Certificate No.: 8504-UKCA-CPR-UKCSP10151

CERTIFICATE OF CONSTANCY OF PERFORMANCE

Issued by DBI Certification-UK, approved body No. 8504.

In compliance with UK STATUTORY INSTRUMENT 2020 No. 1359 Construction Products Regulation 2011 (retained EU law EUR 305/2011) as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020, this certificate applies to the construction product

TAU-MC-01, TAU-MC-01-BL

The product fulfils the essential characteristic:

See Annex 1

Intended use: Applications related to automatic fire alarm systems

Placed on the market under the name or trade mark of:

Hyfire Wireless Fire Solutions Ltd
Unit B12a Holly Farm Business Park
Honiley, Warwickshire, CV81NP
United Kingdom

and produced in the manufacturing plant:

UKCPA10005

This attests that all provisions concerning the performance described in Annex ZA of the standard(s)

EN 54-5:2017+A1:2018	:	**Fire detection and fire alarm systems — Part 5: Heat detectors — Point heat detectors**
EN 54-7:2018	:	**Fire detection and fire alarm systems — Part 7: Smoke detectors — Point smoke detectors that operate using scattered light, transmitted light or ionization**
EN 54-25:2008+AC:2012	:	**Fire detection and fire alarm systems — Part 25: Components using radio links**

under system 1 for the performance set out in this certificate are applied and that the factory production control conducted by the manufacturer is assessed to ensure the

CONSTANCY OF PERFORMANCE OF THE CONSTRUCTION PRODUCT.

This certificate was first issued on 2022-08-10 and will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.

The attached annexes form part of this certificate.

Date of issue: **2022-08-10**.

Merete Poulsen
Responsible for evaluation

Steen Nilsson
Responsible for certification decision

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No. 23333

Annex 1

EXTENT

Product description:
TAU-MC-01 Heat and Smoke Detector using Radio Links
TAU-MC-01-BL Heat and Smoke Detector using Radio Links

Configuration:
The heat and smoke detector model TAU-MC-01 consists of a plastic enclosure (dimensions: 110 (d) x 65 (h) mm) with IP40 degree of protection, containing:
- No. 1 Main board (PCB code B40-LB100-0004)
- No. 2 Battery allocable (CR123A Lithium, 3 V – 1.25Ah)

The heat and smoke detector model TAU-MC-01-BL is identical to the model TAU-MC-01 but with black enclosure.

Technical Characteristics:
Operating frequency band: 868 MHz ; 916 MHz
Hardware identification of the microcontroller (U4) used on the main board: STMicroelectronics STM32L051R8
Firmware identification of the microcontroller (U4) used on the main board:
- 0_1_17 (U4), using the 868 MHz frequency band
- 0_1_18 (U4), using the 916 MHz frequency band

Heat Response Catergory:
Table 1

Detector Category (Heat Class):	Typical Application Temperature	Maximum Application Temperature °C	Minimum Static Response Temperature °C	Maximum Static Response Temperature °C
A1R	25	50	54	65

Table 2- Response time limits

Rate of rise of air temperature K min-1	Cat A1R			
	Lower limit		Uper limit	
	Min	S	Min	S
1	29	0	40	20
3	7	13	13	40
5	4	9	8	20
10	1	0	4	20
20		30	2	20
30		20	1	40

Performance

Essential characteristics	**Clauses in EN 54-5:2017/ A1:2018**	**Regulatory classes**	**Performance**
Operational reliability:			
Position of heat sensitive element	4.2.1	A1R	The heat sensitive element(s) or at least part of it, except elements with auxiliary functions (e.g.characteristic correctors), are a distance ≥15mm from the mounting surface of the point heat detector.
Individual alarm indication	4.2.2		Category A1R The heat detector is provided with an integral red visual indicator and can remain identified until the alarm is reset. The visual indicator is visible from a

			distance of 6 m directly below the point heat detector, in an ambient light intensity up to 500 lx.
Connection of ancillary devices	4.2.3		Open or short circuit failures of connection to ancillary device do not prevent the correct operation of the detector
Monitoring of detachable point heat detectors	4.2.4		A fault condition is signaled when the detector is removed from the mounting base.
Manufacturer's adjustments	4.2.5		It is not possible to change the maufacture´s settings expept by special means (e.g. a special code or tool, or by breaking or remove a seal).
Onsite adjustments of response behavior	4.2.6		N/A
Software controlled detectors (when provided)	4.2.7		The software documentation and the software design complies supplied by the manufacturer with the requirements of this standard.
Nominal activation conditions/Sensitivity:			
Directional dependence	4.3.1		The response time of the point dectetor do not unduly depend on the direction of airflow around the point heat detector.
Static response temperature	4.3.2		The response temperatures of the point heat detectors lie between the minimum and maximum static response temperatures, according to the category of the point heat detector in Table 1 above.
Response times from typical application temperature	4.3.3		The response times of the point heat detector lie between the lower and upper response time limits for the appropriate point heat detector category in Table 2 above.
Response times from 25 °C	4.3.4		The response time at 3 K min^{-1} exceeds 7 min 13 s and the response time at 20 K min^{-1} exceeds 1 min 0 s.
Response times from high ambient temperature	4.3.5		No alarm or fault signal was given at high ambient temperatures appropriate to the anticipated service temepratures. A1R 3 K min^{-1} , Lower limit, 1 min 20 s and upper limit 13 m 40 s. 20 K min^{-1} , Lower limit, 12 s and upper limit 2 m 20 s.
Reproducibility	4.3.6		The response times of the point heat detectors lie between the lower ad upper response time limits specified in Table 2 above.
Response delay (response time):			
Additional test for suffix S point heat detectors	4.4.1		N/A
Additional test for suffix R point heat detectors	4.4.2		Suffix R, the point heat detector maintains the response requirements of its category, in table 2 above, for high rates of rise of temperature from an initial temperature below the typical application temperature applicable to the category marked on it.

Point heat detector category	Initial conditioning temperature °C

			A1R: 5 ±2
Tolerance to supply voltage:			
Variation in supply parameters	4.5		The point heat detector does not unduly depent on variation in the supply parameters and lie between the lower and upper response time limits specified in Table 2 above.
Durability of nominal activation conditions/Sensitivity:			
temperature resistance			
Cold (operational)	4.6.1.1		No alarm or fault signal was given during the transition to the conditioning temperature or during the period at the condition temperature A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Dry heat (endurance)	4.6.1.2		No fault signal was given on reconnection attributable to the endurance conditioning A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Humidity resistance			
Damp heat, cyclic (operational)	4.6.2.1		No alarm or fault signal was given during the conditioning. Lower temperature: (25±3) °C Upper temperature: (40±2) °C Relative humidity: At lower temperature :≥ 95 % At upper temperature : (93 ±3) % A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Damp heat, steady-state (endurance)	4.6.2.2		No fault signal was given on reconnection attributable to the endurance conditioning. Conditioning Temperature : 40 ±2 °C Relative Humidity: 93 ±3 % Duration : 21 days A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Corrosion resistance			
Sulphur dioxide (SO_2) corrosion (endurance)	4.6.3		No fault signal was given on reconnection attributable to the endurance conditioning. Conditioning Temperature : 25 ±2 °C Relative Humidity: 93 ±3 % SO2 concentration: 25 ±5 ppm (by volume) Duration : 21 days

			A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Vibration resistance			
Shock (operational)	4.6.4.1		No alarm or fault signal was given during the conditioning period or an additional 2 min. For specimen with a mass ≤ 4,75 kg : Shock pulse type: Half sine Pulse duration : 6 ms Peak acceleration: 10X (100-20M) ms-2 (M is specimen mass in Kg) Number of directions: 6 Pulses per direction: 3 A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Impact (operational)	4.6.4.2		No alarm or fault signal was given during the conditioning period or an additional 2 min. Conditioning: Impact energy: 1,9 ±0,1 J Hammer velocity: 1,5 ±0,13 ms^{-1} Number of impacts: 1 A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Vibration, sinusoidal (operational)	4.6.4.3		No fault signal was given during the conditioning Conditioning: Frequency range: 10 to 150 Hz Acceleration amplitude: 5 ms^{-2}(≈0,5 g_n) Number of axes : 3 Sweep rate: 1 octave min^{-1} Number of sweep cycles: 1 per axis A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Vibration, sinusoidal (endurance)	4.6.4.4		No fault signal was given on reconnection attributable to the endurance conditioning. Conditioning: Frequency range: 10 to 150 Hz Acceleration amplitude: 10 ms^{-2}(≈1,0 g_n) Number of axes : 3 Sweep rate: 1 octave min^{-1} Number of sweep cycles: 20 per axis A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6
Electrical stability EMC immunity (operational)	4.6.5		Compliance in EN 50130-4:2011 and No fault signal was given during the conditioning.

			A1R: 20 K min^{-1} was not less than 30 s and did not exceed 30 s compared with the time obtained in 4.3.6

Essential characteristics	Clauses in EN 54-7:2018	Regulatory classes	Performance
Operational reliability:		None	
Individual alarm indication	4.2.1		The visual indicator(s) are visible from a distance of 6 m in an ambient light intensity up to 500 lx.
Connection of ancillary devices	4.2.2		Open or short circuit failures of connection to ancillary device did not prevent the correct operation of the detector
Monitoring of detachable detectors	4.2.3		A fault condition is signaled when the detector is removed from the mounting base.
Manufacturer´s adjustments	4.2.4		It is not possible to adjust the detector settings without the use of a special tool to access into the detector or use of a code to enabling entry into the panel programming software.
On site adjustment of response behavior	4.2.5		The mode(s) of operation are adjustable from the Control and Indicating Equipment by use of a loop communication protocol. Access to enable mode changes is by software control of the protocol communication.
Protection against the ingress of foreign bodies	4.2.6		The chamber is designed so that a sphere of diameter (1,3±0,05) mm cannot pass into the sensor chamber.
Response to slowly developing fires	4.2.7		The provision of "drift compensation" (e.g. to compensate for sensor drift due to the build-up of dirt in the detector), does not lead to a significant reduction in the detectors sensitivity to slowly developing fires.
Software controlled detectors (when provided)	4.2.8		The software documentation and the software design complies with the requirements of EN 54-7:2018.
Nominal activation conditions/sensitivity:		Threshold	
Repeatability	4.3.1		Ratio of response values $m_{max}:m_{min} \leq 1.6$ Lower response value, $m_{max}:m_{min} \geq 0.05$ dB m^{-1}
Directional dependence	4.3.2		Ratio of response values $m_{max}:m_{min} \leq 1.6$ Lower response value, $m_{max}:m_{min} \geq 0.05$ dB m^{-1}

Reproducibility	4.3.3		Ratio of response values $m_{max}:\bar{m} \leq 1.33$ Ratio of the response values $\bar{m}: m_{min} \leq 1.5$ Lower response value, $m_{min} \geq 0.05$ dB m^{-1}
Response delay (response time):			
Air movement	4.4.1		Ratio is > 0.0625 and < 1.60 and the point smoke detector did not emit a fault nor alarm signal during the test with aerosol-free air
Dazzling	4.4.2		The specimen did not emit neither an alarm nor a fault signal and Ratio of response thresholds $m_{max}:m_{min} \leq 1.6$
Tolerance to supply voltage:			
Variation in supply parameters	4.5		Ratio of response values $m_{max}:m_{min} < 1.6$ Lower response value, $m_{min} \geq 0.05$ dB m^{-1}
Performance parameters under fire conditions:			
Fire sensitivity	4.6		Evaluated as meeting the requirements of TF2 toTF5
Durability of nominal activation conditions/Sensitivity:			
temperature resistance			
Cold (operational)	4.7.1.1		The specimen did not emit neither an alarm nor a fault signal and Ratio of response values $m_{max}:m_{min} \leq 1.6$
Dry heat (operational)	4.7.1.2		The specimen did not emit neither an alarm nor a fault signal and Ratio of response values $m_{max}:m_{min} \leq 1.6$
Humidity resistance			
Damp heat, steady-state (operational)	4.7.2.1		The specimen did not emit neither an alarm nor a fault signal and ratio of response values $m_{max}:m_{min} \leq 1.6$
Damp heat, steady-state (endurance)	4.7.2.2		No fault signal, attributable to the endurance conditioning was given on reconnection of the specimen and Ratio of response values $m_{max}:m_{min} \leq 1.6$
Corrosion resistance			
Sulphur dioxide (SO_2) corrosion (endurance)	4.7.3		No fault signal, attributable to the endurance conditioning was given on reconnection of the specimen and Ratio of response values $m_{max}:m_{min} \leq 1.6$
Vibration resistance			
Shock (operational)	4.7.4.1		No fault signal given from the specimen during the conditioning period or the additional 2 min. and Ratio of response values $m_{max}:m_{min} \leq 1.6$

Impact (operational)	4.7.4.2		No fault signal given from the specimen during the conditioning period or the additional 2 min. and Ratio of response values m_{max}:m_{min} ≤ 1.6
Vibration, sinusoidal (operational)	4.7.4.3		No fault signal given from the specimen during the conditioning and Ratio of response values m_{max}:m_{min} ≤ 1.6
Vibration, sinusoidal (endurance)	4.7.4.4		No fault signal, attributable to the endurance conditioning was given on reconnection of the specimen and Ratio of response values m_{max}:m_{min} ≤ 1.6
Electrical stability EMC immunity (operational) a) Electrostatic discharge (operational) b) Radiated electromagnetic fields (operational) c) Conducted disturbances(operational) d) Fast transient bursts (operational) e) Slow high energy voltage surge (operational)	4.7.5		No alarm or fault signal given during the conditioning and Ratio of response values m_{max}:m_{min} ≤ 1.6

Essential characteristics	Clauses in EN 54-25:2008+AC:2012	Performance
Performance parameters under fire conditions	4.1, 4.2.2, 5.2, 8.3.7	Pass
Response delay (response time to fire)	8.2.3, 8.2.6	Pass
Operational reliability	4.2.1, 4.2.3 to 4.2.7, 5.3, 5.4, 6, 7, 8.2.2, 8.2.4, 8.2.5, 8.2.7, 8.2.8, 8.2.9, 8.3.1, 8.3.2, 8.3.3, 8.3.4, 8.3.5, 8.3.6	Pass
Durability of operational reliability and response delay; temperature resistance	8.3.9, 8.3.10, 8.3.11	Pass
Durability of operational reliability; vibration resistance	8.3.16, 8.3.17 to 8.3.19	Pass
Durability of operational reliability; humidity resistance	8.3.13, 8.3.14	Pass
Durability of operational reliability; corrosion resistance	8.3.15	Pass
Durability of operational reliability; electrical stability	8.3.20	Pass

CEA 4021: July 2003: NPD

Annex 2

TEST DOCUMENTATION

Test documentation can be found in case no. UKCSP10081.

TECHNICAL BASIS

File Number	Title	Date
BOM-TWDMX-0005	TAURUS WIRELESS DETECTOR MULTICRITERIA (TW-DM-01) - 868 / 916 VARIANTS - Bill of Material	2021-11-19, Rev. C