Statement of Work - Danfoss Safety Software Implementation

Template for United States of America  
Fixed-Price Standalone SOW

02/July/2025

Presented By:

John Smith

Senior Embedded Systems Engineer

7301 Parkway Drive, Hanover, MD 21076

+1 (410) 555-0123

john.smith@cfeynmancompany.com

Revision Table

|  |  |  |
| --- | --- | --- |
| Revision | Date | Description of Change |
| 1.0 | XXXXX | Initial Release |

*Confidentiality Statement*

*This document contains information that is privileged, confidential, and otherwise protected from disclosure to anyone other than intended recipient(s). As a result, this information should not be disclosed, duplicated or used for any other purpose than to evaluate Actalent. On signing the contract as a result of the process initialized by submission of this document, any right to disclose, duplicate or use the data contained within this document will be to the extent provided in the resulting agreement*

Table of Contents

Table of Exhibits

[Exhibit A – Change Order 27](#_Toc102744285)

# **Introduction**

This Statement of Work (SOW) dated the 2nd day of July, 2025 (the "Effective Date") is made and entered into by and between Danfoss A/S, a Danish corporation, having a place of business at Nordborgvej 81, DK-6430 Nordborg, Denmark (the "Client") and CFeynmanCompany Services, LLC, a Maryland limited liability company, having its principal place of business at 7301 Parkway Drive, Hanover, MD 21076 ("CFeynmanCompany"); individually referenced here after as "Party" and collectively referenced hereafter as the "Parties".

# **Executive Summary**

Danfoss A/S is a leading global supplier of engineering solutions that enable efficient energy use and climate-friendly technologies. The Client has developed safety-critical software systems requiring ASIL C compliance for their automotive applications. Currently, Danfoss has approximately 110 software safety requirements at various levels of implementation, with ongoing architecture changes necessitating comprehensive code refactoring.

CFeynmanCompany proposes a comprehensive solution addressing four critical areas for the safety MCU: two CPU architectures, motor control, diagnostics, and safety implementations. Our approach includes careful selection and implementation of safety requirements, comprehensive testing across unit, bench, HIL, and dyno environments, code refactoring for architectural modules, and ASIL design documentation to close existing gaps. Additionally, we will address the new control systems for dyno testing, CANoe and UDS work, and develop a UI tool for CANoe interface.

Our key recommendations include prioritizing safety requirement implementations to minimize learning curves, establishing comprehensive system-level documentation, implementing diagnostic coverage to handle all safety cases, and ensuring traceability from safety goals to the lowest implementation level. CFeynmanCompany's value proposition lies in our deep expertise in ASIL compliance, proven methodologies for safety-critical automotive software, and comprehensive approach to testing and validation that will enable Danfoss to achieve high confidence validation by year-end.

# **Scope of Work**

This section lists the project requirements that must be met and describes these requirements as CFeynmanCompany understands them. In addition, this section details the CFeynmanCompany solution and includes the following subsections:

## **Project Requirements**

This subsection lists all the Client project requirements as understood by CFeynmanCompany:

* Implementation of approximately 110 software safety requirements at various implementation levels
* Code refactoring to accommodate architectural changes in existing software implementations
* Development and implementation for 4 areas of safety MCU: 2 CPU architectures, 1 motor control, 1 diagnostic, and safety
* Comprehensive testing across 3 stages: Unit testing (using Vector Cast), Bench testing, HIL testing, and Dyno testing
* ASIL design documentation development to close existing gaps
* System-level and software design documentation creation
* Diagnostic coverage implementation to handle all safety cases
* ASIL C compliance with full safety case justification
* Traceability maintenance from safety goals to lowest implementation level
* New control systems development for Dyno testing with flexible architecture
* CANoe and UDS implementation work
* UI tool development for CANoe interface with Windows
* Year-end release preparation with high confidence validation

## **Assumptions**

This subsection describes assumptions identified for the completion of this project:

* Safety goals and safety case documentation are known and available
* FTA, FMEA, FMEDA documentation exists and is traceable to requirements at the lowest level
* Hardware changes are not planned during the project duration
* Both ECUs are QN rated and not requiring other ASIL ratings
* HIL testing environment is under development and will be available as needed
* Existing software architecture documentation is available for refactoring activities
* Customer vehicle development timeline aligns with artifact delivery schedule
* DBC files will be provided by Danfoss for CAN message integration
* Vector Cast testing environment is properly configured and accessible
* Year-end release timeline is firm and non-negotiable

## **Methodology or Approach**

This subsection describes the implementation plan for the CFeynmanCompany solution:

CFeynmanCompany will employ a phased approach to address the safety software implementation requirements. Phase 1 will focus on careful selection and prioritization of the 110 safety requirements to minimize learning curves and maximize implementation efficiency. Phase 2 will involve comprehensive code refactoring to accommodate architectural changes while maintaining ASIL C compliance. Phase 3 will implement the four critical safety MCU areas with parallel development tracks for CPU architectures, motor control, diagnostics, and safety systems.

Our testing methodology will follow a progressive validation approach across four stages: Unit testing using Vector Cast, Bench testing for component validation, HIL testing for system integration, and Dyno testing for full system validation. Documentation development will proceed in parallel, ensuring ASIL design documentation gaps are closed and comprehensive system-level and software design documentation is created. The new dyno control systems will be developed with flexible architecture to address current rigidity issues, while CANoe/UDS work and UI tool development will proceed in parallel work streams.

## **Engineering System Design**

This section lists the major system components, key process participants, and meaningful working relationships through high-level system architecture diagrams.

### **High-Level Block Diagram**

A high-level block diagram will be developed showing the safety MCU architecture with four primary domains: dual CPU architectures for redundancy, motor control systems, diagnostic subsystems, and safety monitoring systems. The diagram will illustrate data flow, safety barriers, and interaction points between systems to ensure ASIL C compliance and traceability.

### **Systems Flow Chart**

Systems flow charts will detail the testing progression from unit testing through Vector Cast, bench testing, HIL testing, to final dyno validation. Additional flow charts will illustrate the CANoe integration process, DBC merging workflows, and the UI tool interface architecture for Windows-based CANoe control.

## **Acceptance Criteria**

This section identifies and describes the conditions that must be met for acceptance by the Client:

* All 110 safety requirements successfully implemented and validated
* Code refactoring completed with architectural modules functioning as specified
* All four safety MCU areas operational and meeting ASIL C compliance
* Testing completed successfully across all four stages: Unit, Bench, HIL, and Dyno
* ASIL design documentation completed and all gaps closed
* System-level and software design documentation delivered and approved
* Diagnostic coverage implemented to handle all identified safety cases
* Safety case documentation complete with full traceability from goals to implementation
* New dyno control systems operational with flexible architecture
* CANoe and UDS implementation functional and tested
* UI tool for CANoe interface delivered and operational on Windows platform
* All DBC files merged and CAN message processing validated
* Year-end release readiness achieved with high confidence validation

# **Assets/Information Required**

This section identifies and describes the required assets, information, and tools required from the Client to complete the project:

* Complete set of 110 safety requirements documentation
* Existing software architecture documentation and codebase
* Safety goals and safety case documentation
* FTA, FMEA, FMEDA analysis documents
* Hardware specifications for both ECUs
* Vector Cast testing environment access and configuration
* HIL testing environment once development is complete
* Dyno testing facility access and specifications
* Current DBC files for CAN message definitions
* CANoe software licenses and configuration files
* Existing diagnostic coverage documentation
* QN rating documentation for both ECUs
* Customer vehicle development specifications and timelines

# **Governance and Review**

This section addresses the governance and review applied towards the completion of this project including weekly progress reviews, milestone gate reviews, and safety compliance audits.

Weekly progress reviews will be conducted to track implementation progress, identify risks, and ensure adherence to the year-end timeline. Milestone gate reviews will be performed at the completion of each major phase to validate deliverables before proceeding to the next phase. Safety compliance audits will be conducted quarterly to ensure ASIL C compliance is maintained throughout development. All reviews will include documentation review, code inspection, and testing validation to ensure high confidence in the final deliverables.

# **Out of Scope**

This section states the agreed upon requirements and/or items not included in the Scope of Work. These items usually require significant effort that would impact and require additional work. If it becomes necessary to complete these requirements and/or items, then a Change Order would be required:

* Hardware modifications or changes to existing ECU designs
* ASIL certification beyond ASIL C level
* Full safety certification and regulatory approval processes
* Customer vehicle integration beyond artifact delivery
* Manufacturing process design and implementation
* Supply chain management for production components
* Maintenance and long-term support beyond project completion
* Training programs for Danfoss personnel
* Intellectual property licensing negotiations
* Regulatory compliance documentation beyond safety requirements
* Production tooling design and implementation
* Quality management system implementation
* Third-party supplier qualification and management

# **Deliverables**

This SOW describes the support needs relating to the project in terms of the following deliverables:

## **Deliverable 1 - Safety Software Implementation**

Complete implementation of 110 safety requirements with refactored code modules for 4 safety MCU areas including dual CPU architectures, motor control, diagnostics, and safety systems. Includes comprehensive testing validation across Unit, Bench, HIL, and Dyno environments.

Ship to Address: Nordborgvej 81, DK-6430 Nordborg, Denmark

## **Deliverable 2 - ASIL Documentation Package**

Complete ASIL design documentation package including system-level and software design documentation, diagnostic coverage documentation, safety case documentation with full traceability from safety goals to implementation level.

Ship to Address: Nordborgvej 81, DK-6430 Nordborg, Denmark

## **Deliverable 3 - Dyno Control Systems and CANoe Integration**

New flexible dyno control systems, CANoe and UDS implementation, UI tool for CANoe interface with Windows, merged DBC files and CAN message processing scripts for data logging and signal decoding.

Ship to Address: Nordborgvej 81, DK-6430 Nordborg, Denmark

# **Project Schedule**

This section describes the project schedule, including the start date and estimated completion date.

## **Project Start Date**

The project start date will be mutually agreed on by the Client and CFeynmanCompany after the SOW signature. CFeynmanCompany can typically begin a project 2 to 3 weeks after the execution of the SOW and receipt of a Purchase Order (if applicable).

## **Estimated Completion Date**

The estimated completion date is December 31, 2025, aligning with Danfoss's year-end release timeline for high confidence validation.

# **Proposed Team and Organization**

This section describes the proposed CFeynmanCompany team and organization, including team structure, roles, and responsibilities, as well as the assignment of responsibilities.

## **Team Organization**

The CFeynmanCompany team consists of Project Manager, Senior Safety Engineer, Embedded Software Engineers, Test Engineers, and Documentation Specialists and is organized as illustrated below:

[ORGANIZATIONAL CHART TO BE INSERTED HERE]

## **Roles and Responsibilities**

The classification, role, location, and a brief description of their responsibilities are listed in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Role** | **Classification** | **Location** | **Responsibilities** |
| Project Manager | Core | Maryland, USA | Overall project coordination, timeline management, client communication |
| Senior Safety Engineer | Core | Maryland, USA | ASIL compliance oversight, safety requirement implementation, safety case development |
| Lead Embedded Software Engineer | Core | Maryland, USA | Architecture design, code refactoring, safety software implementation |
| Embedded Software Engineers (2) | Core | Maryland, USA | Software development, unit testing, code implementation |
| Test Engineer | Core | Maryland, USA | Test planning, HIL/Dyno testing, Vector Cast implementation |
| CANoe/UDS Specialist | Support | Maryland, USA | CANoe integration, UDS implementation, DBC file management |
| Documentation Specialist | Support | Maryland, USA | Technical documentation, ASIL documentation, traceability matrix |
| Quality Assurance Engineer | Support | Maryland, USA | Quality reviews, compliance verification, audit support |

## **RASCI**

This section includes a responsibility assignment matrix, or RASCI matrix, which describes the participation of various roles in completing tasks or deliverables for a project or business process.

Key: Responsible - R, Accountable - A, Supporting – S, Consulted - C, Informed - I

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Task/Activity** | **Project Manager** | **Senior Safety Engineer** | **Lead Software Engineer** | **Software Engineers** | **Test Engineer** | **CANoe Specialist** | **Documentation Specialist** | **QA Engineer** |
| Project Planning | A | R | C | C | C | I | C | I |
| Safety Requirements Implementation | C | A | R | R | C | I | S | C |
| Code Refactoring | C | C | A | R | I | I | S | C |
| Testing Activities | C | C | S | S | A | R | S | C |
| CANoe Integration | C | I | S | S | C | A | S | C |
| Documentation Delivery | C | C | S | S | S | S | A | C |
| Quality Reviews | C | C | C | C | C | C | C | A |
| Client Communication | A | C | I | I | I | I | I | I |

# **Data Retention**

This section includes a description of how project data will be retained, managed, and used. All project data, including safety documentation, software code, test results, and compliance artifacts will be retained for a minimum of 10 years in accordance with automotive industry standards. Data will be stored in secure, encrypted repositories with controlled access. Danfoss will receive complete copies of all project deliverables and documentation. CFeynmanCompany will maintain backup copies for reference and compliance purposes only.

# **Risk Management**

This section presents a risk management plan, which includes identifying and evaluating potential risks, assigning ownership, as well as monitoring, and mitigating each. Key risks identified include: Year-end timeline pressure (High risk - managed through agile methodology and parallel workstreams), HIL environment development delays (Medium risk - contingency plans with alternative testing approaches), Safety requirement complexity and learning curves (Medium risk - mitigated through careful requirement prioritization), Hardware dependency risks (Low risk - QN rated ECUs are stable), Integration complexity with existing systems (Medium risk - managed through phased integration approach).

# **Change Management**

This section refers to the identification, initiation, and management of a change. All changes to project scope, timeline, or deliverables must be formally documented through the Change Order process. Changes will be evaluated for impact on safety compliance, timeline, and cost. Critical path analysis will be performed for any changes affecting the year-end delivery timeline. Change approval requires mutual agreement from both parties and formal documentation as specified in the Terms and Conditions section.

# **Project Pricing**

This section describes project pricing, including pricing tables, currency, payment schedules (if applicable), and assumptions.

## **Pricing**

Pricing is based on a Fixed-Price for Work. The total project cost is $485,000 USD.

|  |  |  |
| --- | --- | --- |
| **Job Title** | **Description** | **Monthly Fee (USD)** |
| Project Manager | Project coordination and management | $12,000 |
| Senior Safety Engineer | ASIL compliance and safety requirements | $15,000 |
| Lead Embedded Software Engineer | Architecture and code refactoring | $18,000 |
| Embedded Software Engineers (2) | Software development and implementation | $28,000 |
| Test Engineer | Testing across all environments | $14,000 |
| CANoe/UDS Specialist | CANoe integration and UDS work | $10,000 |
| Documentation Specialist | Technical and compliance documentation | $8,000 |
| Quality Assurance Engineer | Quality reviews and compliance verification | $6,000 |

## **Milestone Payment Schedule**

CFeynmanCompany shall deliver the work product and Client shall pay CFeynmanCompany upon acceptance of Deliverables or timely completion of a milestone, all according to the following schedule:

|  |  |  |
| --- | --- | --- |
| **Milestone/Deliverable** | **Due Date** | **Amount Payable Upon Completion** |
| Project Initiation and Planning | August 15, 2025 | $48,500 |
| Safety Requirements Analysis and Prioritization | September 30, 2025 | $97,000 |
| Code Refactoring and Architecture Implementation | November 15, 2025 | $145,500 |
| Testing and Integration Phase | December 15, 2025 | $145,500 |
| Final Deliverables and Documentation | December 31, 2025 | $48,500 |

# **Project Assumptions and Client Responsibilities**

The success of this project will require close cooperation among the team and the Client organization. Information provided by the Client was used to determine the level of effort and pricing contained in this SOW. The following assumptions and Client Responsibilities are associated with the planning and execution of this engagement.

## **Project Assumptions**

* This SOW encompasses only the Danfoss Safety Software Implementation project identified in the Scope of Work section
* CFeynmanCompany pricing does not include travel expenses related to performance of this SOW
* Travel expenses, if required, will be invoiced to Client at reasonable and actual rates
* Remote work capabilities are available and sufficient for project execution
* All required software licenses and development tools will be provided by the Client
* Year-end delivery timeline is non-negotiable and critical to project success

## **Client Responsibilities**

The CFeynmanCompany team resources will need the following:

* Access to Client project management to review priorities, steer the project, attend status meetings, and approve project deliverables
* Access to and cooperation from Client Development, QA, IT, and Safety Engineering resources
* Access to all project documentation including safety requirements, architecture documentation, existing codebase, and safety case materials
* Uninterrupted access to Vector Cast testing environment and HIL testing facilities
* Provision of all required DBC files and CANoe configuration files
* Access to dyno testing facilities and equipment
* Timely provision of HIL testing environment once development is complete
* Responsiveness of Client team members to CFeynmanCompany requests within 24-48 hours
* Dedicated Client safety engineer for consultation and approval processes
* Access to existing ECU hardware for testing and validation

# **Contact Information**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Role** | **Phone** | **Email** |
| John Smith | Project Manager | +1 (410) 555-0123 | john.smith@cfeynmancompany.com |
| Sarah Johnson | Senior Safety Engineer | +1 (410) 555-0124 | sarah.johnson@cfeynmancompany.com |
| Michael Chen | Lead Software Engineer | +1 (410) 555-0125 | michael.chen@cfeynmancompany.com |
| Lars Andersen | Technical Lead | +45 7488 2222 | lars.andersen@danfoss.com |
| Henrik Nielsen | Safety Engineering Manager | +45 7488 2223 | henrik.nielsen@danfoss.com |
| Morten Jensen | Project Coordinator | +45 7488 2224 | morten.jensen@danfoss.com |

# **Terms and Conditions**

This Statement of Work shall be governed by the standard CFeynmanCompany Terms and Conditions for Professional Services, which include provisions for:

* Services definition and change order procedures
* Acceptance of services and deliverables
* Records and reports requirements
* Audit rights and procedures
* Client premises and safety requirements
* Data protection and security measures
* Export control compliance
* Termination provisions
* Indemnification clauses
* Intellectual property rights
* Payment terms and conditions
* Limitation of liability

## **T&C Exceptions**

|  |  |  |
| --- | --- | --- |
| **T&C Item Number** | **Change** | **Approval Status** |
| Section 3.2 | Modified acceptance period to 30 days for safety-critical deliverables | Approved |
| Section 8.1 | Extended data retention period to 10 years for automotive compliance | Approved |
| Section 12.3 | Additional safety compliance indemnification for ASIL C requirements | Pending Approval |

## **Authorization**

|  |  |  |
| --- | --- | --- |
| **Party** | **Signature** | **Details** |
| Client Authorization |  |  |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  |  |  |
| CFeynmanCompany Authorization |  |  |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

# **Exhibit A – Change Order**

This Change Order template shall be used for any modifications to the original Statement of Work.

|  |  |
| --- | --- |
| **Field** | **Value** |
| Change Order Number: | CO-DANFOSS-001 |
| Date: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Requested By: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Description of Change: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason for Change: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Impact on Schedule: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Impact on Budget: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

## **Cost Impact**

|  |  |  |
| --- | --- | --- |
| **Cost Category** | **Quantity** | **Amount (USD)** |
| Additional Hours Required | TBD | $TBD |
| Material Costs | TBD | $TBD |
| Travel Expenses | TBD | $TBD |
| Total Change Order Cost |  | $TBD |

|  |  |  |
| --- | --- | --- |
| **Party** | **Signature** | **Details** |
| Client Approval |  |  |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  |  |  |
| CFeynmanCompany Approval |  |  |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |