



## ENGINEERING SAFETY CONSULTANTS

*The Global Provider of Functional Safety Expertise and Technical Consultancy*

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# Certificate of Conformity to IEC 61508 Safety Integrity Level (SIL) 2

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### ***Functional Safety of Safety-Related Programmable Electronic Systems***

The **Base<sub>2</sub>, 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:

- **ESC Ltd Report: D153\_FM001 rev. 2;**
- **ESC Ltd Report: F023\_FM001 rev. 1;**
- **ESC Ltd Report: J114\_FM001 rev. 1.**

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 with regards to:

- Random Hardware Failure (Predicted failure rate  $<8.0E-04$  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.

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Member of the IEC 61508 committee

Assessment Date: November 2019, valid to November 2021

Certificate: J114\_CT001 rev. 1

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