



Project name: 100408

File date: 31.07.2026 06:12:45 Report date: 31.07.2026 Checksum: 4899a1fed69a6c84ba38ea61e1f7820e

PR Project name: 100408

Project file name: C:\Users\jkh\Documents\Projects\20211213-002 SDE Cat1 PLc 3-2 way\100408 Sistema Project - V3.0.4 - EN.ssm

Creation date: 11.12.2021 03:50:33

Project status:

Project number:

Project version:

Authors:

Project managers:

Inspectors:

Dangerous point/machine:

Documentation:

Document:

Version of software: 3.0.4 build 3

Version of standard: ISO 13849-1:2023, ISO 13849-2:2012

Checksum: 4899a1fed69a6c84ba38ea61e1f7820e

Options: ☒ Use DC intermediate levels for calculation of PFH (more precise)
☐ MTTFD capping for category 4 lower from 2500 to 100 years.

Status: ☒ green

Note: There are no warnings listed for this project (or it's subordinate basic elements).

Print options

- | | |
|--|---|
| ☒ Show device details | ☒ Show requirements on PL and Category |
| ☒ Show documentations on SF, SB, BL and EL | ☒ Show parameter documentations on PLr, PL, Category, CCF, MTTFD and DC |
| ☐ Show CCF and DC measures in detail | ☒ Show messages |

Contained safety functions**SF** Name: SDE

Required: PLr c	Reached: PL c	PFH [1/h]: 1,15E-6	Status: green
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List of documented messages:

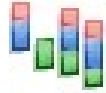
- No messages known -

List of devices with a permissible operation time (T10D) of less than 20 years:

- No devices known -

SF Name: PUS

Required: PLr c	Reached: PL c	PFH [1/h]: 1,15E-6	Status: green
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List of documented messages:

- No messages known -
-

List of devices with a permissible operation time (T10D) of less than 20 years:

- No devices known -
-



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SF Safety function: SDE

Identifier of the Safety function:

Safety function type:

Triggering event:

Reaction and
Behaviour on power failure:

Safe state:

Operation mode:

Interfaces:

Demand rate:

Running-on time:

Priority:

Documentation:

Document:

Required Performance Level Safety function

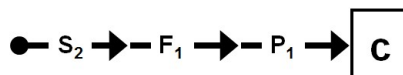
PLr (by risk graph): c

Severity of injury (S): Serious (normally irreversible) injury or death

Frequency / exposure times to hazard (F): Seldom to less often / exposure time is short

Possibility of avoiding (P): Possible under specific conditions

Risk graph:



Documentation:

Document:

Performance Level Safety function

Reached PL: c

PFH [1/h]: 1,15E-6

Electromagnetic immunity, EMI (Annex L) Safety function

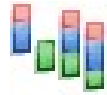
Route for fulfilment
of EMI measures: n/a

Documentation:

Document:

List of devices with a permissible operation time (T10D) of less than 20 years:

Device list:



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SF Safety function: SDE

Status / Messages Safety function

Status: green

Subsystems (1 / 1)

SB Name: Output

Reference designator:

Inventory number:

Device details Subsystem

Device Manufacturer:

Device Identifier:

Device group:

Part number:

Revision:

Function: ☐ Input ☐ Logic
☒ Output ☐ unknown

Use case:

Description of the use case:

Documentation Subsystem

Documentation:

Document:

Performance Level Subsystem

PL determination: Determine PL/PFH from Category, MTTFD and DCavg

Qualitative aspects (e.g. software, see sections 7, 10.3) Subsystem

Qualitative aspects suitable up to PL: n/a

Documentation:

Document:

Electromagnetic immunity, EMI (Annex L) Subsystem

Route for fulfilment of EMI measures: The fulfilment of the measures for electromagnetic immunity (EMI) was documented in the associated safety function.

PL requirements: fulfilled

The PL shall be determined by the estimation of the following aspects (section 6.1.1):

- Behaviour of the safety function under fault conditions [fulfilled]
- Safety-related software according to clause 7 and Annex J or no software included [fulfilled]
- Systematic failure (see clause 6.1.7 and Annex G) [fulfilled]
- Ability to perform a safety function under expected environmental conditions [fulfilled]



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SF Safety function: SDE

Reached PL:	c	PFH [1/h]:	1,15E-6
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Documentation:*Category Subsystem*

Cat.:	1
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Category requirements:	fulfilled
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Requirements for the category:

- Accordance with relevant standards to withstand the expected influences. [fulfilled]
- Basic safety principles are being used. [fulfilled]
- Well-tries components (clause 6.1.11) are being used. [fulfilled]
- Well-tries safety principles are being used. [fulfilled]
- MTTFD is at least High. [fulfilled]

Documentation:**Source (e.g. standard) Category:****File:***MTTFD and Mission time Subsystem*

MTTFD [a]:	100 (High)
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Mission time [a]:	20	Shortest mission time [a]:	20
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Status / Messages Subsystem

Status:	green
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Channels / Test channels (1 / 1)**CH** Name: Channel 1

MTTFD [a]: 100

Blocks (1 / 1)**BL** Name: 3/2 Directional control valve

Reference designator:	Q1
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Inventory number:

Device details Block

Device Manufacturer:

Device Identifier:

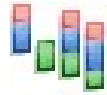
Device group:

Part number:

Revision:

Function:

☐ Input
☒ Output☐ Logic
☐ unknown



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SF Safety function: SDE

Technology: unknown

Category: -

Use case:

Description of the use case:

Documentation Block

Documentation:

Document:

MTTFD and Mission time Block

MTTFD [a]: 380,5 (High)

Mission time [a]: 20

Shortest mission time [a]: 20

B10 [cycles]: 10000000

RDF [%]: 50

B10D [cycles]: 20000000

nop [cycles/a]: 525600

Documentation:

Document:

Status / Messages Block

Status: green

SF Safety function: PUS

Identifier of the Safety function:

Safety function type:

Triggering event:

Reaction and Behaviour on power failure:

Safe state:

Operation mode:

Interfaces:

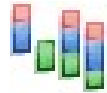
Demand rate:

Running-on time:

Priority:

Documentation:

Document:



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SF Safety function: PUS

Required Performance Level Safety function

PLr (by risk graph):	c
Severity of injury (S):	Serious (normally irreversible) injury or death
Frequency / exposure times to hazard (F):	Seldom to less often / exposure time is short
Possibility of avoiding (P):	Possible under specific conditions
Risk graph:	

Documentation:

Document:

Performance Level Safety function

Reached PL:	c	PFH [1/h]:	1,15E-6
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Electromagnetic immunity, EMI (Annex L) Safety function

Route for fulfilment of EMI measures:	n/a
Documentation:	

Document:

List of devices with a permissible operation time (T10D) of less than 20 years:

Device list:	
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Status / Messages Safety function

Status:	green
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Subsystems (1 / 1)

SB Name: Output

Reference designator:

Inventory number:

Device details Subsystem

Device Manufacturer:

Device Identifier:

Device group:

Part number:

Revision:

Function: ☐ Input ☒ Output ☐ Logic ☐ unknown



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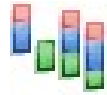
SF Safety function: PUS**Use case:****Description of the use case:***Documentation Subsystem***Documentation:****Document:***Performance Level Subsystem***PL determination:** Determine PL/PFH from Category, MTTFD and DCavg*Qualitative aspects (e.g. software, see sections 7, 10.3) Subsystem***Qualitative aspects suitable up to PL:** n/a**Documentation:****Document:***Electromagnetic immunity, EMI (Annex L) Subsystem***Route for fulfilment of EMI measures:** The fulfilment of the measures for electromagnetic immunity (EMI) was documented in the associated safety function.**PL requirements:** fulfilled**The PL shall be determined by the estimation of the following aspects (section 6.1.1):**

- Behaviour of the safety function under fault conditions [fulfilled]
- Safety-related software according to clause 7 and Annex J or no software included [fulfilled]
- Systematic failure (see clause 6.1.7 and Annex G) [fulfilled]
- Ability to perform a safety function under expected environmental conditions [fulfilled]

Reached PL: c **PFH [1/h]:** 1,15E-6**Documentation:***Category Subsystem***Cat.:** 1**Category requirements:** fulfilled**Requirements for the category:**

- Accordance with relevant standards to withstand the expected influences. [fulfilled]
- Basic safety principles are being used. [fulfilled]
- Well-tried components (clause 6.1.11) are being used. [fulfilled]
- Well-tried safety principles are being used. [fulfilled]
- MTTFD is at least High. [fulfilled]

Documentation:**Source (e.g. standard) Category:****File:**



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SF Safety function: PUS*MTTFD and Mission time Subsystem*

MTTFD [a]:	100 (High)		
Mission time [a]:	20	Shortest mission time [a]:	20

Status / Messages Subsystem

Status:	green
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Channels / Test channels (1 / 1)**CH** Name: Channel 1

MTTFD [a]: 100

Blocks (1 / 1)**BL** Name: 3/2 Directional control valve

Reference designator: Q1

Inventory number:

Device details Block

Device Manufacturer:

Device Identifier:

Device group:

Part number:

Revision:

Function:	☐ Input	☐ Logic
	☒ Output	☐ unknown

Technology: unknown

Category: -

Use case:

Description of the use case:

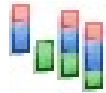
Documentation Block

Documentation:

Document:

MTTFD and Mission time Block

MTTFD [a]:	380,5 (High)		
Mission time [a]:	20	Shortest mission time [a]:	20
B10 [cycles]:	10000000	RDF [%]:	50



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Safety function: PUS

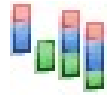
B10D [cycles]:	20000000	nop [cycles/a]:	525600
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Documentation:

Document:

Status / Messages Block

Status:	green
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EXCLUSION OF LIABILITY

Care has been taken in production of the software SISTEMA, which corresponds to the state of the art. It is made available to users free of charge.

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Glinkastraße 40
D-10117 Berlin

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Internet: www.dguv.de

NOTE

This document is not a complete technical documentation according to EN ISO 13849-1:2023, clause 12.

CONTACT

Company contact details unknown

Name in block letters

Date, signature

Authors

Authors

Inspectors

Inspectors