

Safety Integrity Level [S.I.L.] Declaration

In accordance with BS EN ISO/IEC 17050-1:2010

We the undersigned declare under our sole responsibility that the product to which this declaration relates have been independently assessed and found to conform to the requirements of IEC 61508-2:2005.

Conformity has been derived from a combination of failure mode and effect analysis [FMEA] and proven in use returns data, in respect of Safe Failure Fraction (SFF) the unit has been judged to be suitable for use, as specified below:

Reference No / Version

CroSILDec-T498

Product Description

Gasmonitor Plus Gas Detection Control System

Specific Standards

IEC 61508:2005

S.I.L. Level

2

Safety Manner

Simplex

Assessment Results

	Failure Rate ¹	PFD ³	SFF ⁴ %	S.I.L.
Failure to Respond 4-20mA gas signal to common relay	0.408	8.5 10 ⁻⁴	93%	2
Failure to Respond 4-20mA gas signal to discreet relay	0.192	5.6 10 ⁻⁴	94%	2
Failure to Respond 4-20mA gas signal to recorder output	1.274	7.1 10 ⁻⁴	93%	2
Failure to Respond Pellistor gas signal to recorder output	1.384	7.5 10 ⁻⁴	92%	2
Failure to Respond Fire signal to discreet relay	0.145	5.1 10 ⁻⁴	93%	2

For low demand applications, in respect of random hardware failures and safe failure fractions, the system is suitable for SIL 2 applications.

1. - Per Million Hours

2. - Mean Time Between Failures

3. - Probability of Failure on Demand

4. - Safe Failure Fraction

Assessment Conditions

1. Proof test intervals, which are assumed to identify all un-revealed failures, are annual. The proof test shall entail simulating an alarm from one or more gas detectors and verifying that the corresponding alarm relay activates. The proof test shall also utilise the fault relay function to simulate a fault condition and verify that the fault relay activates.
2. Output relays are energised and release to open a contact as the executive function.
3. A revealed failure constitutes a hardware component failure which is detected by the Gasmonitor Plus software and causes a fault relay to release or a 4-20mA output signal to the user.
4. The following elements (not pertinent to the safety function) were excluded: the LCD display and associated driver.

Assessment Body

Technis
26 Orchard Drive
Tonbridge, Kent TN10 4LG
Report number: T498 Issue 1.0
Issue date: 4th December 2009

Signatory

Signature:



Name & Position: Graham Jardine, Technical Director

Date: 7th January 2020

1. - Per Million Hours
2. - Mean Time Between Failures
3. - Probability of Failure on Demand
4. - Safe Failure Fraction