



Certificate of Conformity to IEC 61508 Safety Integrity Level (SIL) 2 in respect of Random Hardware Failure Rate and Architectural Constraints

Functional Safety of Safety-Related Programmable Electronic Systems

The **Base₂, Communications Controller Unit 3 (CCU3) Profinet Module** has been assessed and is considered capable for use in a low demand Safety Function up to SIL 2, with regard to random failure rate and architectural constraint.

The function of the CCU3 Profinet Module is to provide the CCU3 with the Profinet communications functionality. The Profinet Module is implanted using the module detailed in this certificate.

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

- **Engineering Safety Consultants (ESC) Ltd Report: D153_FM001 rev. 2;**
- **ESC Report: F023_FM001 rev. 2;**
- **ESC Report: J114_FM001 rev. 1;**
- **Renewal Letter stating no changes from Base₂, signed by Grant Hodson, General Manager, Dated: 15th July 2021.**

The product was assessed against the following failure mode:

- Failure to process data error free between host CCU and a remote Profinet unit / master.

The assessment was carried out to determine compliance with IEC 61508 (2010 Edition) with regards to:

- Random Hardware Failure (Predicted PFD <8.0E-04 per year, assuming a 1-year proof test and average repair time of 169 hrs);
- Architectural Constraint (Type B, SFF >90%, <99%).

It should be noted that the CCU3 Profinet Module was assessed against 10% of the SIL 2 band, therefore, a complete assessment covering the proof test and repair strategy and PFD contribution of other sub-systems must be carried out to justify any PFD claim for the complete safety function.

This assessment has been conducted assuming that the device will be used in a Low Demand System.

IMPORTANT: It should be noted that this assessment does not include confirmation of the response time of the devices. 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.

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Member of IEC 61508 (MT61808-1-2) & IEC 61511 (MT61511) Maintenance Committees
Assessment Date: November 2019
Renewal Date: July 2021, valid to July 2023
Certificate: J114_CT001 rev. 2

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