



ENGINEERING SAFETY CONSULTANTS

The Global Provider of Functional Safety Expertise and Technical Consultancy

Safety Integrity Level Capability Certificate

Functional Safety of Safety-Related Programmable Electronic Systems

The **TAIT Towers, Siemens Based Navigator High Performance Automation System** has been assessed and is considered suitable for use in SIL 3 Safety Functions based on the design and requirements stated in the Functional Design Specification (Issue 2.1, October 2020) and the assumptions, data provided, and conditions given in the subsequent documents:

- Functional Safety Plan (Issue 2.1, October 2020);
- Maintenance Mode Hazardous Risk Assessment (Revision 1.2, October 2020);
- Operation Mode Hazardous Risk Assessment (Revision 1.3, October 2020);
- Safety Requirement Specification (Issue 2.1, October 2020);
- Internal Verification Checklist (Revision 1.2, October 2020);
- List of Parts (Revision 2, September 2020);
- Software Design Specification Siemens Axis Safety and Motion PLC (Issue 1.2, October 2020);
- Software Requirements Specification and Design Document for the Safety PLC and Navigator Control System (Issue 1.1, October 2020);
- Siemens Software Configuration Document (Issue 1.1, October 2020);
- Navigator Software Configuration Document (Issue 2, October 2020);
- Software Verification Testing Plan (Issue 2.1, October 2020);
- Software Verification Testing Checklist (Version 2.1, October 2020);
- Operation and Maintenance of Safety Systems (Issue 2.1, October 2020);
- Validation Plan (Issue 2.1, October 2020);
- Validation Checklist (Version 2, October 2020);
- Modification Procedure (Issue 1, February 2017);
- Competency Register (Issue 2, August 2020);
- Competency and Training Register Spreadsheet (Version 7, August 2020);
- Navigator Software Corrective Action Procedure (Issue 2, August 2020);
- Safety Commissioning Manual (Issue 2.1, October 2020);
- Safety Critical Software (Issue 2.1, September 2020);
- Navigator High Performance Automation System Functional Safety Assessment (E057_FSA_62061 Rev. 4, November 2020);
- Navigator High Performance Automation System – Siemens Simatic S7 Safety Functions SIL Verification (E057_SV003_Rev. 6, January 2021);
- Functional Design Specification (Siemens) (Issue 2.1, October 2020).

This certificate can cover project-specific systems only if the system's requirements and design fully comply with Functional Design Specification (Issue 2.1, October 2020) and the subsequent documents listed above.

Page 1 of 2

ENGINEERING SAFETY CONSULTANTS LTD

2nd Floor, Exchequer Court, 33 St. Mary Axe,
London, EC3A 8AA UK

Telephone: +44 (0)20 8542 2807

E-Mail: info@esc.uk.net Web: www.esc.uk.net

Registered in England and Wales: 7006868

Registered Office: 33 St. Mary Axe, London, EC3A 8AA



ENGINEERING SAFETY CONSULTANTS

The Global Provider of Functional Safety Expertise and Technical Consultancy

The details of the system and the scope of the assessment are outlined below:

The systems consist of a combination of parts which are SIL 3 High Demand, and parts which are High Demand SIL 1 systems monitored by a Low Demand SIL 2 system, giving an overall SIL 3 system. Safety Functions assessment comprising of:

- Random Hardware Failures;
- Safe Failure Fraction;
- Systematic Capability of Hardware and Software;
- Assessment of Components and Subsystems;
- Established Common Cause Factors.

System designed and manufactured by: TAIT Towers, 401 W Lincoln Avenue, Lititz, PA 17543

Managing Director: Simon Burwood

Assessment Date: November 2020

Renewal Date: December 2022, valid to December 2024

Certificate: E057_CT002 rev. 3

ENGINEERING SAFETY CONSULTANTS LTD

2nd Floor, Exchequer Court, 33 St. Mary Axe,
London, EC3A 8AA UK

Telephone: +44 (0)20 8542 2807

E-Mail: info@esc.uk.net Web: www.esc.uk.net

Registered in England and Wales: 7006868

Registered Office: 33 St. Mary Axe, London, EC3A 8AA