

# SIL Declaration of Conformity

## Functional safety according to IEC 61508

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### Squing 2 IS Namur Vibrating Fork Level Sensor

Models T\*\*\*C\*A\*\*, T\*\*\*C\*C\*\*, T\*\*\*C\*H\*\*

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 alarm<sup>1</sup> in conjunction with a Namur Barrier<sup>1</sup>

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
$\lambda_{SD}$ Safe Detected	2.07	per million hours
$\lambda_{SU}$ Safe Undetected	0.03	per million hours
$\lambda_{DD}$ Dangerous Detected	0.63	per million hours
$\lambda_{DU}$ 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 alarm<sup>1</sup> in conjunction with a Namur Barrier<sup>1</sup>

Failure Measures		Units
SFF Safe Failure Fraction	91	%
PFH Probability of Dangerous Failure Continuous or high demand mode	$0.26 \times 10^{-6}$	per hour
PFD <sub>AVG</sub> Probability of Failure on Demand Low demand mode, T <sub>PROOF</sub> = 1 year	$1.14 \times 10^{-3}$	-
Hardware Fault Tolerance	0	Faults

<sup>1</sup> Refer to manual for IEC 61508 configuration details

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