Triconex

Keeping your operations safe and your business sound.

Life Is On

Triconex™
by **Schneider** Electric

"Process Safety is about ensuring that plants and equipment are well-designed, operated safely and properly maintained to prevent harm to people, property and the environment."

— ARC Advisory Group, 2013

Life Is On | Schneider Electric

Safety and profitability in sync

As the foremost supplier of process safety solutions we ensure the safety of your people and your plant, as well as the soundness of your business.

When your success depends on safe and reliable operations

Triconex™ is the world's leading supplier of safety instrumented systems (SIS) for high-hazard industries. When the safety and protection of your most valuable assets is critical to the success of your business, you can rely on Triconex.

For more than 30 years Triconex has been delivering safety for life, protecting people, the surrounding communities, the environment, and keeping equipment and production operating safely and continuously for the life of the asset.

Safety and profitability in sync

Triconex process safety solutions address an ever-changing landscape of increasing complexity, looming threats, and rising risks.

Complicated process requirements and new generations of automation equipment challenge functional safety systems on the plant floor. Globalization and ever-evolving cyber threats present new problems at the operations level. A volatile business climate, tightening regulations, and the ever-present need to safeguard employees, the community, and the environment demand constant monitoring and management of risk.

These challenging conditions require a broader approach to keeping your operation safe and your business sound.

Triconex process safety embodies a holistic, integrated vision that goes beyond functional safety systems to include operations and strategic management.

This expanded vision of process safety impacts everyone. It can transform the way people view their jobs, empowering a new, safety-centric vision across functions from safety, engineering, operations, and maintenance to management. This transformation is supported by advanced, ultra-reliable Triconex systems, applications, and services.

Triconex process safety solutions are built on three essential elements:

- **Trusted technology,** which must form the foundation of process safety

- **Informed operations,** which require attention to potentially dangerous activities traditionally beyond the reach of functional safety systems

- **Life cycle management,** which involves contiguously monitoring and managing process risks and gains across the entire safety life cycle to produce sustained safety and profitability

15,000

high-availability triple modular redundant (TMR) safety systems supplied worldwide in more than 80 countries.

_____

1 billion

hours of safe operation without a dangerous failure upon demand.

_____

>650

dedicated safety engineers on our global team.

Life Is On | **Schneider Electric**

Trusted technology

For critical safety and control applications, the Triconex brand supplies flexible, scalable, high-availability infrastructure, renowned throughout the world for its reliability. Our dependable systems are always available to keep your people and your plant safe and your business running.

Proven safety and critical control technology platforms

Tricon CX Safety platform

The latest Triconex Safety Integrity Level (SIL) 3 safety system that leverages the best of the proven Tricon and Trident platforms in a new compact form factor together with enhanced functionality that delivers safety for life.

Tricon Safety platform

The gold standard in SISs. Based on industry-leading TMR technology. Ideal for critical tasks requiring SIL 1, 2, or 3. Features high-availability and hot-swappable processors; supplies extensive diagnostics; offers no single point of failure. Easy to operate and maintain.

Trident Safety platform

Also based on proven TMR technology; certified up to SIL 3. Compact; designed to fit smaller applications. Offers advanced diagnostics and maximizes both high reliability and high availability.

Triconex General Purpose System platform

Provides protection up to SIL 2 in a compact, economical TMR architecture. Ideal for smaller safety and critical control applications requiring high availability.

Safety in numbers: The Triconex advantage

The only automation company with:

- **30** plus years' experience

- **15,000** safety systems installed in over **80** countries

- **1 billion** hours of safe operation

- **650** safety engineers and safety experts

- Number **1** in global process safety market share (ARC, 2014)

- Number **1** in global turbomachinery control market (ARC, 2014)

- Number **1** choice of Control Magazine readers award for safety and emergency shutdown systems

Life Is On | Schneider Electric

Software tools are built on years of successful project engineering excellence.

Powering productivity and performance

The Triconex suite of software applications are easy and rapid to implement. TriStation tools are easy to learn, efficient to program and test, and require minimal training.

The TriStation software suite includes a full set of tools to help you throughout every step of the safety life cycle, including:

TriStation TS1131 for system configuration, programming, and documentation

TriStation Emulator for running and testing application logic using offline emulation without the need for a physical controller

Triconex Enhanced Diagnostic Monitor for status and health information of the controller

TriStation Sequence of Event (SOE) for SOE retrieval display and analysis

Triconex Safety Validator for automatic testing and documentation of the application logic

Triconex Report Generator for custom reports across multiple controllers or projects

Trilogger high-speed event recorder and display software
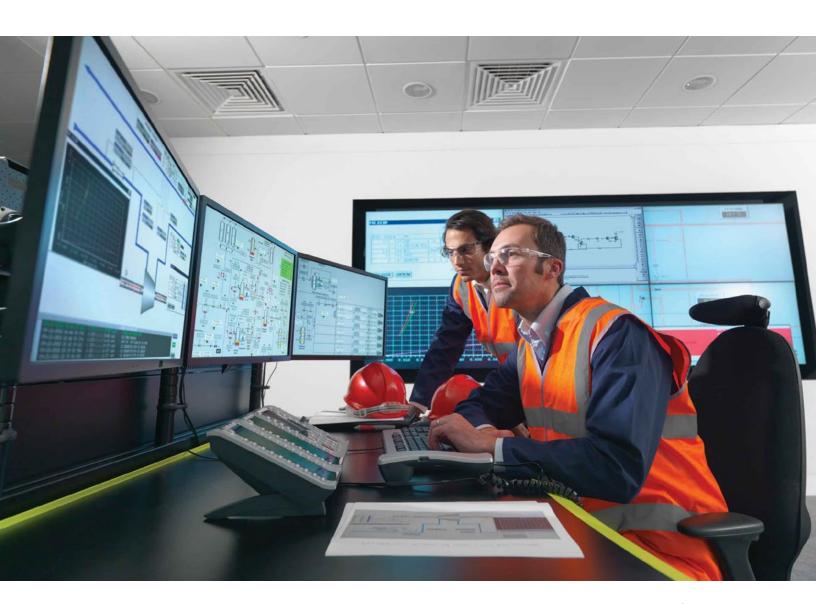
Industries served

Oil & Gas
Exploration and Production
Refining
Petrochemical
Chemical
Pipelines and Distribution
Energy and power generation

Life Is On | Schneider Electric

Safety expertise, solutions, and services for life

Triconex experts understand the complex world of functional safety, changing standards, and regulatory compliance.

Solutions for all major safety and critical control applications

Functional process safety and critical control solutions form the backbone of the unrivalled Triconex safety record. Expertise is captured and applied through proprietary templates.

Operations covered include:

- Emergency Shutdown

- Fire and Gas detection

- High Integrity Pressure Protection

- Burner management

- Boiler protection

- Turbine protection

- Nuclear safety and critical control

The ability to use the same supplier for multiple applications delivers proven benefits, including the reduction in overall hardware required, less design effort, reduced capital and operational costs, less training costs, faster start-up, as well as future-proofing your investment.

Engineering excellence

Triconex process safety draws on years of successful project engineering excellence in delivering the following services to recognized international safety standards IEC 61508/61511:

- Risk assessments

- Process hazard analysis

- SIL determination and safety instrumented function (SIF) calculations

- Safety requirements specifications

- Project management

- System design, engineering, configuration, and validation testing

- Installation, commissioning, and start-up assistance

- Comprehensive training

- Lifetime support though our dedicated Customer First program

- Periodic safety system revalidation

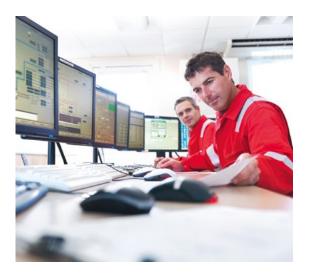- Modernization services

- Cybersecurity protection

Intelligent Integration

Effective risk management requires secure network integration. Triconex systems integrate seamlessly with leading DCSs via industry standard open protocols, such as OPC and modbus, and support major field device protocols, such as HART. Our award-winning Triconex Tofino firewall provides ISA 99 compliant cybersecurity protection via connected OPC, modbus, TCP, and TriStation 1131 hosts.

When used in conjunction with our Foxboro™ Evo process automation system, Triconex process safety integrates tightly and securely via our new unified communications module.

Life Is On | Schneider Electric

Manage operational risk with confidence

Triconex process safety applications enrich operational insight and deliver safer operations.

Investing in competency and skills

A critical success factor in any operation is the knowledge and expertise of the people tasked with managing, operating, maintaining, and supporting the asset.

Triconex offer a comprehensive range of training courses that cover the full safety life cycle that address the standards and regulations, technology, software tools, and applications.

Advanced operator training simulations are also available using the latest 3-D virtual reality simulators that provide an immersive experience.

Profitable safety management

Lack of information about real plant risks can hinder plantwide operations. Triconex process safety can provide a clearer threat assessment, helping extract maximum performance without putting workers at risk. This starts with measuring and monitoring the actual risk of operating the business and identifying the safest window of operation that can optimize safety and profitability.

Enhancing operator efficiency and effectiveness

Human error is acknowledged as a source of many safety breaches, but until quite recently, it was viewed as beyond the scope of automation. Today, Triconex process safety encompasses a broad array of solutions that can improve performance and enforce standard procedures, nurturing the culture necessary for safe operations.

Triconex Safety View is a superior alarm and bypass management solution that draws the plant operator's attention to changes in critical process conditions that require immediate attention. It provides contextual information and clear visibility of the risk being managed for more informed decision making.

SIF Manager provides a single window of the health and status of your SIFs so you know that the safeguards that you rely on to keep you safe are working effectively and will operate when needed.

Stay secure

Triconex process safety also applies a life cycle approach to preventing cyber intrusion that can lead to safety incidents. This augments firewalls and security-hardened hardware with the following services:

- Security assessment

- Security architecture and policy development

- Security modernization and implementation

- Security management and optimization

Life Is On | Schneider Electric

Triconex solutions empower people all across the plant. Now everyone can help improve safety and profitability.

Relentless protection

Utilizing Triconex products and expertise, safety and security leadership teams access the most comprehensive solutions available to protect their plant so they can:

- Ensure compliance with the most stringent standards and regulations

- Assess risks accurately to allow operating at maximum productivity without concern

- Reduce total cost of ownership

- Ensure optimum process availability via fault-tolerant operations

- Avoid spurious trips

Engineering ease

Engineering teams work with the most reliable technology, advanced engineering tools, and world-class applications so they can:

- Access a complete solution, including systems, services, and expertise

- Apply the most appropriate, state-of-the-art technology

- Consult with the industry's most trusted advisors

- Obtain complete control functionality in one box

- Receive high-reliability control and protection at the lowest cost

- Perform online modifications and hot swap of safety modules

- Take advantage of the easiest available configuration and use.

Smooth operations

Operations managers and technicians get the real-time access they need to critical, actionable information so they can:

- Improve operator effectiveness via an ergonomic environment

- Maximize production capacity

- Maintain a clear view of operations

- Safely operate increasingly more complex, demanding processes

- Streamline workflow via automation of responses to alarms and procedures

Focused maintenance

With Triconex solutions, maintenance managers and technicians employ the most reliable technology, most actionable information, and most advanced tools so they can:

- Avoid spurious trips

- Extend asset operational life

- Proactively improve asset management

- Improve physical production

- Detect faults before they occur

- Override alarms when necessary to perform management

- Reduce maintenance intervals and downtime

- Cut maintenance budgets

- Reduce asset risks

Life Is On | Schneider Electric

Business assurance

Enhancing operator efficiency and effectiveness

In a landmark study by the Center for Chemical Process Safety, researchers established that companies that practice good process safety report significant direct cost benefits. Industrial safety control regimes that properly balance risks and profit potential produce results like these:

- 5% increase in productivity

- 3% reduction in production cost

- 5% reduction in maintenance cost

- 20% reduction in insurance cost

- 1% reduction in capital budget

Applying the ease of use and proven reliability of Triconex technology and expertise, managers may rest assured that a holistic approach to process safety can benefit their business in the following ways, among many others.

Trusted technology helps:

- Escape costs and consequences of major safety incidents

- Reduce total cost of ownership with easy engineering and focused maintenance

- Eliminate spurious trips

Informed operations help:

- Reduce cost of training while improving safety efficiency

- Empower people to operate for maximum profitability within a culture of safety

- Enforce sound policies and best practices

Life cycle management helps:

- Profile and manage risk strategically

- Achieve continuous optimization

- Adapt to changing market conditions

Life Is On | Schneider Electric

Triconex:
Safe and sound.
Today and tomorrow.

Discover how Triconex process safety solutions can keep your plant safe and your business sound via trusted technology, safe operation, and superior life cycle management.

Visit www.triconex.com or call your Triconex representative today!

Life Is On | Schneider Electric

Life Is On | Schneider Electric