

1 **UK-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres**
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 UK-Type Examination Certificate Number: **BAS21UKEX0067X**

4 Product: **Mark IV Range of ControlEx Connectors**

5 Manufacturer: **Hawke International**

6 Address: **A Division of Hubbell Limited, A Member of the Hubbell Group of Companies,
Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Baseefa, Approved Body number 1180, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in confidential Report No. **21(C)0033**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012: +A11: 2013 EN 60079-1: 2014 EN 60079-31: 2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

⊠ II 2G Ex db IIC T* Gb

⊠ II 2D Ex tb IIIC T**°C Db **See schedule when manufactured in un-plated aluminium bronze**

SGS Baseefa Customer Reference No. **0500**

Project File No. **21/0033**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13

Schedule

14

Certificate Number **BAS21UKEX0067X**

15 Description of Product

The Mark IV Range of ControlEx Connectors (MKIV) may be manufactured in brass, steel, stainless steel or bronze, and each comprise a cylindrical body section which may take the form of a Type CP In-line Connector with a male mating flame path, a Type CR In-line Connector with a female mating flamepath or a Type BR Bulkhead Connector, also with a female mating flamepath.

When joined the male and female parts are secured with a threaded locking ring which is fixed and locked to the male half with hexagon socket grub screws. When separated the connection chambers are closed with flameproof caps which are secured and locked in the same manner.

The cylindrical body sections are used to house a variety of electrical plug & socket arrangements which are keyed into position by a cemented socket head screw passing through the side wall of the enclosure. The plug and socket arrangement of the in-line connector assembly is supported from the rear by a non-metallic ferrule.

In the bulkhead assemblies the support ferrule is compressible and also acts as a former for the polyurethane potting compound, these together create a sealing plug in the rear cable entry.

At the rear of the in-line units is a compression element and securing ring arrangement, the securing ring is locked with hexagon socket grub screws. The compression element includes a female entry thread for the accommodation of the Type BR range of reducers and/or adaptors to NPT thread form, or flameproof cable entry devices suitable for the cable and the conditions of use, and be certified as Equipment (not a Component).

At the rear of the bulkhead units a compression element and a male entry thread is provided for connection through the wall of bulkheads or flameproof enclosures.

The connectors are available in a range of seven sizes, based on the size of the in-line connector metric rear entry thread i.e. 16, 25, 32, 40, 50, and 63. The actual entry thread of the equivalent size bulkhead connector is one size larger, i.e. M25 to M75.

The Connectors may be marked as follows:-

⊕ II 2G Ex db IIC T* Gb

⊕ II 2D Ex tb IIIC T**C Db

Tamb -40°C to +**°C

Or

When manufactured in un-plated aluminium bronze:

⊕ II 2G Ex d IIB+H₂ T* Gb

⊕ II 2D Ex tb IIIC tb T**°C Db

Tamb -40°C to +**°C

The Temperature Classification and maximum Ambient Temperature are dependent upon the power dissipation.

CONNECTOR SIZE	Max Ambient = 40°C Temperature Class		Max Ambient = 50°C Temperature Class		Max Ambient = 60°C Temperature Class	
	T6/T85°C	T5/T100°C	T6/T85°C	T5/T100°C	T6/T85°C	T5/T100°C
16	5W	7W	4W	6W	2.6W	4.6W
25	8W	11W	6W	10W	4W	7W
32	10.5W	14.5W	8W	12W	5.4W	9W
40	12W	17W	9W	14W	5.5W	10.5W
50	13W	20W	10W	17W	6.5W	12.5W
63	17W	29W	13W	24W	8.5W	17W

RATINGS:

CONTROLEX MKIV Connector Size	Pin Configuration	Upper Ambient Temperature of -40°C		Upper Ambient Temperature of +50°C		Upper Ambient temperature of +60°C		UKEX/ATEX/IECEX/Inmetro Recommended max Voltage AC/Dc	CSA Recommended Max Voltage AC/DC
		T6	T5	T6	T5	T6	T5		
		Maximum Current per Contact Amp		Maximum Current per Contact Amp		Maximum Current per Contact Amp			
Ex 16									
3x1.5sq mm + Grd	3x16 AWG +Grd	9.8	10	8.75	10	7	9.4	750	600
4x1.5sq mm + Grd	4x16 AWG +Grd	8.5	10	7.6	9.3	6.1	8.15	750	600
Ex 25									
4 x 1.5 sq mm + Grd	4x16 AWG +Grd	10	10	9.3	10	7.6	10	750	600
9 x 15 sq mm + Grd	9x16 AWG +Grd	7.15	8.4	6.2	8	5	6.7	750	600
12 sq mm + Grd 1x.5	12x16 AWG +Grd	6.2	7.25	5.35	6.9	4.38	5.8	750	600
4 x 2 sq mm + Grd.5	4x12 AWG +Grd	13.5	15.8	11.7	15	9.5	12.6	750	600
7 x 2.5sq mm + Grd	7x12 AWG +Grd	10.2	12	8.8	11.4	7.2	9.5	750	600
4 x 6 sq mm + Grd	4x10 AWG +Grd	19.2	22.5	16.6	21.5	13.5	18	750	600
4 x 6 sq mm + Grd 4 sq mm cable	4x11 AWG +Grd	19	19	14	18	11	15	750	600
Ex 32									
12 x 1.5 sq mm + Grd	12x16 AWG +Grd	7	8.3	6.2	7.6	5.1	6.5	750	600
19 x 1.5 sq mm + Grd	19x16 AWG +Grd	5.6	6.6	4.9	9	4	5.2	750	600
10 x2.5 sq mm + Grd	10x12 AWG +Grd	9.8	11.5	8.5	10.4	7	9	750	600
12 x 2.5 sq mm + Grd	12x12 AWG +Grd	8.9	10.5	7.8	9.5	6.4	8.2	1000	600
4 x 6 sq mm + Grd	4x10 AWG +Grd	22	25.9	19.2	23.5	15.8	20.4	750	600
4x6 sq mm + Grd 4sq mm cable	4x11 AWG +Grd	18	21	16.0	19	13.0	17.0	750	600
6x6 sq mm + Grd	6x10 AWG +Grd	18	21.1	15.7	19.2	12.9	16.6	750	600
6 x 6 sq mm + Grd 4sq mm cable	6x11 AWG +Grd	15	17	13.0	16.0	10	14.0	750	600
3x 10 sq mm + Grd	3x8 AWG +Grd	32.5	38.2	28.4	34.8	23.3	30.1	750	600
4 x 10	4x8 AWG +Grd	28	33.1	24.1	30	20.2	26.1	750	600
3 x 16 sq mm + Grd	3x6 AWG +Grd	38	44.8	33.3	40.8	27.3	35.3	750	600
4 x 16 sq mm + Grd	4x6 AWG +Grd	33	38.8	28.8	35.3	23.7	30.6	750	600
Ex 40									
24x1.5 sq mm + Grd	24x16 AWG +Grd	5.3	6.3	4.6	5.8	3.7	5	750	600
30 x1.5 sq mm + Grd	30x16 AWG +Grd	4.8	5.7	4.1	5.1	3.3	4.4	1000	600
19x2.5 sq mm + Grd	19x12 AWG +Grd	7.6	9	6.5	8.2	5.3	7.1	750	600
4x25 sq mm + Grd	4x4 AWG +Grd	40	48.5	35.3	44	28.6	38.1	1000	600
4x35 sq mm + Grd	4x1 AWG +Grd	44.7	53.2	38.7	48.3	31.3	41.8	1000	600
8x6 sq mm + Grd	4x10 AWG +Grd	16	19.5	14	18	11.5	15.5	750	600
8x6 sq mm + Grd 4sq mm cable	4x11 AWG +Grd	14	16	12.0	15.0	9.0	13.0	750	600
5x10 sq mm + Grd	5x8 AWG +Grd	26	32	23	29	18.5	25	750	600
5x16 sq mm + Grd	5x6 AWG +Grd	31.5	37.5	27	34	22	29.5	750	600
Ex40 (special)4x2.5	4x12 AWG +Grd	16	17	14	17	11	15	3000	N/A
Ex 50									
5x25 sq mm +Grd	5x4 AWG + Grd	38.0 1	47.1 4	33.33	43.4 6	26.87	37.27	750	N/A
5x35 sq mm +Grd	5x1 AWG + Grd	41.6 3	51.6 4	36.51	47.6 1	29.44	40.82	750	N/A

37x1.5 sq mm + Grd	37x16 AWG +Grd	4.5	5.5	3.9	5.1	3.1	4.4	750	600
27x2.5 sq mm + Grd	27x12 AWG +Grd	6.6	8.2	5.8	7.6	4.6	6.5	750	600
37x2.5 sq mm + Grd	37x12 AWG +Grd	5.6	7	4.9	6.4	4	5.5	300	600
13x6 sq mm + Grd	13x10 AWG +Grd	13.5	16.5	11.5	15.5	9.5	13.2	750	600
13x6 sq mm + Grd 4sq mm cable	13x11 AWG +Grd	11	14	10	13	8	11	750	600

CONTROLEX MKIV	Pin Configuration	Upper Ambient Temperature of -40°C		Upper Ambient Temperature of +50°C		Upper Ambient temperature of +60°C		UKEX/ATEX/IECEX/Inmetro Recommended max Voltage AC/Dc	CSA Recommended Max Voltage AC/DC
		T6	T5	T6	T5	T6	T5		
Connector Size		Maximum Current per Contact Amp		Maximum Current per Contact Amp		Maximum Current per Contact Amp			
Ex63									
37x2.5 sq mm + Grd	37x12 AWG +Grd	5.6	7	4.9	6.4	4	5.5	750	600
49x1.5 sq mm + Grd	49x16 AWG +Grd	4.4	5.8	3.9	5.3	3.1	4.4	750	600
60x1.5 sq mm + Grd	60x16 AWG +Grd	5	6.6	4.4	6	3.6	5	750	600
65x1.5 sq mm +Grd	65x16 AWG + Grd	3.89	5.08	3.40	4.62	2.75	3.89	750	N/A
73x1.5 sq mm +Grd	73x16 AWG + Grd	3.67	4.79	3.21	4.36	2.59	3.67	750	N/A

Contact Size	Combined Cable and Contact Resistance (Ohms)		Contact Current Rating (Amps)
	Soldered	Crimped	
1.5 sq mm	0.0166	0.0173	10
2.5 sq mm	0.0102	0.0109	17
6 sq mm for 4 sq mm cable	0.0069	0.0076	30
6 sq mm	0.0047	0.0054	30
10 sq mm	0.0027	0.0033	78
16sq mm	0.0018	0.0024	78
25sq mm	0.0012	0.0018	125
35sq mm	0.0009	0.0015	125

Note - the 6 sq mm contact accepts both 4 sq mm and 6 sq mm cables.

CONNECTOR SIZE	Max Ambient = 40°C		Max Ambient = 50°C		Max Ambient = 60°C	
	Temperature Class		Temperature Class		Temperature Class	
	T6/T80°C	T5/T95°C	T6/T80°C	T5/T95°C	T6/T80°C	T5/T95°C
16	5W	7W	4W	6W	2.6W	4.6W
25	8W	11W	6W	10W	4W	7W
32	10.5W	14.5W	8W	12W	5.4W	9W
40	12W	17W	9W	14W	5.5W	10.5W
40R	11W	16W	8W	13W	4.5W	9.5W
50	13W	20W	10W	17W	6.5W	12.5W
63	17W	29W	13W	24W	8.5W	17W

16 Report Number

21(C)0033

17 Specific Conditions of Use

1. These connectors must be electrically isolated before any attempt is made to remove the covers or join or separate the two halves.
2. When separated the flameproof caps shall be fitted and locked before any associated supply cables are re-energised.
3. The cable entry devices selected for use with the in-line connectors shall provide a mechanical cable retention facility appropriate to the cable type and conditions of service.
4. The cables terminated within the bulkhead connectors shall be mechanically protected from pulling and twisting, and the potted ferrule shall not be subjected to temperatures exceeding 100°C.
5. When used in dust environments the cable entry threads, or bulkhead mounting, shall be sealed in accordance with the installation code of practice to ensure that a minimum ingress protection level of IP66 is maintained.
6. The User must ensure that the maximum working voltage used is suitable for the type of connector used. For reference use RATINGS tables in the description above.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.4.1	External effects
1.4.2	Aggressive substances

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
6905	1 of 1	F	10/02/21	ControlEx label
Baseefa12ATEX0014X IECEX BAS 12.0006X				