Document number:	D134_CT001 rev. 8
Dated:	25-Nov-24
Expiry date:	25-Nov-26

IEC 61508 Functional Safety Capability Statement

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)

Manufacturer:	Hochiki Europe (UK) Ltd Gillingham Business Park, Grosvenor Rd, Gillingham ME8 0SA
Product:	CHQ-PCM(SCI): Input / Output Module CHQ-DIM2(SCI): Dual Input Module CHQ-DRC2(SCI): Dual Relay Controller
Model:	CHQ-PCM(SCI), CHQ-PCM/DIN(SCI), CHQ-DIM2(SCI), CHQ-DIM2/DIN(SCI), CHQ-DRC2(SCI), CHQ-DRC2/DIN(SCI), 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

Application:	Low Demand Mode Safety Instrumented Function
Safety Function:	Upon detection of invalid signal to controller when end device impedance is between 200 Ω and 1000 Ω or invalid output command, action is initiated (Additional sensing, logic solver and final element subsystems not part of this analysis)
Applied standard:	IEC 61508 Ed2 2010 Parts 1-3
Systematic Capability:	Not Assessed
Applicable report:	Environmental Resources Management Ltd Report: D134_SV001 rev. 7

Assessment Route:	1_H
Hardware Fault Tolerance:	0 or 1 (refer to 'Application Restrictions')
Type:	A or B (refer to Table below)
Application restrictions:	CHQ-PCM(SCI) and CHQ-DRC2(SCI) is suitable for use in a SIL 1 safety function with simplex input, simplex main processor and simplex output module configuration CHQ-PCM(SCI) and CHQ-DRC2(SCI) is suitable for use in a SIL 2 safety function with simplex input, simplex main processor and duplex output module configuration CHQ-PCM(SCI) and CHQ-DRC2(SCI) is suitable for use in a SIL 1 safety function with simplex input and simplex main processor configuration

© Copyright 2024 by The ERM International Group Limited and/or its affiliates ('ERM'). All Rights Reserved.

CHQ-PCM(SCI) and CHQ-DRC2(SCI) is suitable for use in a SIL 1 safety function with simplex main processor and simplex output module configuration

CHQ-PCM(SCI) and CHQ-DRC2(SCI) is suitable for use in a SIL 2 safety function with simplex main processor and duplex output module configuration

CHQ-DIM2(SCI) is suitable for use in a SIL 2 safety function with simplex input and simplex main processor configuration

Model No.	λ (/hr)	λDU (/hr)	λDD (/hr)	λS (/hr)	SFF	Type
Input (Block 4) one channel	2.6E-08	7.2E-10	8.0E-09	2.6E-09	93.6%	A
Main Processor (Blocks 1,2,3,5 & 7)	6.7E-07	1.7E-08	4.4E-07	0.0E-00	96.4%	B
Output (Block 6a) (normally close)	2.3E-07	1.2E-07	0.0E-00	5.5E-08	31.9%	A
Output (Block 6b) (normally open)	2.3E-07	1.1E-07	0.0E-00	6.8E-08	39.1%	A

IMPORTANT: It should be noted that this assessment considers only 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). It does not cover opening and closing time requirements and a random hardware failures assessment must be conducted for the entire safety function for each application as per the appropriate Safety Requirements Specification.

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) has been assessed and is considered capable for use in a low demand mode safety function up to (and including) SIL 1/2 with regards to random hardware failures and architectural constraints.

Note 1: The SIL of a complete SIF (sensor, logic solver and final element subsystems) must be verified to calculate the required Probability of Failure on Demand (PFD) / Probability of Failure per Hour (PFH), considering any redundancy, Proof Test Interval (PTI), Proof Test Coverage (PTC), Mission Time and Mean Time To Restoration (MTTR) for all elements included in the SIF. Each subsystem should be verified to ensure compliance with the minimum HFT requirements.

Chantal Sealey FS Eng (TÜV Rheinland) Assessor chantal.sealey@erm.com	Simon Burwood FS Expert (TÜV Rheinland) Assessment Authority simon.burwood@erm.com