



## 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 **Hochiki Europe (UK) Ltd, CHQ-PCM(SCI), CHQ-PCM/DIN(SCI), CHQ-DIM2(SCI), CHQ-DIM2/DIN(SCI), CHQ-DRC2(SCI) and CHQ-DRC2/DIN(SCI)** for use in fire detection and alarm systems has been assessed and is considered capable for use in a low demand Safety Function up to SIL 2, with respect to random hardware failures and architectural constraints only.

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

- **Engineering Safety Consultants (ESC) Ltd Report: D134\_SV001 rev. 5;**
- **Renewal letter from Hochiki Europe (UK) Ltd, signed by Richard Anderson, Approvals & Certification Engineer, dated: 17/08/2020.**

The following product variants are also covered under this certificate, with the product labels being the only difference:

- CHQ-PCM(SCI)/SIL;
- CHQ-PCM/DIN(SCI)-SIL;
- CHQ-PCM(SCI)/RWY;
- CHQ-PCM/DIN(SCI)/RWY;
- CHQ-DIM2(SCI)/SIL;
- CHQ-DIM2/DIN(SCI)/SIL;
- CHQ-DRC2(SCI)/SIL;
- CHQ-DRC2/DIN(SCI)/SIL;
- CHQ-DRC2(SCI)-RWY;
- CHQ-DRC2/DIN(SCI)-RWY.

The products were assessed against the following failure modes:

- Failure to send valid signal to controller when end device impedance is between 200  $\Omega$  and 1000  $\Omega$ ;
- Failure to initiate a valid output command when requested.

The products assessed include the following results:

- SIL 2 SIF suitable – CHQ-PCM(SCI), CHQ-PCM/DIN(SCI), CHQ-DRC2(SCI) and CHQ-DRC2/DIN(SCI) with simplex input and/or duplex output module configuration;
- SIL 2 SIF suitable – CHQ-PCM(SCI), CHQ-PCM/DIN(SCI), CHQ-DRC2(SCI) and CHQ-DRC2/DIN(SCI) with only input;
- SIL 1 SIF suitable – CHQ-PCM(SCI), CHQ-PCM/DIN(SCI), CHQ-DRC2(SCI) and CHQ-DRC2/DIN(SCI) simplex output module configuration;
- SIL 2 SIF suitable – CHQ-PCM(SCI), CHQ-PCM/DIN(SCI), CHQ-DRC2(SCI) and CHQ-DRC2/DIN(SCI) with duplex output module configuration;
- SIL 2 SIF suitable – CHQ-DIM2(SCI) and CHQ-DIM2/DIN (SCI).

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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](mailto:info@esc.uk.net) Web: [www.esc.uk.net](http://www.esc.uk.net)  
Registered in England and Wales: 7006868  
Registered Office: 33 St. Mary Axe, London, EC3A 8AA



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The assessments were carried out to determine compliance with IEC 61508 with regards to:

- Random Hardware Failures (Predicted PFD  $<1.0E-03$  (assuming a 1-year proof test and average repair time of 168 hrs));
- Architectural Constraints:
  - Input Block, Type A, SFF  $>90\%$ ,  $<99\%$ ;
  - Main Processor Block, Type B, SFF  $>90\%$ ,  $<99\%$ ;
  - Simplex Output Block, Type A, SFF  $>0\%$ ,  $<60\%$ .

**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 IEC 61508 (MT61808-1-2) & IEC 61511 (MT61511) Maintenance Committees

Assessment Date: January 2015

Renewal Date: October 2020, valid to October 2022

Certificate: D134\_CT001 rev. 6

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

Telephone: +44 (0)20 8542 2807

E-Mail: [info@esc.uk.net](mailto:info@esc.uk.net) Web: [www.esc.uk.net](http://www.esc.uk.net)

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