



Functional Safety Results Report

Customer	Newson Gale
Project Title	Earth-Rite Omega II
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Report Number	EVL/0298/A/1

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1. OBJECTIVES AND EXECUTIVE OVERVIEW

This abridged report provides the results a Functional Safety review of an Earth-Rite Omega II product in line with the requirements of IEC61508 to determine the Safe Failure Fraction.

Safety Integrity Level (SIL)

Whereas the maximum tolerable risk for a hazard is expressed as an individual risk of fatality pa, the related integrity requirement is expressed either as a failure rate of a continuous process or a probability of failure on demand of a safety related system. The following table provides the SIL classification from IEC 61508.

SIL CLASSIFICATION TABLE

	LOW DEMAND Probability of failure on demand	HIGH DEMAND FAILURE RATE pa
SIL 4	$\geq 10^{-5}$ to $< 10^{-4}$	$\geq 10^{-5}$ to $< 10^{-4}$
SIL 3	$\geq 10^{-4}$ to $< 10^{-3}$	$\geq 10^{-4}$ to $< 10^{-3}$
SIL 2	$\geq 10^{-3}$ to $< 10^{-2}$	$\geq 10^{-3}$ to $< 10^{-2}$
SIL 1	$\geq 10^{-2}$ to $< 10^{-1}$	$\geq 10^{-2}$ to $< 10^{-1}$

2. SCOPE OF THE ASSESSMENT

The assessment covers a product is designed to monitor resistance. A monitored earth is required to prevent the build-up of dangerous static charges during product transfer of flammable materials.

5. SAFE FAILURE FRACTION

The equipment under consideration used "Type A" components and is Simplex (no redundancy). The equipment, being a variation to an established design, is classified as Type A based on field experience and data.

6. CONCLUSION

The analysis shows that the device has a Safe Failure Fraction between 60% and 90% and therefore meets hardware architectural constraints for up to SIL 2 as a single device.

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