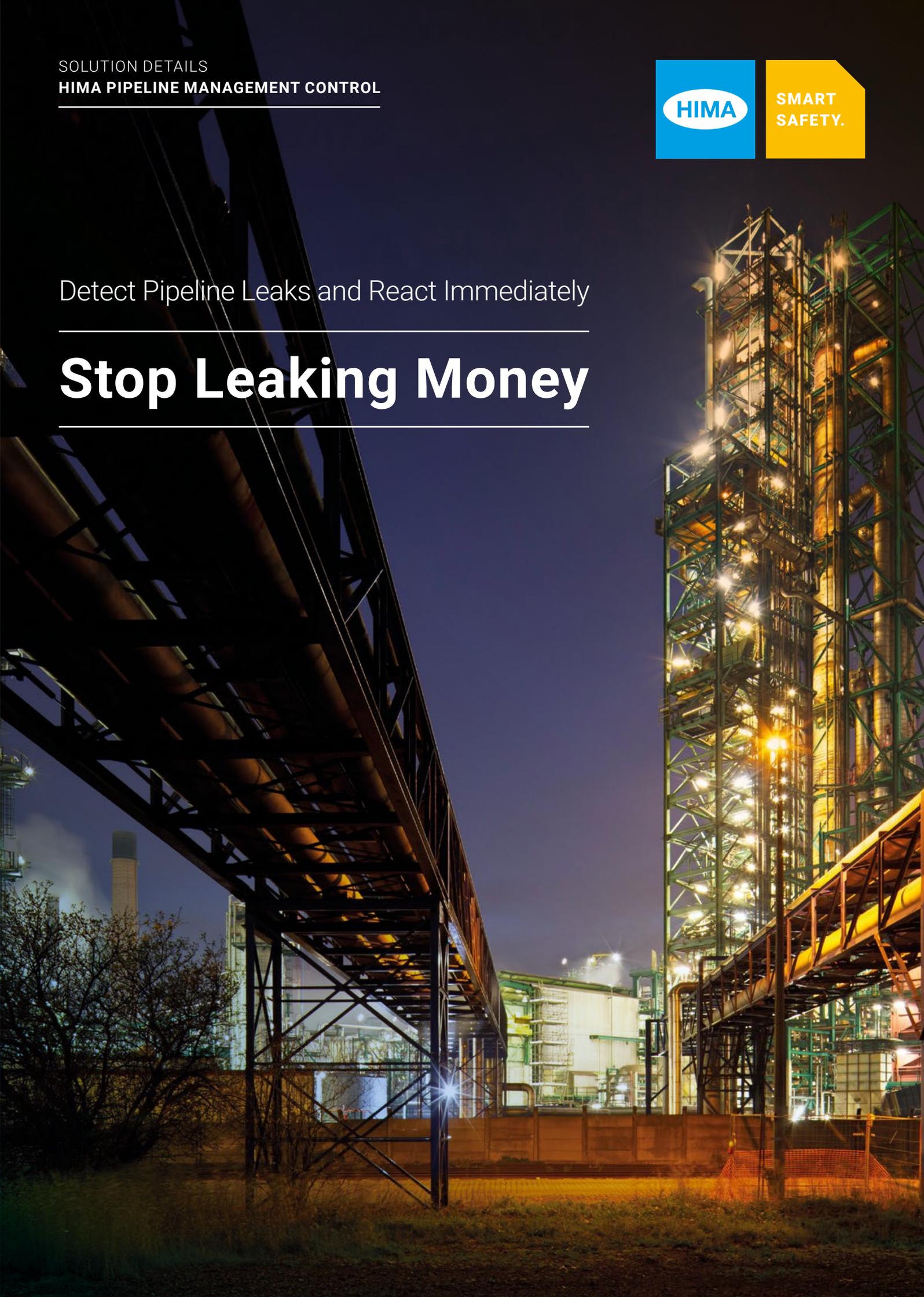HIMA | SMART SAFETY.

Detect Pipeline Leaks and React Immediately

Stop Leaking Money

Material failure, pressure surge, and criminal activity cause a large number of pipeline incidents. Some of them have far-reaching consequences that cost the operator millions of euros and potentially tarnish their reputation forever. A leak detection system (LDS) allows you to identify such incidents. But to get them under control and prevent costly damages or spills, you also require a safety system.

With HIMA, you have two options to solve this challenge. One of them is the **FlexSILon PMC Hybrid** solution, the world's first LDS that is integrated straight into an emergency shutdown hardware system. This SIL 3 hybrid solution provides maximum safety and security, ensuring the long-term availability and cost-efficiency of your pipelines.

You also have the choice to use the **traditional FlexSILon PMC** solution, which includes the PC-based LDS FLOWorX, as well as software for monitoring and operating your pipelines. That enables you to take full control of each and every aspect of pipeline management.

Rising Pressure from Every Direction

Pipelines are among the safest means of transporting liquids and gases. However, if a problem arises, the impact can be disastrous – for the environment, for your company's reputation, and of course for your finances. A leak or puncture in a pipeline can cause costs to skyrocket. The later you identify and resolve the issue, the more it will cost. And then there's the matter of liability; you or your management may be held accountable for the damage and its far-reaching consequences.

Why Pipelines Fail

The most common causes of pipeline damage are corrosion and attrition, while material failure is also high on the list. The resultant leak is often so small that it is completely overlooked or spotted late – by which point large quantities of oil or gas have already escaped. Crime is a growing concern for pipeline operators, too. In certain cases, particularly in remote locations, vandalism and theft of raw materials go unnoticed for some time. Moreover, cross-border pipelines make an attractive target for terrorist attacks. These can cause serious damage and threaten a factory's energy supply – or even that of an entire country. The digital age brings with it another threat – and one that is often underestimated: Cyberattacks by hackers can compromise plant management systems and destroy entire pipelines.

11,462

pipeline incidents from 1997 to 2016 *

* Source: US DOT PHMSA

How can you minimize these risks and respond to faults as soon as they occur?

Smarter Pipeline Management

There are various international standards and legal regulations in place for pipeline integrity. These aim to minimize damage – especially to the environment. One particularly important stipulation is the use of a leak detection system (LDS). However, in many countries, legislation remains unclear and companies are required to follow only those regulations that are deemed "technically feasible". According to current law, if you conform to these regulations then you may avoid liability for any damage caused. Nevertheless, you will still suffer the financial losses – and that's not to mention the disastrous impact on your reputation.

Introducing the First Hybrid Solution
Security systems will become a requirement – and they will have to be integrated with the LDS. With HIMA, you'll be ready when that time comes. HIMA FlexSILon PMC solutions (hybrid and traditional) combine a software leak detection system with a SIL 3 hardware emergency shutdown system. Developed by the same vendor, the two components are perfectly compatible.

FLOWorX: Detect and Locate Leaks, Monitor Mechanical Stress
FLOWorX allows you to instantly detect leaks, ruptures, and other faults in your pipelines, so you conform to all major legal regulations for pipeline integrity. Mathematical calculations enable you to find the precise location of leaks – and repair them more quickly. The software monitors pressure in every section of your pipeline (maximum allowable operating pressure/underpressure – MAOP/UP). FLOWorX thereby identifies slack line flow, for example, and calculates the current linepack in each segment.
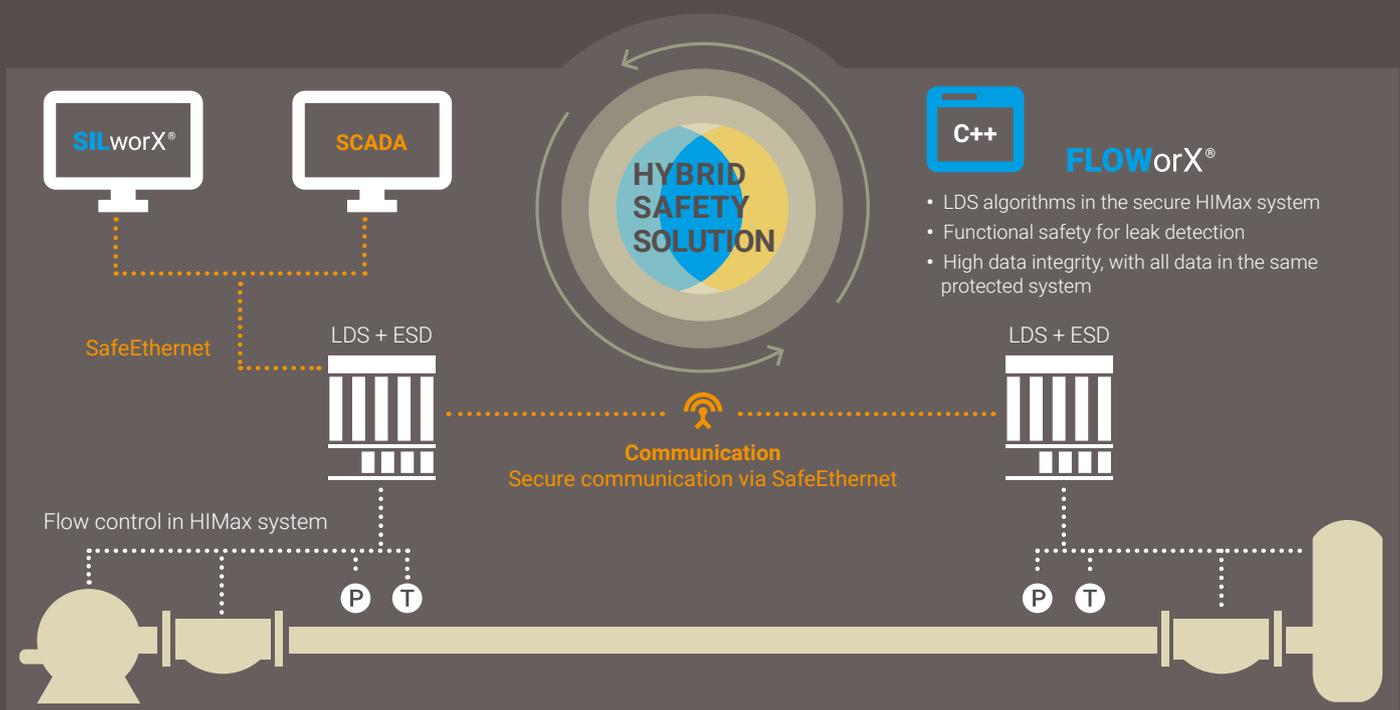
HIMax: Emergency Shutdown When You Need It
An LDS is essential for every pipeline operator. However, traditional systems are not geared towards safety. They are able to detect leaks, but nothing more. HIMA FlexSILon PMC Hybrid therefore integrates the FLOWorX LDS with the HIMax SIL 3 safety control system. Flow control takes place within the hardware, and HIMA's secure Ethernet protocol SafeEthernet delivers pressure and temperature readings to your location. The HIMax systems themselves are also connected by SafeEthernet. As such, each one is able to monitor the entire pipeline's condition. Should a serious leak occur, HIMax will automatically stop the flow in accordance with SIL 3.
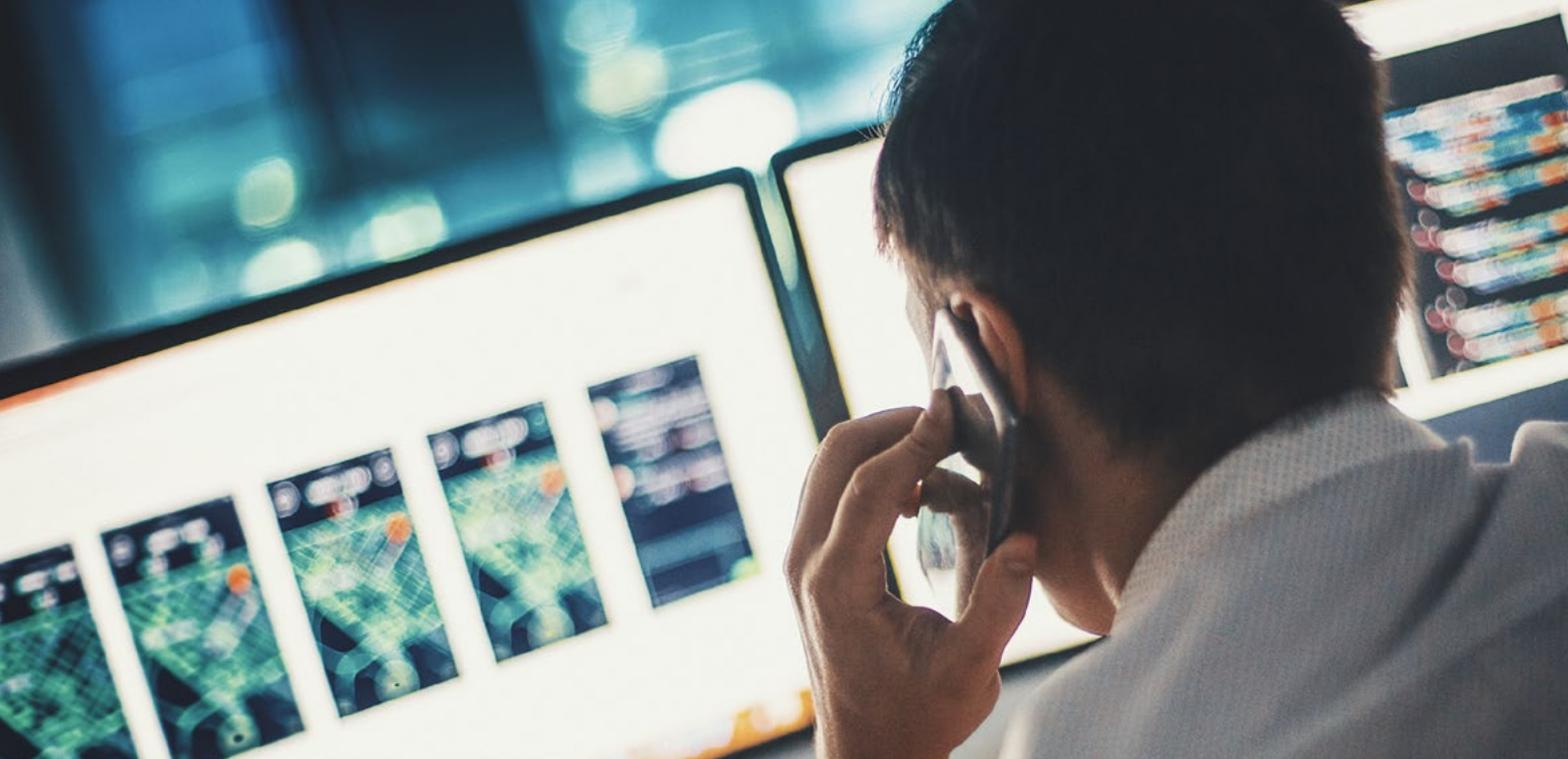
The Flexibility of Choice

While the hybrid solution integrates LDS algorithms within the safety hardware itself, the comprehensive, traditional HIMA FlexSILon PMC solution includes separate LDS software. It also features a full set of operation and maintenance tools and a HIMax system. What is the right choice for you? Our expert engineers analyze your situation and will gladly advise you. But in the end, with HIMA, you decide.

SILworX®

SCADA

C++   **FLOW**orX®

• LDS algorithms in the secure HIMax system
• Functional safety for leak detection
• High data integrity, with all data in the same protected system

HYBRID SAFETY SOLUTION

SafeEthernet

LDS + ESD

LDS + ESD

Communication
Secure communication via SafeEthernet

Flow control in HIMax system

P   T

P   T

The leak detection system FLOWorX is tightly integrated into the HIMax safety system.

Minimal Leaks, Faster Fixes

HIMA FlexSILon PMC and FlexSILon PMC Hybrid significantly increase the safety and reliability of your pipelines. The solutions help you to comply with all relevant regulations and international standards for pipeline integrity management up to SIL 3. They also prepare you for future requirements.

You can adjust and control your pipeline centrally, automate operation, and reduce downtime. Fault-tolerant system architecture minimizes false alarms, which also contributes towards lower OPEX. Furthermore, the HIMax system reduces the risk of technical faults and enables you to resolve them more quickly should they actually occur. Even if your plant needs to be shut down, the system does this automatically, securing the installation and minimizing the release of liquid or gas. In this way, you reduce financial losses significantly, avoid costly environmental damages and liability claims, and increase profitability of operation.

All pipeline data is reliable and available in one location, meaning you can maintain a fully-integrated pipeline management system. You are therefore able to diagnose incidents quickly and analyze them thoroughly. This helps you prevent similar faults from occurring in the future.

"In addition to functional safety, the HIMA solutions also fulfill all applicable cybersecurity requirements. So you don't need to worry about hackers."

Sergej Arent
Director Applications

For further information, please contact us:

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Or visit us online:
🌐 www.hima.com/industries-solutions/pipelines-pmc

References

These companies trust in HIMA pipeline safety solutions:

Air Liquide	Petrochemical Pipeline Services
AkzoNobel	Praxair
Bechtel	Qatar Petroleum
BEP	RMR
ČEPRO	Shell
Dow	Slovnaft
Fluxys	TAL
INOVYN	Total
LUKOIL	Vopak
NATO	Zeeland Refinery
Orpic	
Orpic OGC	

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