



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.

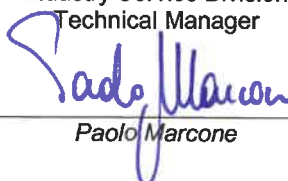
Reference Standard IEC EN 61508:2010 Part 1, 2, 4, 6, 7

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.2	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.2	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

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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.2	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.2	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.

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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.2	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.2	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.2	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.2	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.2	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.2	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.



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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.

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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.

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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.

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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.

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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
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.

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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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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

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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

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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.



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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.



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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.

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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.

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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
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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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.

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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
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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

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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.

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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.

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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.

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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}	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.

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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.



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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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	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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	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.



T-IS-272994-01

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

Date: June, 18th 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.



T-IS-272994-01

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

Date: June, 18th 2020



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.

T-IS-272994-01

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

Date: June, 18th 2020





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.

T-IS-272994-01

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

Date: June, 18th 2020





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: June, 18th 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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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.

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
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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Date: June, 18th 2020





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: June, 18th 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

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
58.	D5094S-104	R-IS-722202852-03 Rev.2	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	6.40 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 ISM0464_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
59.	D5094S-104	R-IS-722202852-03 Rev.2	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	6.00 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 ISM0464_r0.

T-IS-272994-01

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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
60.	D5095S-105	R-IS-722202852-03 Rev.2	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	6.00 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 ISM0465_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
61.	D5095S-105	R-IS-722202852-03 Rev.2	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	6.40 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 ISM0465_r0.



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

Date: June, 18th 2020



Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
62.	D5096S-106	R-IS-722202852-03 Rev.2	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	439.79 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 ISM0466_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
63.	D5096S-106	R-IS-722202852-03 Rev.2	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	439.79 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 ISM0466_r0.



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Date: June, 18th 2020



Italia

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
64.	D5097S-107	R-IS-722202852-03 Rev.2	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	439.79 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 ISM0467_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
65.	D5097S-107	R-IS-722202852-03 Rev.2	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	439.79 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 ISM0467_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
66.	TBE-D5016-TRI-001	R-IS-722226666 Rev.1	Type A	5.29E-06	0.06E-09	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.14 FIT	0.06 FIT	94,10 %	86.38 FIT	146.20 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
67.	TBE-D5016-TRI-002 Part A or Part B	R-IS-722226666 Rev.1	Type A	5.29E-06	0.06E-09	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.14 FIT	0.06 FIT	94,10 %	86.38 FIT	143.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
Please, for more Functional Safety information see Safety Manual ISM0472_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
68.	TBE-D5016-TRI-003	R-IS-722226666 Rev.1	Type A	5.31E-06	0.06E-09	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 λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	0.82 FIT	0.26 FIT	0.06 FIT	94,72 %	86.26 FIT	152.40 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
69.	TBE-D5016-TRI-011	R-IS-722226666 Rev.1	Type A	5.31E-06	0.06E-09	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 λ_{NE}	Not Part Failure λ_{NP}
0.00 FIT	0.82 FIT	0.26 FIT	0.06 FIT	94,72 %	86.26 FIT	158.60 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
Please, for more Functional Safety information see Safety Manual ISM0472_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
70.	TBE-D5016-TRI-008	R-IS-722226666 Rev.1	Type A	1.06E-05	0.12E-09	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.28 FIT	0.12 FIT	90,14 %	86.18 FIT	152.40 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
71.	TBE-D5016-TRI-004	R-IS-722226666 Rev.1	Type A	0.00	0.00	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.00 FIT	0.00 FIT	100,00 %	86.38 FIT	140.00 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
(**)The product lifetime is considered.
Please, for more Functional Safety information see Safety Manual ISM0472_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
72.	TBE-D5016-TRI-005 Part A or Part B	R-IS-722226666 Rev.1	Type A	0.00	0.00	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.00 FIT	0.00 FIT	100,00 %	86.38 FIT	140.00 FIT

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

(**)The product lifetime is considered.

Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
73.	TBE-D5016-TRI-006	R-IS-722226666 Rev.1	Type A	0.00	0.00	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.00 FIT	0.00 FIT	100,00 %	86.18 FIT	140.00 FIT

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

(**)The product lifetime is considered.

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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
74.	TBE-D5016-TRI-012	R-IS-722226666 Rev.1	Type A	7.90E-06	0.09E-09	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.93 FIT	0.00 FIT	0.09 FIT	91,18 %	86.39 FIT	152.40 FIT

(*)Considering the products not contribute more than 10% of total SIF dangerous failure.
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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
75.	TBE-D5016-TRI-007	R-IS-722226666 Rev.1	Type A	0.00	0.00	20 years**	For each channel of DO bus powered module (as D5049S), considering DTT safety loop	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	0.82 FIT	0.00 FIT	0.00 FIT	100,00 %	86.18 FIT	134.80 FIT

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

(**)The product lifetime is considered.

Please, for more Functional Safety information see Safety Manual ISM0472_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
76.	TBE-D5016-TRI-007	R-IS-722226666 Rev.1	Type A	0.00	0.00	Not required	For channels of DO or safety relay loop powered modules, considering DTT safety loops	TBE component failures cannot influence DTT safety loops	Absence of TBE functional safety systematic failures, therefore no influence on DTT safety loops

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	0.00 FIT	0.00 FIT	0.00 FIT	Not defined	0.00 FIT	221.80 FIT

Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
77.	TBE-D5016-TRI-007	R-IS-722226666 Rev.1	Type A	0.00	0.00	Not required	For channels of safety relay loop powered modules, considering ETT safety loops	TBE component failures cannot influence ETT safety loops	Absence of TBE functional safety systematic failures, therefore no influence on ETT safety loops

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	0.00 FIT	0.00 FIT	0.00 FIT	Not defined	0.00 FIT	221.80 FIT

Please, for more Functional Safety information see Safety Manual ISM0472_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
78.	TBE-D5016-TRI-009	R-IS-722226666 Rev.1	Type A	0.00	0.00	20 years**	For each channel of DO bus powered module, considering DTT safety loop	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	0.82 FIT	0.00 FIT	0.00 FIT	100,00 %	86.18 FIT	134.80 FIT

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

(**)The product lifetime is considered.

Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
79.	TBE-D5016-TRI-009	R-IS-722226666 Rev.1	Type A	0.00	0.00	Not required	For channels of DO or safety relay loop powered modules, considering DTT safety loops	TBE component failures cannot influence DTT safety loops	Absence of TBE functional safety systematic failures, therefore no influence on DTT safety loops

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	0.00 FIT	0.00 FIT	0.00 FIT	Not defined	0.00 FIT	221.80 FIT

Please, for more Functional Safety information see Safety Manual ISM0472_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
80.	TBE-D5016-TRI-009	R-IS-722226666 Rev.1	Type A	0.00	0.00	Not required	For channels of safety relay loop powered modules, considering ETT safety loops	TBE component failures cannot influence ETT safety loops	Absence of TBE functional safety systematic failures, therefore no influence on ETT safety loops

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	0.00 FIT	0.00 FIT	0.00 FIT	Not defined	0.00 FIT	221.80 FIT

Please, for more Functional Safety information see Safety Manual ISM0472_r0.

	ITEM NAME	REPORT CODE	FINAL RESULTS						
			System type	PFD _{avg}	PFH [h ⁻¹]	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
81.	TBE-D5008-TRI-001	R-IS-722226666 Rev.1	Type A	0.00	0.00	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 λ _{NE}	Not Part Failure λ _{NP}
0.00 FIT	0.82 FIT	0.00 FIT	0.00 FIT	100,00 %	86.18 FIT	140.00 FIT

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

(**)The product lifetime is considered.

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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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