



Italia

COMPLIANCE

with IEC EN 61508:2010

Certificate No.: C-IS-224248-01 Rev.4

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 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-224248-01) 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-224248-01

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, October, 14th 2022

TÜV ITALIA Srl

TÜV ITALIA Srl
Industry Service Division
Managing Director



Alberto Carelli



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SUMMARY TABLE T-IS-224248-01

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
1.	D5290S-078	R-IS-224248-01 Rev.2	Type A	7.01E-5	10 years	1st and 2nd	SIL3*	SIL3
				1.40E-4	20 years		SIL3**	
				9.81E-4	7 years	3rd	SIL2*	
				2.80E-3	20 years		SIL2**	
				7.01E-5	10 years	4th	SIL3*	
				1.40E-4	20 years		SIL3**	
				9.46E-5	6 years	5th	SIL3*	
				3.15E-4	20 years		SIL3**	
				3.08E-4	20 years	6th	SIL2*	

Configuration	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}
1st and 2nd	0.00 FIT	190.02 FIT	0.00 FIT	1.60 FIT	99.17 %	92.38 FIT	0.60 FIT
3rd	0.00 FIT	63.84 FIT	0.00 FIT	32.00 FIT	66.61 %	70.16 FIT	0.60 FIT
4th	0.00 FIT	190.02 FIT	0.00 FIT	1.60 FIT	99.17 %	92.38 FIT	0.60 FIT
5th	0.00 FIT	299.70 FIT	0.00 FIT	3.60 FIT	98.81 %	99.30 FIT	0.00 FIT
6th	0.00 FIT	200.68 FIT	0.00 FIT	3.52 FIT	98.28 %	80.40 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.

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NOTE: The present table is integral part of the Document: C-IS-224248-01 Rev.4

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
2.	D5290S-078/SA and D5290S-084	R-IS-224248-01 Rev.2	Type A	7.01E-5	10 years	1st and 2nd	SIL3*	SIL3
				1.40E-4	20 years		SIL3**	
				9.81E-4	7 years	3rd	SIL2*	
				2.80E-3	20 years		SIL2**	
				7.01E-5	10 years	4th	SIL3*	
				1.40E-4	20 years		SIL3**	

Configuration	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}
1st and 2nd	0.00 FIT	159.48 FIT	0.00 FIT	1.60 FIT	99.01 %	17.12 FIT	0.00 FIT
3rd	0.00 FIT	48.84 FIT	0.00 FIT	32.00 FIT	60.42 %	14.96 FIT	0.00 FIT
4th	0.00 FIT	159.48 FIT	0.00 FIT	1.60 FIT	99.01 %	17.12 FIT	0.00 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
3.	D5290S-079	R-IS-224248-01 Rev.2	Type A	7.01E-5	10 years	1st and 2nd	SIL3*	SIL3
				1.40E-4	20 years		SIL3**	
				9.81E-4	7 years	3rd	SIL2*	
				2.80E-3	20 years		SIL2**	
				7.01E-5	10 years	4th	SIL3*	
				1.40E-4	20 years		SIL3**	

Configuration	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}
1st and 2nd	0.00 FIT	158.88 FIT	0.00 FIT	1.60 FIT	99.00 %	11.92 FIT	0.00 FIT
3rd	0.00 FIT	48.24 FIT	0.00 FIT	32.00 FIT	60.12 %	11.76 FIT	0.00 FIT
4th	0.00 FIT	158.88 FIT	0.00 FIT	1.60 FIT	99.00 %	11.92 FIT	0.00 FIT

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
4.	D5093S_D5093D	R-IS-256507-01 Rev.2	Type A	9.27E-5	6 years	For single channel	SIL3*	SIL3
				3.09E-4	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	98.05 FIT	0.00 FIT	3.52 FIT	96.53 %	98.33 FIT	2.90 FIT

	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
5.	D5202S	R-IS-224248-03 Rev.2	Type A	4.38E-6	20 years	With two input power supplies (redundant power supply configuration)	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	36.88 FIT	0.00 FIT	0.05 FIT	99.86 %	119.12 FIT	293.40 FIT

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
6.	D5062S	R-IS-224248-04 Rev.2	Type A	9.46E-4	3 years	3 wires powered transducer input	SIL2*	SIL3
				6.31E-3	20 years		SIL2**	
				9.51E-4	3 years	2 wires unpowered transducer input	SIL2*	
				6.34E-3	20 years		SIL2**	
				1.00E-3	3 years	2 wires powered transducer input	SIL2*	
				6.69E-3	20 years		SIL2**	

Configuration	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}
3 wires powered transducer input	0.00 FIT	0.00 FIT	160.84 FIT	71.56 FIT	69.21 %	269.70 FIT	22.70 FIT
2 wires unpowered transducer input	0.00 FIT	0.00 FIT	160.84 FIT	71.96 FIT	69.09 %	269.70 FIT	22.70 FIT
2 wires powered transducer input	0.00 FIT	0.00 FIT	161.96 FIT	75.95 FIT	68.08 %	274.79 FIT	12.10 FIT

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	ITEM NAME	REPORT CODE	FINAL RESULTS					
			System type	PFD _{avg}	T _{Proof}	Configuration	Allowed SIL	Allowed Systematic SIL
7.	D5093S-TB_D5093D-TB	R-IS-722281058-01 Rev.1	Type A	9.27E-5	6 years	For single channel	SIL3*	SIL3
				3.09E-4	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	98.05 FIT	0.00 FIT	3.52 FIT	96.53 %	98.33 FIT	2.90 FIT

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

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FUNCTIONAL SAFETY ASSESSMENTS		
	REPORT CODE	FINAL RESULT
1	R TUV IT 22 SIL 0087	<p>Compliant to the standard for the following parts:</p> <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 all safety related modules object of this certificate.

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