



Italia

# COMPLIANCE

with IEC EN 61511:2016

**Certificate No.:** C-IS-722134640-02  
**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 61511:2016**  
**ACCORDING TO PROVEN IN USE ASSESSMENT**  
*(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-722134640-02) according to IEC EN 61511, 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 , experience by field application

**Official Summary Table No.:** T-IS-722164640-02

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

**Reference Standard** IEC EN 61511:2016 Part 1

**Sesto San Giovanni, January, 21<sup>th</sup> 2019**

**TÜV ITALIA Srl**



**TÜV ITALIA Srl**  
Industry Service Division  
Technical Manager

Paolo Marcone



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**SUMMARY TABLE  
T-IS-722134640-02**

	ITEM NAME HARDWARE	ITEM NAME SOFTWARE	REPORT CODE	FINAL RESULTS				
				System type	PFD <sub>avg</sub>	T <sub>Proof</sub>	Configuration	Allowed SIL
1.	D6072S	PRG041C into ADUC7061 microprocessor +	R-IS-722134640-02 Rev.1	Type B	9.46E-4	3 years	NA	SIL2*
					3.15E-3	10 years		SIL2**
					6.31E-3	20 years		SIL1*
2.	D6072D	PRG040C into LM3S3749 microprocessor	R-IS-722134640-02 Rev.1	Type B	9.47E-4	3 years	NA	SIL2*
					3.16E-3	10 years		SIL2**
					6.31E-3	20 years		SIL1*

Configuration	Safe Detected Failure $\lambda_{SD}$	Safe Undetected Failure $\lambda_{SU}$	Dangerous Detected Failure $\lambda_{DD}$	Dangerous Undetected Failure $\lambda_{DU}$	Safe Failure Fraction SFF	No Effect Failure $\lambda_{NE}$	Not Part Failure $\lambda_{NP}$
D6072S	0.00 FIT	0.00 FIT	240.26 FIT	71.43 FIT	77.08 %	190.31 FIT	94.30 FIT
D6072D	0.00 FIT	0.00 FIT	283.52 FIT	71.43 FIT	79.88 %	279.05 FIT	191.20 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 ISM0419\_r0.

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NOTE: The present table is integral part of the Document: C-IS-722134640-02

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	ITEM NAME HARDWARE	ITEM NAME SOFTWARE	REPORT CODE	FINAL RESULTS								
				System type	PFD <sub>avg</sub>	T <sub>Proof</sub>	Configuration	Allowed SIL				
3.	D6273S	PRG041C into ADUC7061 microprocessor + PRG040C into LM3S3749 microprocessor	R-IS-722134640-02 Rev.1	Type B	9.46E-4	3 years	Analog current output	SIL2*				
					3.15E-3	10 years		SIL2**				
					6.31E-3	20 years		SIL1*				
											Alarm trip amplifiers with relay outputs	SIL2*
					7.52E-4	2 years	SIL2**					
					3.76E-3	10 years	SIL1*					
				7.52E-3	20 years		SIL1*					

Configuration	Safe Detected Failure $\lambda_{SD}$	Safe Undetected Failure $\lambda_{SU}$	Dangerous Detected Failure $\lambda_{DD}$	Dangerous Undetected Failure $\lambda_{DU}$	Safe Failure Fraction SFF	No Effect Failure $\lambda_{NE}$	Not Part Failure $\lambda_{NP}$
Analog current output	0.00 FIT	0.00 FIT	240.26 FIT	71.43 FIT	77.08 %	190.31 FIT	229.50 FIT
Alarm trip amplifiers with relay outputs	0.00 FIT	256.38 FIT	0.00 FIT	85.70 FIT	74.95 %	202.52 FIT	186.90 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 ISM0420\_r0.



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	ITEM NAME HARDWARE	ITEM NAME SOFTWARE	REPORT CODE	FINAL RESULTS				
				System type	PFD <sub>avg</sub>	T <sub>Proof</sub>	Configuration	Allowed SIL
4.	D6231E	PRG042A into LM3S3749 microprocessor + PRG043A into PIC16F690 microprocessor	R-IS-722134640-02 Rev.1	Type B	8.88E-4	3 years	NA	SIL2*
					2.96E-3	10 years		SIL2**
					5.92E-3	20 years		SIL1*

Safe Detected Failure $\lambda_{SD}$	Safe Undetected Failure $\lambda_{SU}$	Dangerous Detected Failure $\lambda_{DD}$	Dangerous Undetected Failure $\lambda_{DU}$	Safe Failure Fraction SFF	No Effect Failure $\lambda_{NE}$	Not Part Failure $\lambda_{NP}$
0.00 FIT	191.00 FIT	0.00 FIT	67.44 FIT	73.90 %	212.26 FIT	390.30 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 ISM0423\_r0.



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	ITEM NAME HARDWARE	ITEM NAME SOFTWARE	REPORT CODE	FINAL RESULTS				
				System type	PFD <sub>avg</sub>	T <sub>Proof</sub>	Configuration	Allowed SIL
5.	D6072S-087	PRG041C into ADUC7061 microprocessor + PRG040C into LM3S3749 microprocessor	R-IS-722134640-02 Rev.1	Type B	9.09E-4	3 years	NA	SIL2*
					3.03E-3	10 years		SIL2**
					6.06E-3	20 years		SIL1*

Safe Detected Failure $\lambda_{SD}$	Safe Undetected Failure $\lambda_{SU}$	Dangerous Detected Failure $\lambda_{DD}$	Dangerous Undetected Failure $\lambda_{DU}$	Safe Failure Fraction SFF	No Effect Failure $\lambda_{NE}$	Not Part Failure $\lambda_{NP}$
0.00 FIT	0.00 FIT	238.28 FIT	68.63 FIT	77.64 %	176.09 FIT	61.70 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 ISM0422\_r0.



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