
Certificate of Conformity to IEC 61508 Safety Integrity Level (SIL) 1

Functional Safety of Safety-Related Programmable Electronic Systems

The **Metrohm Ltd, NDIR XDS Process Analyser** has been assessed and is considered capable for use in a low demand Safety Function up to SIL 1, in terms of random hardware reliability and architectural constraints. No assessment has been made in regard to Systematic Capability.

The assessment was carried out to determine compliance with IEC 61508 with regards to:

- Random Hardware Failure (Predicted PFD $<2.0E-02$) with a Mean Down Time (MDT) of 168 hours, a Proof Test Interval (PTI) of 6 months (4380 hours) to be within 20% of the SIL 1 band;
- Architectural Constraint (Type B SFF 60% - 90%).

The product was assessed against the following failure mode;

- Failure to detect presence of chemical substance within the configured concentration limits.

The assessment was based on the assumptions, data provided, and recommendations given in:

- **ESC Ltd Report: H098_FM001 rev. 1.**

IMPORTANT: It should be noted that this assessment does not include confirmation of the response time of the device. For response times (along with any relevant assumptions) reference should be made to the Safety Manual of each device and the total SIF response time **MUST** be compared against the process safety time for the specific application.



Managing Director: Simon Burwood

Member of the IEC 61511 Maintenance Committee (MT61511)

Assessment Date: February 2021, valid to February 2023

Certificate: H098_CT001 rev. 1

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Reg: 12Q12086

ENGINEERING SAFETY CONSULTANTS LTD

2nd Floor, Exchequer Court, 33 St. Mary Axe,
London, EC3A 8AA UK

Telephone: +44 (0)20 8542 2807

E-Mail: info@esc.uk.net Web: www.esc.uk.net

Registered in England and Wales: 7006868

Registered Office: 33 St. Mary Axe, London, EC3A 8AA