

SIL Declaration of Conformity Functional safety according to IEC 61508

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Rosemount 2120 IS Namur Vibrating Fork Level Sensor Models 2120***C*I**

has demonstrated a proven reliability and is manufactured and supported in a manner suitable for application up to

SIL 2 of IEC 61508 as a Type B Safety Related Subsystem

This when configured as a high level alarm¹ in conjunction with a Namur Barrier¹

The following failure rates were determined by an FMEA (Failure Modes and Effects Analysis), drawing failure rates from a commercially available database in conjunction with type tests to ascertain failure modes

Failure Type		Units
λ_{SD} Safe Detected	2.07	per million hours
λ_{SU} Safe Undetected	0.03	per million hours
λ_{DD} Dangerous Detected	0.63	per million hours
λ_{DU} Dangerous Undetected	0.26	per million hours
Total Failure Rate	2.99	per million hours
MTBF Mean Time Between Failures	38.2	years
MTTR Mean Time To Restoration	8	hours

The Safe Failure Fraction was assessed both by means of field data and type tests giving an SFF of >90% used in simplex mode without redundancy a high level alarm¹ in conjunction with a Namur Barrier¹

Failure Measures		Units
SFF Safe Failure Fraction	91	%
PFH Probability of Dangerous Failure Continuous or high demand mode	0.26×10^{-6}	per hour
PFDAVG Probability of Failure on Demand Low demand mode, $T_{PROOF} = 1$ year	1.14×10^{-3}	-
Hardware Fault Tolerance	0	Faults

¹ Refer to manual for IEC 61508 configuration details



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