Holta & Håland

tyco

Fully configurable SIL2 addressable Fire & Gas Detection solutions

Strategic Oil & Gas Partners for Norway

Tyco are able to provide multiple configurations where the solution and devices are certified to meet the Functional Safety requirements of SIL2 with failure rates determined by a Safety Analysis Report (SAR)

SIL2 compliance with addressable detection solutions. Why choose Tyco?

// Tyco are currently the only provider of multiple addressable SIL2 compliant end to end configurations as standard.

// Comprehensive range of SIL2 compliant fire & gas field devices & ancillaries.

// Market leading product in terms of system flexibility and configuration.

// Global expertise… local delivery… comprehensive through life service & support.

// Highly competent engineering teams operated by TUV certified engineers (TUV Rheinland, SIS).

// We have the capability of engineering a SIL2 compliant upgrade and maximising the use of existing system architecture where possible.

// We are able to provide complete Life Safety & Asset Integrity throughout the lifecycle of an installation through design, engineering, installation, commissioning & routine maintenance of both new & upgraded safety instrumented systems (ESD/F&G).

// Our SIL2 addressable detection system is capable of being integrated with 3rd party DCS/SCADA/ESD system utilising a number of different communication protocols.

// We carry a team of engineers that are certified for working in marine and offshore environments for the purposes of installation, commissioning & maintenance/through life support globally.

// Tyco is providing SIL2 compliant systems to Marine and Oil & Gas customers globally.

In addition to our SIL2 addressable solution, Tyco also has the capability and experience of providing SIL3 Safety Instrumented Systems (SIS)

Our history

With experience that can be traced as far back as 1852 and one of the world's largest portfolios of fire, safety and asset integrity solutions, Tyco is a leader in meeting safety and security challenges for the Oil and Gas market. We are passionately committed to helping customers improve safety and asset integrity. As such Tyco helps protect 90% of the world's top 50 Marine and Oil and Gas companies for all types of assets and facilities, from fixed platforms, FPSO's, semisubmersible platforms, semi-sub drillers, drill ships, cargo vessels, oil tankers, platform supply vessels to terminals and refineries, around the world. With major Marine and Oil and Gas Centres of Excellence in the UK, Tyco has 35 years' experience in providing safety and asset integrity solutions to the global Marine and Oil and Gas markets.

Defining the SIF's and assigning SIL's

What is Functional Safety?

// Safety is defined as freedom from unacceptable risk.

// Risk management typically uses the ALARP (as low as reasonably practicable) principle to define tolerable risk.

// Functional safety aims to engineer / design out all random, common cause & systematic failures that may result in harm to people, property or the environment.

What are the standards associated with Functional Safety?

The following standards use SIL as a measure of reliability and/or risk reduction:

ANSI/ISA S84 (functional safety of safety instrumented systems for the process industry sector)

IEC EN 61508 (functional safety of electrical/electronic/programmable electronic safety related systems)

IEC 61511 (safety instrumented systems for the process industry sector)

IEC 61513 (nuclear industry)

IEC 62061 (safety of machinery)

EN 50402 (fixed gas-detection systems) defence standard 00-56 Issue 2 – accident consequence

// These standard are considered state-of-the-art or good engineering practice so in the absence of any other standard the above will be enforceable in a court of law.

What is a Safety Instrumented Function (SIF)?

// SIF – Critical safety system function to reduce risk!

// In a safety system a SIF is a single safety loop (or system) made up of a number of sub-systems, typically a sensor, a controller and an end element (e.g. Detector, T2000 Panel, Sounder).

What is a Safety Integrity Level (SIL)?

// SIL – level of safety assigned to a single SIF (SIL1, 2, 3, 4).

// Carries technical & non-technical requirements, higher the level the stricter the requirements.

Defining the SIF's & assigning SIL's

// In order to define individual SIF's the end user must first complete a number of activities to assess both the possible hazards involved with the process and then the risks these hazards may have.

// Hazard analysis techniques can include fault tree analysis, event tree analysis, cause/consequence.

Analysis, dispersion modelling etc.

// Risk Reduction Assessment (RRA) methods include FMEA,HAZOPS, LOPA, risk matrix/graphs.

// From the above activities a SIF can be identified and a SIL can be applied.

A SIF is made of 5 elements – Sense, Logic, Actuate, Timing, SIL (SLATS)

Sense
On activation of the call point

Logic & Actuate
The fire alarm panel will activate the relevant evacuate output group

Timing
Immediately sounding the evacuate sounder

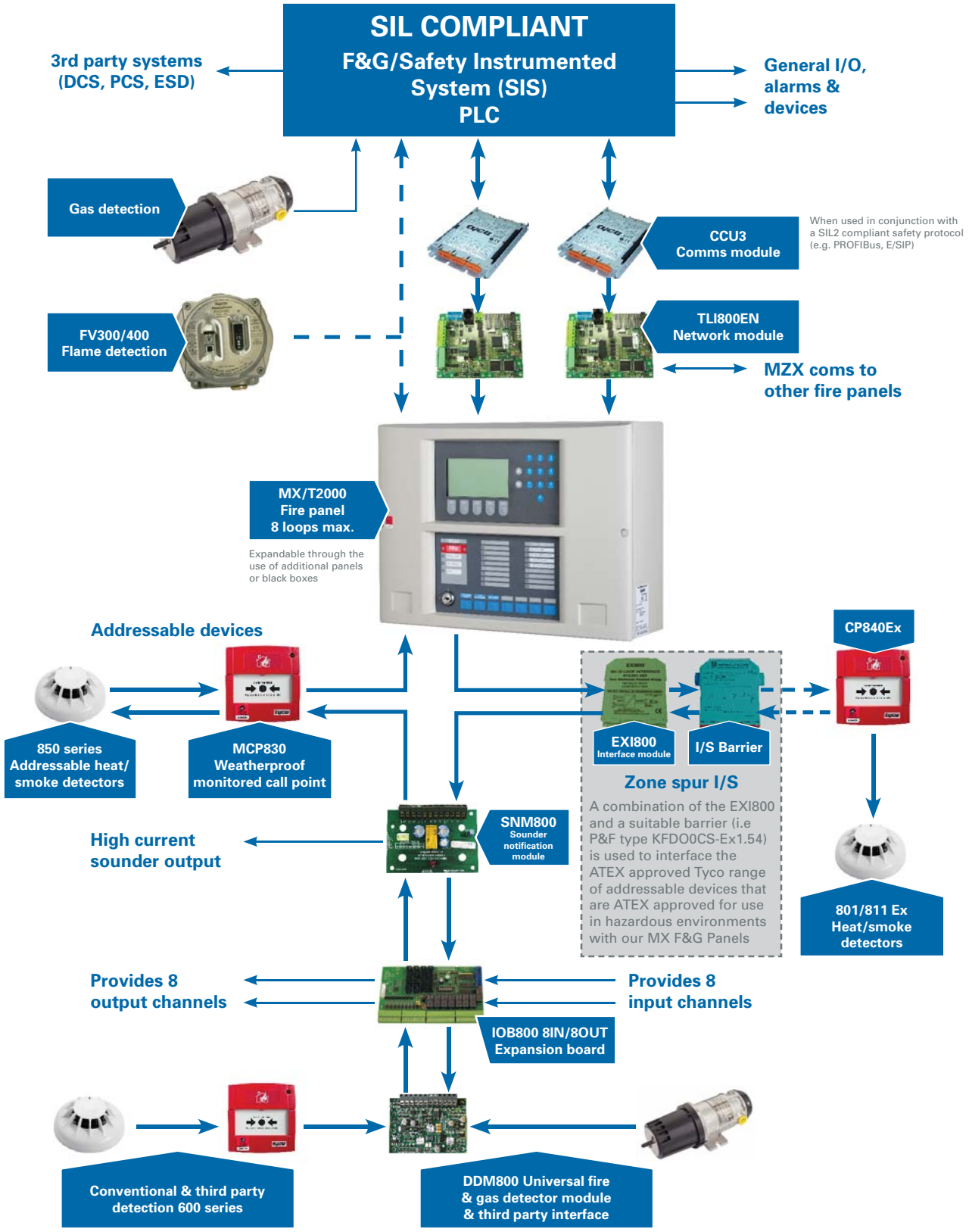
SIL
The Safety Integrity Level of this Safety Instrumented Function is SIL2

Single complete system/loop (SIF)

Sub-System Sub-System Sub-System

Tyco can provide complete Life Safety & Asset Integrity throughout the lifecycle of an installation through design, engineering, installation, commissioning & routine maintenance of both new & upgraded safety instrumented systems (ESD/F&G)

The SIL2 rated complete Fire & Gas (F&G) solution



This block diagram demonstrates the various architectural configurations available

Why is it important to be SIL2 compliant

Certification

The International Electrotechnical Commission's (IEC) standard IEC 61508 defines SIL using requirements grouped into two broad categories: hardware safety integrity and systematic safety integrity. A device or system must meet the requirements for both categories to achieve a given SIL.

Certification schemes are used to establish whether a device meets a particular SIL. The requirements of these schemes can be met either by establishing a rigorous development process, or by establishing that the device has sufficient operating history to argue that it has been proven in use.

Electric and electronic devices can be certified for use in Functional Safety applications according to IEC 61508, providing application developers the evidence required to demonstrate that the application including the device is also compliant. IEC 61511 is an application-specific adaptation of IEC 61508 for the Process Industry sector. This standard is used in the petrochemical and hazardous chemical industries, among others.

What does SIL2 mean to a Fire and Gas System and how does it enhance reliability and resilience

Each element of a SIL rated safety function must have a calculated probability of failure on demand. All sub components are included in the safety calculation.

Evidence of these safety calculations in the form of a Safety Analysis Report (SAR) is critical in proving Functional Safety compliance.

It is also critical for each device to be certified as SIL compliant, that the safety data has to be third party verified and assessed by an independent certification body (e.g. are TUV, ESC, EXIDA,SIRA).

Tyco's SIL2 addressable detection system is capable of being integrated with 3rd party DCS/SCADA/ESD system utilising a number of different communication protocols

Safer. Smarter. Tyco.™

Global Strength. Local Expertise.
At your service.

Contact us for further information on how we can help with your Safety & Asset Integrity requirements.

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Achilles – Supplier number 28034
Qualified in Oil and operating companies Joint Qualification System for Suppliers

Quality System
Holta & Håland AS is working according to ISO9001: 2000

Health Safety and Environment
Holta & Håland AS is working according to ISO9001: 2000

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Strategic Partners for Safety & Asset Integrity in Norway

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RoSPA GOLD MEDAL Award

Achilles JQS Qualified

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