

SIL



Functional Safety Certificate

No. 0P241212.RSSWT38

Certificate's Holder: Respo Safety Solutions Pvt Ltd
D-595, Kamla Nagar, Agra 282 005 India

Manufacturer: Respo Safety Solutions Pvt Ltd
A29(Part), EPIP, UPSIDA Industrial Area, Sikandra, Agra 282 007

Product: Flame and Gas Detection Controller
Model(s): GasGuard M16

Standard: Has been assessed per the relevant requirements of:
IEC 61508:2010 Parts 1-3

And meets requirements providing a level of integrity to:
Systematic Capability: SC 2 (SIL 2 Capable)
Random Capability: Type B Element
SIL 2 Capable@ HFT= 0, Route 1H
PFD_{avg} and Architecture Constraints must be verified for each application;

* Safety Function:
Flame and Gas Detection Controller considered Manual.

* Is suitable to be safety function according to the description and the configuration defined in Annex I.

Verification Mark:



The Verification Mark can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way

Remark: This SIL Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Test Report is existent for the above listed product(s) and found to meet the requirements of above standards for application in safety related system up to Safety Level of **SIL 2**. The unit must be properly designed into a Safety Instrument Function as per the requirements in the Safety Manual. The Verification Mark shown above can be affixed on the product. It is NOT permitted to alter the Verification Mark in any way. In addition the Verification's Holder is NOT allowed to transfer the Verification to third parties. This certificate can be checked for validity at www.entecerma.it

Date of issue 12 December 2024

Expiry date 11 December 2029

For online check:



Approver
Ente Certificazione Macchine
Legal Representative
Luca Bedonni



Ente Certificazione Macchine

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Annex I

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1. Restrictions:
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.
2. SC 2 (SIL 2 Capability):
The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 2. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

3. IEC 61508 Failure Rates:

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF
GasGuard M16	0 FIT	282.91 FIT	184.16 FIT	48.22 FIT	90.64%

4. SIL Verification:
The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{AVG} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

