



Italia

COMPLIANCE

with IEC EN 61508:2010

Certificate No.: C – IS – 272994 – 01 Rev.1

CERTIFICATE OWNER: G.M. International s.r.l.
Via G. Mameli, 53-55
I-20852 Villasanta (MB) – ITALY

WE HEREWITH CONFIRM THAT
THE MODULES IN THE TABLE ENCLOSED TO THE PRESENT DOCUMENT
MEET THE REQUIREMENTS OF IEC EN 61508:2010
(LOW AND HIGH DEMAND MODE OF OPERATION)

Examination result: The above described Modules were found to meet the standard defined requirements of the safety levels detailed in the following table (T-IS-272994-01) according to IEC EN 61508:2010, under fulfillment of the conditions listed in the related Reports, mentioned in the same table, in their currently valid version, on which this Certificate is based

Examination parameters: Functional characteristics, reliability and availability parameters and functional safety management

Official Summary Table No.: T-IS-272994-01

IT IS TO BE INTENDED THAT THE ABOVE OFFICIAL SUMMARY TABLE IS AN INTEGRAL PART OF THIS DOCUMENT.

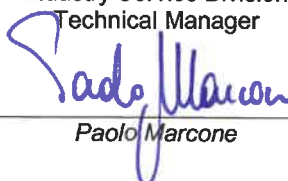
Reference Standard IEC EN 61508:2010 Part 1, 2, 4, 6, 7

Sesto San Giovanni, November, 27th 2019

TÜV ITALIA Srl

TÜV ITALIA Srl
Industry Service Division
Technical Manager




Paolo Marcone



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SUMMARY TABLE T-IS-272994-01

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
1.	D5094S	R-IS-722202852-03 Rev.1	Type A	9.83E-05	1.60E-09	14 years	NE loads, valid for bipolar or unipolar load interruption	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	253.24 FIT	0.00 FIT	1.60 FIT	99,37 %	196.76 FIT	20.60 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0306_r1.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
2.	D5094S	R-IS-722202852-03 Rev.1	Type A	9.11E-05	3,46E-09	6 years	F&G / ND loads, valid for bipolar or unipolar load interruption	SIL3*	SIL3
				3.04E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	133.80 FIT	0.00 FIT	3.46 FIT	97,48 %	314.74 FIT	20.20 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0306_r1.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
3.	D5095S	R-IS-722202852-03 Rev.1	Type A	9.52E-05	3.10E-09	7 years	NE loads, valid for bipolar or unipolar load interruption	SIL3*	SIL3
				2.72E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	148.20 FIT	0.00 FIT	3.10 FIT	97,95 %	300.70 FIT	20.20 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0307_r1.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
4.	D5095S	R-IS-722202852-03 Rev.1	Type A	9.46E-05	1.96E-09	11 years	F&G / ND loads, valid for bipolar or unipolar load interruption	SIL3*	SIL3
				1.72E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	238.84 FIT	0.00 FIT	1.96 FIT	99,19 %	210.80 FIT	20.60 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0307_r1.

T-IS-272994-01

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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
5.	D5096S	R-IS-722202852-03 Rev.1	Type A	9.83E-05	1.60E-09	14 years	NE loads, valid for bipolar load interruption	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	248.68 FIT	0.00 FIT	1.60 FIT	99,36 %	200.52 FIT	441.79 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0308_r1.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
6.	D5096S	R-IS-722202852-03 Rev.1	Type A	8.82E-05	3.35E-09	6 years	F&G / ND loads, valid for bipolar load interruption	SIL3*	SIL3
				2.94E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	133.80 FIT	0.00 FIT	3.35 FIT	97,56 %	313.65 FIT	441.79 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0308_r1.

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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
7.	D5097S	R-IS-722202852-03 Rev.1	Type A	9.52E-05	3.10E-09	7 years	NE loads, valid for bipolar load interruption	SIL3*	SIL3
				2.72E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	143.64 FIT	0.00 FIT	3.10 FIT	97,89 %	304.06 FIT	441.79 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0309_r1.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
8.	D5097S	R-IS-722202852-03 Rev.1	Type A	9.74E-05	1.85E-09	12 years	F&G / ND loads, valid for bipolar load interruption	SIL3*	SIL3
				1.62E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	238.84 FIT	0.00 FIT	1.85 FIT	99,23 %	210.11 FIT	441.79 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0309_r1.

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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
9.	D5096S	R-IS-722202852-03 Rev.1	Type A	9.83E-05	1.60E-09	14 years	fault relay output contact externally wired in series to input loop of Safety PLC DO and used for NE loads with bipolar load interruption	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	408.14 FIT	0.00 FIT	1.60 FIT	99,61 %	377.65 FIT	105.20 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0308_r1.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
10.	D5096S-100	R-IS-722202852-03 Rev.1	Type A	9.83E-05	1.60E-09	14 years	universal fault mirroring to Safety PLC DO and used for NE loads with bipolar load interruption	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	406.87 FIT	0.00 FIT	1.60 FIT	99,61 %	373.72 FIT	110.40 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0435_r1.

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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
11.	D5098S_D5098D	R-IS-272994-02 Rev.1	Type A	9.83E-05	1.60E-09	14 years	NE loads	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	122.50 FIT	0.00 FIT	1.60 FIT	98,71 %	93.70 FIT	10.60 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0314_ r0.

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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
12.	D5291S-097	R-IS-722114552-01 Rev.1	Type A	9.83E-05	1.60E-09	14 years	ND loads	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	145.44 FIT	0.00 FIT	1.60 FIT	98,91 %	113.56 FIT	0.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0369_ r0.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
13.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	9.05E-05	5 years	Single power supply module NE loads	SIL3*	SIL3
				3.62E-04	20 years		SIL2*	
				2.72E-04	15 years		SIL3**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	879.28 FIT	57.99 FIT	4.02 FIT	99,57 %	763.23 FIT	9.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
14.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	9.05E-05	10 years	Two paralleled modules NE loads Single or double AC input supply	SIL3*	SIL3
				1.81E-04	20 years		SIL2*	
				1.81E-04	20 years		SIL3**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	43.96 FIT	4.85 FIT	2.05 FIT	95.96 %	3358.17 FIT	18.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_r0.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
15.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	9.26E-05	7 years	Three paralleled modules NE loads Single AC input supply	SIL3*	SIL3
				2.65E-04	20 years		SIL2*	
				2.65E-04	20 years		SIL3**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	43.96 FIT	5.85 FIT	3.00 FIT	94.31 %	5060.74 FIT	27.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_r0.



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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
16.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	8.70E-05	5 years	Four paralleled modules NE loads Single and double AC input supply	SIL3*	SIL3
				3.48E-04	20 years		SIL2*	
				2.61E-04	15 years		SIL3**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	43.96 FIT	6.85 FIT	3.95 FIT	92.78 %	6763.31 FIT	36.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_ r0.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
17.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	8.63E-05	4 years	Five paralleled modules NE loads Single AC input supply	SIL3*	SIL3
				4.32E-04	20 years		SIL2*	
				3.24E-04	15 years		SIL3**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	43.96 FIT	7.85 FIT	4.90 FIT	91.35 %	8465.88 FIT	45.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_r0.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
18.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	9.02E-05	3.5 years	Six paralleled modules NE loads Single and double AC input supply	SIL3*	SIL3
				5.15E-04	20 years		SIL2*	
				3.09E-04	12 years		SIL3**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	43.96 FIT	8.85 FIT	5.85 FIT	90.02 %	10168.45 FIT	54.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_r0.



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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
19.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	8.26E-03	2 years	Single power supply module ND loads	SIL1*	SIL3
				2.48E-02	6 years		SIL1**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	763.23 FIT	0.00 FIT	941.29 FIT	44.78 %	-	9.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
20.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	8.58E-04	4 years	Two paralleled modules (HFT=1) ND loads Single or double AC input supply	SIL2*	SIL3
				4.29E-03	20 years		SIL1*	
				2.57E-03	12 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	3358.17 FIT	2.00 FIT	48.87 FIT	98.57 %	-	18.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
21.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	8.74E-04	4 years	Three paralleled modules (HFT=1) ND loads Single AC input supply	SIL2*	SIL3
				4.37E-03	20 years		SIL1*	
				2.62E-03	12 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	5060.74 FIT	3.00 FIT	49.82 FIT	99.03 %	-	27.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_ r0.

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
22.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	8.91E-04	4 years	Four paralleled modules (HFT=1) ND loads Single and double AC input supply	SIL2*	SIL3
				4.46E-03	20 years		SIL1*	
				2.67E-03	12 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	6763.31 FIT	4.00 FIT	50.77 FIT	99.26 %	-	36.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

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Please, for more Functional Safety information see Safety Manual ISM0371_r0.



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NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020



Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
23.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	9.08E-04	4 years	Five paralleled modules (HFT=1) ND loads Single AC input supply	SIL2*	SIL3
				4.54E-03	20 years		SIL1*	
				2.72E-03	12 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	8465.88 FIT	5.00 FIT	51.72 FIT	99.39 %	-	45.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_ r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
24.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	9.25E-04	4 years	Six paralleled modules (HFT=1) ND loads Single and double AC input supply	SIL2*	SIL3
				4.62E-03	20 years		SIL1*	
				2.77E-03	12 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	10168.45 FIT	6.00 FIT	52.67 FIT	99.49 %	-	54.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0371_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
25.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	2.19E-04	1 year	Three paralleled modules (HFT=2) ND loads Single AC input supply	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	5060.74 FIT	3.00 FIT	49.82 FIT	99.03 %	-	27.00 FIT

(*)Considering the products not contribute more than 25% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0371_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1
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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
26.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	2.23E-04	1 year	Four paralleled modules (HFT=2) ND loads Single AC input supply	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	6818.08 FIT	4.00 FIT	50.77 FIT	99.26 %	-	36.00 FIT

(*)Considering the products not contribute more than 25% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0371_ r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
27.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	2.27E-04	1 year	Five paralleled modules (HFT=2) ND loads Single AC input supply	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	8465.88 FIT	5.00 FIT	51.72 FIT	99.39 %	-	45.00 FIT

(*)Considering the products not contribute more than 25% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0371_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
28.	PSD1220, PSD1220-098	R-IS-722146635-01 Rev.1	Type A	2.31E-04	1 year	Six paralleled modules (HFT=2) ND loads Single AC input supply	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	10168.45 FIT	6.00 FIT	52.67 FIT	99.49 %	-	54.00 FIT

(*)Considering the products not contribute more than 25% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0371_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
29.	D5290S-092	R-IS-722146635-02 Rev.1	Type A	9.83E-05	1.60E-09	14 years	NE loads	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	145.44 FIT	0.00 FIT	1.60 FIT	98,91 %	113.56 FIT	0.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0373_ r0.

T-IS-272994-01

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Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
30.	TB-D5016-TRI-010	R-IS-722172544 Rev.1	Type A	0.00	0.00	20 years**	For each channel connected to AI, AO, DI or DO module loop with DTT condition	SIL3*	SIL3

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
1.04 FIT	0.00 FIT	0.00 FIT	0.00 FIT	100,00 %	105.36 FIT	34.40 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)It is considered the product life time.

Please, for more Functional Safety information see Safety Manual ISM0385_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
31.	TB-D5016-TRI-010	R-IS-722172544 Rev.1	Type A	1.66E-07	0.00	20 years	For each channel connected to DO module loop with ETT condition	SIL3*	SIL3

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Diagnostic Coverage DC	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.00 FIT	1.04 FIT	0.00 FIT	100,00%	100,00 %	105.36 FIT	34.40 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0385_r0.



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NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
32.	D6001S/D	R-IS-722172544 Rev.1	Type A	0.00	0.00	20 years**	For each channel connected to AI, AO, DI or DO module loop with DTT condition	SIL3*	SIL3

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	8.45 FIT	0.00 FIT	0.00 FIT	100,00 %	23.55 FIT	0.00 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)It is considered the product life time.

Please, for more Functional Safety information see Safety Manual ISM0384_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
33.	D6001S/D	R-IS-722172544 Rev.1	Type A	1.35E-06	0.00	20 years	For each channel connected to DO module loop with ETT condition	SIL3*	SIL3

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Diagnostic Coverage DC	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.00 FIT	8.45 FIT	0.00 FIT	100,00 %	100,00 %	23.55 FIT	0.00 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0384_r0.



T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
34.	TB-D5001-HRT-003 with 5700	R-IS-722146635-03 Rev.1	Type A	4.39E-06	20 years	for each channel	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure $\lambda_{no\ effect}$	Not Part Failure $\lambda_{not\ part}$
0.00 FIT	0.48 FIT	0.00 FIT	0.05 FIT	90.57 %	512.31 FIT	2586.65 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0436_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
35.	TB-D5001-HRT-004, -006, -007 with 5700	R-IS-722146635-03 Rev.1	Type A	4.39E-06	20 years	for each channel	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure $\lambda_{no\ effect}$	Not Part Failure $\lambda_{not\ part}$
0.00 FIT	0.47 FIT	0.00 FIT	0.05 FIT	90.38 %	490.98 FIT	999.20 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0436_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1
 Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
36.	TB-D5001-HRT-005 with 5700	R-IS-722146635-03 Rev.1	Type A	9.67E-06	20 years	for each channel	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure $\lambda_{no\ effect}$	Not Part Failure $\lambda_{not\ part}$
0.00 FIT	1.42 FIT	0.12 FIT	0.11 FIT	93.33 %	491.35 FIT	1045.70 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.
 Low demand mode of operation has only been considered in this analysis.
 Please, for more Functional Safety information see Safety Manual ISM0436_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
37.	D6004S/D	R-IS-722211277 Rev.1	Type A	0.00	0.00	20 years**	For each channel connected to field transmitter and AI module loop with DTT condition	SIL3*	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	10.95 FIT	0.00 FIT	0.00 FIT	100.00 %	46.05 FIT	0.00 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)The product life time is considered.

Please, for more Functional Safety information see Safety Manual ISM0451_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
38.	D5038S*	R-IS-722188601-01 Rev.1	Type A	9.13E-05	2 years	Single channel	SIL3**	SIL3
				2.28E-04	5 years		SIL3***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	206.10 FIT	0.00 FIT	10.40 FIT	95.2 %	224.20 FIT	12.40 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0429_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
39.	D5038D*	R-IS-722188601-01 Rev.1	Type A	9.13E-05	2 years	Double channel	SIL3**	SIL3
				2.28E-04	5 years		SIL3***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	211.70 FIT	0.00 FIT	10.40 FIT	95.3 %	224.90 FIT	337.70 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0429_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
40.	D5038X*	R-IS-722188601-01 Rev.1	Type A	9.13E-05	2 years	Duplicator channel	SIL3**	SIL3
				2.28E-04	5 years		SIL3***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	206.20 FIT	0.00 FIT	10.40 FIT	95.2 %	225.00 FIT	202.90 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0429_r0.



T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
41.	D5039S*	R-IS-722188601-01 Rev.1	Type A	9.98E-04	6 years	Single channel	SIL2**	SIL3
				1.99E-03	12 years		SIL2***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	148.10 FIT	0.00 FIT	37.90 FIT	79.6 %	164.60 FIT	12.40 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0430_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
42.	D5039D*	R-IS-722188601-01 Rev.1	Type A	9.98E-04	6 years	Double channel	SIL2**	SIL3
				1.99E-03	12 years		SIL2***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	153.60 FIT	0.00 FIT	37.90 FIT	80.2 %	185.00 FIT	248.10 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0430_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
43.	D5039X*	R-IS-722188601-01 Rev.1	Type A	9.98E-04	6 years	Duplicator channel	SIL2**	SIL3
				1.99E-03	12 years		SIL2***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	148.40 FIT	0.00 FIT	37.90 FIT	79.6 %	165.20 FIT	112.90 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0430_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
44.	D6038S*	R-IS-722188601-01 Rev.1	Type A	9.13E-05	2 years	Single channel	SIL3**	SIL3
				2.28E-04	5 years		SIL3***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	206.10 FIT	0.00 FIT	10.40 FIT	95.2 %	224.20 FIT	12.40 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0433_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
45.	D6038D*	R-IS-722188601-01 Rev.1	Type A	9.13E-05	2 years	Double channel	SIL3**	SIL3
				2.28E-04	5 years		SIL3***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	211.70 FIT	0.00 FIT	10.40 FIT	95.3 %	224.90 FIT	337.70 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0433_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
46.	D6038X*	R-IS-722188601-01 Rev.1	Type A	9.13E-05	2 years	Duplicator channel	SIL3**	SIL3
				2.28E-04	5 years		SIL3***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	206.20 FIT	0.00 FIT	10.40 FIT	95.2 %	225.00 FIT	202.90 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0433_r0.

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NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
47.	D6039S*	R-IS-722188601-01 Rev.1	Type A	9.98E-04	6 years	Single channel	SIL2**	SIL3
				1.99E-03	12 years		SIL2***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	148.10 FIT	0.00 FIT	37.90 FIT	79.6 %	164.60 FIT	12.40 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0434_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
48.	D6039D*	R-IS-722188601-01 Rev.1	Type A	9.98E-04	6 years	Double channel	SIL2**	SIL3
				1.99E-03	12 years		SIL2***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	153.60 FIT	0.00 FIT	37.90 FIT	80.2 %	185.00 FIT	248.10 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0434_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
49.	D6039X*	R-IS-722188601-01 Rev.1	Type A	9.98E-04	6 years	Duplicator channel	SIL2**	SIL3
				1.99E-03	12 years		SIL2***	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	148.40 FIT	0.00 FIT	37.90 FIT	79.6 %	165.20 FIT	112.90 FIT

(*)On the end of ITEM NAME, the * is a suffix letter for specific set of RL and RH output resistance values.

(**)Considering the products not contribute more than 10% of total SIF dangerous failure.

(***)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0434_r0.



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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
50.	D5090S-102	R-IS-722211279 Rev.1	Type A	9.83E-05	1.60E-09	14 years	NE load	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	191.64 FIT	0.00 FIT	1.60 FIT	99.17 %	162.16 FIT	19.40 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0458_r0.

T-IS-272994-01

NOTE: The present table is integral part of the Document: C-IS-272994-01 Rev.1

Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
51.	D5091S-103	R-IS-722211279 Rev.1	Type A	9.48E-05	3.59E-09	6 years	ND relays and NO contacts, for ND load	SIL3*	SIL3
				3.16E-04		20 years		SIL3**	SIL3

Safe Detected Failure λ _{SD}	Safe Undetected Failure λ _{SU}	Dangerous Detected Failure λ _{DD}	Dangerous Undetected Failure λ _{DU}	Safe Failure Fraction SFF	No Effect Failure λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	96.00 FIT	0.00 FIT	3.59 FIT	96.40 %	266.61 FIT	9.60 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0459_r0.

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Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
52.	D5091S-103	R-IS-722211279 Rev.1	Type A	9.83E-05	1.60E-09	14 years	NE relays and NC contacts, for ND load	SIL3*	SIL3
				1.40E-04		20 years		SIL3**	SIL3

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	191.37 FIT	0.00 FIT	1.60 FIT	99.17 %	164.03 FIT	18.80 FIT

(*)Considering the products do not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Please, for more Functional Safety information see Safety Manual ISM0459_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
53.	D5015SS and D5015SK	R-IS-722188601-02 Rev.1	Type A	9.92E-04	13 years	Active input	SIL2*	SIL3
				1.53E-03	20 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	58.65 FIT	90.36 FIT	17.23 FIT	89.63 %	195.86 FIT	6.80 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0398_r0.



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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
54.	D5015SS and D5015SK	R-IS-722188601-02 Rev.1	Type A	9.50E-04	13 years	Passive input	SIL2*	SIL3
				1.46E-03	20 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	58.65 FIT	79.51 FIT	16.51 FIT	89.32 %	189.63 FIT	24.60 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0398_r0.



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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
55.	D6015SS and D6015SK	R-IS-722188601-02 Rev.1	Type A	9.92E-04	13 years	Active input	SIL2*	SIL3
				1.53E-03	20 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	58.65 FIT	90.36 FIT	17.23 FIT	89.63 %	195.86 FIT	6.80 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0446_r0.

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Date: April, 22th 2020





Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
56.	D6015SS and D6015SK	R-IS-722188601-02 Rev.1	Type A	9.50E-04	13 years	Passive input	SIL2*	SIL3
				1.46E-03	20 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	58.65 FIT	79.51 FIT	16.51 FIT	89.32 %	189.63 FIT	24.60 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0446_r0.

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Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
57.	D6017SS and D6017SK	R-IS-722211281-01 Rev.1	Type A	6.63E-05	1 year	Active input	SIL3*	SIL3
				9.95E-04	15 years		SIL2*	
				3.32E-04	5 years		SIL3**	
				1.33E-03	20 years		SIL2**	

Safe Detected Failure λ_{SD}	Safe Undetected Failure λ_{SU}	Dangerous Detected Failure λ_{DD}	Dangerous Undetected Failure λ_{DU}	Safe Failure Fraction SFF	No Effect Failure λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	78.51 FIT	71.02 FIT	14.98 FIT	90.89 %	209.88 FIT	6.20 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.

(**)Considering the products contribute more than 10% of total SIF dangerous failure.

Low demand mode of operation has only been considered in this analysis.

Please, for more Functional Safety information see Safety Manual ISM0471_r0.

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Italia

FUNCTIONAL SAFETY ASSESSMENTS		
	REPORT CODE	FINAL RESULT
1	R-IS-722189296 Rev.1	Compliant to the standard for the following parts: <ul style="list-style-type: none">- Documentation (IEC EN 61508:2010 Part 1 Chapter 5)- Management of functional safety (IEC EN 61508:2010 Part 1 Chapter 6)- Functional safety assessment (IEC EN 61508:2010 Part 1 Chapter 8)- Realization: E/E/PES safety lifecycle from 10.1 to 10.6 (IEC EN 61508:2010 Part 2) for the all safety related modules object of this certificate.

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