Engineered Solutions for Safety Instrumented Systems
“...Functional Safety is at the heart of everything we do...”

SELLA CONTROLS has developed a strong reputation of proven expertise in the supply of Safety Instrumented Systems (SIS) and Control Systems to the Process Industries. Through our partnerships with key product suppliers and our in-house engineering capabilities, the company offers complete turnkey project capability which includes design, manufacture, engineering, test, installation management and commissioning.

SELLA CONTROLS’ reputation as a proven full lifecycle service provider is also maintained through its team of dedicated technical support personnel.

Safety First
Operating safely calls for compliance with best engineering practices. This means following internationally recognised standards that require a life-cycle approach to identifying, managing and reducing risk across all phases of a safety-critical project.

SELLA CONTROLS work to ensure that every aspect of the safety life-cycle is addressed in a way that guarantees safe operation and full compliance with regulatory expectations.

SELLA CONTROLS is a founding member of the 61508 association and in 2001 was awarded the first UKAS accredited SIRA CASS certificate for Functional Safety Management, an accreditation we have retained ever since. Functional Safety is built into our Quality Management System and this ensures the required techniques and measures detailed in IEC 61508 and IEC 61511 are applied to all safety critical projects. Our pedigree and history make SELLA CONTROLS the logical choice for Safety Instrumented System and Functional Safety solutions.

Experts Through Experience and Certification
SELLA CONTROLS has been providing safety-critical controls systems for 40 years and our team of competent engineers includes a number of TÜV certified Engineers. In addition our Functional Safety Technical Authority is a TÜV Rheinland Certified Functional Safety Expert (SIS, ID#260/15).

Our Quality Management System has been approved to BS EN ISO 9001 since 1989.
Project Management and Delivery

Successful project management and delivery have a significant influence on the reputation of Sella Controls worldwide. All projects are assigned a dedicated project delivery team who will ensure project milestones are achieved, client satisfaction is exceeded and that a philosophy of flexibility is maintained. Strong communication is the key to the success of projects and the Sella Controls project teams are encouraged to develop strong relationships with the client team. This is strengthened by the company’s UK based project delivery teams.

On successful completion of all factory activities, the project teams have the necessary expertise to provide site installation management and commissioning of the equipment.

Consultancy & Design

Success in the delivery of sound engineered solutions has been achieved utilising the experience of specialist teams. This experience is best utilised during the consultancy and design stages of a project. The engineering team’s valuable knowledge and experience can be called upon to improve the value of risk assessment, SIL determination studies and whole life costing activities.

In respect of safety applications Sella Controls’ dedicated Certified Functional Safety engineers are on hand to produce detailed functional design for a wide range of applications. In addition you will have access to our TÜV Rheinland Certified Functional Safety Expert (SIS, ID#260/15) who can provide expert advice on all aspects of the functional safety lifecycle and the regulatory regime for Safety Instrumented Systems.

Systems Integration and Testing

The successful implementation of a system relies not only on thorough design processes but also extensive engineering and system integration principles. The Sella Controls approach utilises simple engineering procedures that have been proven through the implementation of many projects. Sella Controls’ philosophy of a flexible, modular and open architecture design ensures simple integration of all equipment to third party applications. Detailed independent and fully integrated testing procedures are performed in-house proving system functionality in a safe environment before final commissioning tests are undertaken at site.

Systems Support

Sella Controls has an established, dedicated team of technical support engineers who ensure that clients receive maximum benefit and reliability during the operational life of a system. These highly trained and skilled engineers provide a range of services including 24/7 technical support and site attendance, operational and maintenance training, system modifications and upgrades. All of these services are designed to ensure that individual clients are offered the most cost effective solutions to maintain system availability and reliability.
Integrated Control & Safety Systems (ICSS)

While ICSS - as an overall practice/philosophy - has its roots in the petrochemical industry, increasingly other sectors are choosing to embrace the concept and are integrating safety with process control, communications, security, site surveillance and other infrastructure elements. Bringing key operational/process and safety information together in a safe manner is of course key to an ICSS.

It is vital that safety controllers and associated I/O are sufficiently independent and of diverse technology to the Basic Plant Control System (BPCS) as required by IEC 61508 and IEC 61511. SELLA CONTROLS utilises our long term product partner HIMA's SIS technology and our own system integration competence to allow for total flexibility in choice of control systems via our ability to safely integrate our Safety Instrumented Systems with any recognised DCS control system.

SELLA CONTROLS has a dedicated team of engineers whose combined system integration and Functional Safety knowledge enables us to deliver the benefits of a truly integrated control and safety system whilst ensuring independence and avoiding the introduction of common cause systematic errors between protective layers.

Our product independence, history and pedigree makes SELLA CONTROLS the logical choice for the design and supply of Integrated Control and Safety Systems (ICSS)
**Emergency Shutdown Systems (ESD)**

Emergency Shutdown Systems are used across a wide range of industries and offer personnel, asset and environmental protection by means of instantaneous, fail safe, plant immobilisation.

The ESD is arguably the most widely used safety related application. It works by minimising the consequences of an on-site emergency by establishing and identifying safety critical signals which are then controlled and actioned to put the entire facility into a safe “stop” situation.

A series of pre-engineered functions will then bring the facility back into full operation once the cause of the shutdown has been determined and dealt with.

By offering programmable and non-programmable solutions, **SELLA CONTROLS** provides a versatile range of plant protection up to IEC 61508 SIL 3. Whether the application requirement is for a small number of I/O signals or a complex system consisting of thousands, **SELLA CONTROLS** has the expertise to design and build a tailored ESD System to meet client specifications.

**Burner Management Systems (BMS)**

**SELLA CONTROLS** offers a number of solutions to best meet end user requirements for Burner Management Systems. These can be based on the distributed PES, allowing for the integration of the safety and control elements within a common system, using separate segregated hardware. This is useful on multi burner systems by enabling segregation of hardware for each burner. This flexible solution helps in the maintenance of the BMS.

**Fire & Gas Detection (F&G)**

**SELLA CONTROLS** Fire & Gas detection systems encompass a turnkey solution that includes sensing elements; TÜV certified logic solvers and protection devices.

**SELLA CONTROLS** provides equipment from approved third party suppliers and recognised gas detector companies. Protection devices such as deluge systems can also be supplied, typically in oil and gas related industries, however a system can be designed for virtually any scenario where fire and gas safety and availability are key.

Our fire and gas systems are generally programmable in order to cater for complex alarming arrangements and we use equipment certified up to SIL 3 in accordance with IEC 61508 that also offers line monitoring as standard. Single or dual I/O versions are available for increased availability but even our simplex I/O solutions are SIL 3 capable.

Typically, Fire and Gas systems are designed with dual communications links for increased availability and are offered in the following protocols: Modbus RTU slave RS485, ethernet OPC and Profibus DP slave. Consequently, a wide range of connection possibilities with plant control systems are available.
**High Integrity Pressure Protection Systems (HIPPS)**

The High Integrity Pressure Protection Systems designed by Sella Controls provide increased safety for pipelines and other critical plant where normal operation at higher pressures would not be permitted with ordinary ESD systems. Sella Controls provides a complete turnkey solution for HIPPS, which is IEC 61508 SIL rated and encompasses the following elements:

- Pressure transmitters
- High integrity manifolds
- Logic solvers - programmable and hardwired
- Axial flow and fully piggable ball or gate valves and actuators complete with partial stroke testing if required

Typically, certified pressure transmitters are used in the classic 2oo3 configuration for improved Probability of Failure on Demand (PFD). Certified logic solvers - either with single or dual I/O for increased availability - can be mounted in safe areas or in EExnR, EExe and EExp applications for Zone 2 operation in harsh conditions.

Valves can be supplied either as single or dual units for increased safety and the whole system is TÜV certified for each individual installation, as required to meet national and international regulatory requirements.

**Tank Overfill Protection Solutions (TOPS)**

Sella Controls’ tank overfill protection solutions (TOPS), introduced following the major incident at the Buncefield fuel depot in 2005, provides reliable and highly cost effective protection for both plant and personnel. Specifically designed to automatically shutdown the supply transfer pipeline to petrol storage tanks, TOPS prevents overspills and the potential formation of highly flammable vapour clouds.

Utilising programmable logic controllers, the system can protect either a single tank or a large multiple tank network installation. With suitable level transmitters and valves it can be used in applications up to and including SIL 3.

**Sella Controls’ TOPS applications offer the following advantage:**

- Distributed, safety-related automation solutions
- Installation of the safety controllers directly in EX Zone 2 (EN 50021, 94/9/EC)
- Safety-related communication via a variety of media
- Network availability by means of ring management
- Application specific increase in availability due to local installation of controllers and also parallel remote I/O lines
- A common network for safety-related and non-safety related data, project planning, configuration, diagnostics, visualisation, logging and remote maintenance
- Open protocol interfaces for tank station data transfer management systems
IEC 61508 & Functional Safety Consulting

Functional Safety Lifecycle Services

The effective implementation of functional safety standards, practices and processes is increasingly important in ensuring that Safety Instrumented Systems are appropriately specified, designed and maintained. IEC 61508 and the process sector specific functional safety standard IEC 61511 promote the concept of the safety lifecycle and experience shows that engaging experts early in the design process has a positive impact on projects.

SELLA CONTROLS have over 40 years’ experience in the specification, design, installation and modification of safety critical control systems. Our experience spans multiple industry sectors including Oil and Gas, Petro-chemical and Nuclear.

Our involvement gives you access to our combined functional safety knowledge, competency and our TÜV Rheinland Certified Functional Safety Expert (FS-Expert, SIS, ID#260/15).

We can support you by providing expert led Functional Safety services across the entire lifecycle including:

- Functional Safety Management
- HAZOP / CHAZOP / FMEA Facilitation
- SIL Determination (LOPA, Risk Graph FTA)
- Safety Requirements Specification
- Full Loop SIL Verification
- Proof Test Procedure Development
- HIPPS Dossier Management
- Independent Functional Safety Assessment

References

Listed below is a selection of projects undertaken. Further details can be made available on request:

- ACG Project, Central Azeri - Instrumented Protection System (IPS)
- Coryton Refinery (BP) - Cat Cracker Safety Instrumented System
- Gas Compressor Station, Slovenia - Emergency Shutdown (ESD)
- Buzzard (Nexen), North Sea - Emergency Shutdown (ESD)
- Brae B Platform (Px Ltd), North Sea - Platform SIS
- B-193 Field (ONGC), India - HIPPS
- Fawley Refinery (Exxon) - FCCU Olefins Project, Protective Instrument Systems (PIS)
- Flyndre and Cawdor (Repsol) - SIS
- Ineos Chlor Genesis - Emergency Shutdown (ESD)
- Irish Distillers Middleton - Emergency Shutdown (ESD)
- Grangemouth (Ineos), Jetty 4 - Failsafe Shutdown System (ESD)
- KEP 2010 Kårstø Expansion Plant (Statoil) - ESD HIPPS & CAP
- Kittiwake Platform (Enquest) - Fire and Gas Detection
- OPC PTA Plant, Shanghai - SIS
- Ormen Lange (Statoil) - High Integrity Pressure Protection (HIPPS)
- NET 1, KEP 2005 & KEP 2010 - ESD & HIPPS
- Pearl GTL (Shell Qatar) - High Integrity Pressure Protection (HIPPS)
- Rosetta Project, (Respecto Egypt) - Emergency Shutdown (ESD) and Fire & Gas Detection (F&G)
- Snøhvit LNG Facility (Statoil) - Multiple Safety Systems: ESD, HIPPS, SIS
- Tengiz Project (Chevron), Kazakhstan - NGGS ICSS
- Tengiz Project (Chevron), Kazakhstan - GEEP ICSS
- Terra Nitrogen - Burner Management System (BMS)
- Wilton Jetty 3 Upgrade (Hunstman- Emergency Shutdown (ESD)
- Woqod LPG Bottling Plant - Integrated Control & Safety System (ICSS)
- Zakum Gas Injection, Abu Dhabi - High Integrity Pressure Protection (HIPPS)
Located in Stockport, Cheshire Sella Controls Limited has easy access to the motorway network, mainline railways and Manchester International Airport. Sella Controls Limited has custom built offices and workshops providing:

- **Consultancy**
  - Lifecycle Services • Risk Assessment • SIL Determination
  - Independent Assessment (FSA) • Third Party Certification

- **Project Management**
  - On time delivery of project • Regular customer contact
  - Agreed milestones to monitor progress

- **Design**
  - Detailed Hardware Design • Software Development • Auto CAD
  - Loop Diagrams

- **Engineering**
  - Functional Design Specification • Safety Requirements
  - Safety Requirements Specification

- **Manufacturing**
  - Panel Build • System Build • System Integration

- **Testing**
  - In-house • Factory Acceptance Testing • Site Acceptance Testing

- **Commissioning**
  - System Inspection • Support during Start-up

- **Technical Support**
  - 24 hour call out support • Upgrade/Modifications
  - Maintenance (IEC 61511 life cycle) • Proof testing

- **Training**
  - Hardware/Software Design • Maintenance and Servicing
  - Customised courses

Sella Controls Limited
Safety Control & Automation Systems
Carrington Field Street, Stockport,
Cheshire SK1 3JN United Kingdom
Telephone: +44 (0) 161 429 4500 • facsimile: +44 (0) 161 476 3095
email: sales@sellacontrols.com • web: www.sellacontrols.com