

Member of the FM Global Group

FM Approvals
1151 Boston Providence Tumpike
P.O. Box 9102 Norwood, MA 02062 USA
T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

BA304Cabc - 4/20 mA Loop Powered 3 1/2 Digit Indicator

IS / I, II, III / 1 / ABCDEFG /T4 Ta = 60°C — Cl300-22; Entity; Type 4

NI / 1 / 2 / ABCD /T4 Ta = 60°C; Type 4 S / II, III / 2 / FG /T4 Ta = 60°C; Type 4

Entity parameters

	···				
Terminals Vmax (V)		Imax (mA) Pmax (W)		Ci (μF)	Li (mH)
1, 2, 3 and 4			1.2	0.02	0.01
12 and 13			1.2	0.03	0.01

a = Display at 0 mA: XXXX.

b = Display at 20 mA: XXXX (with decimal point position and polarity).

c = Accessories: root extractor or calibrator, scale plate, tag plate, pipe mounting kit, panel mounting kit. Special conditions of use

The BA304C shall be protected from direct exposure to sunlight.

BA307Cabc - 4/20 mA Loop Powered 3 1/2 Digit Indicator

IS / I / 1 / ABCDEFG/T4 Ta = 60°C -- Cl300-22; Entity; Type 4*

NI / 1 / 2 / ABCD /T4 Ta = 60°C; Type 4*;

*front panel only

Entity parameters

Terminals Vmax (V)		Imax (mA)	Pmax (W)	Ci (μF)	Li (mH)
1, 2, 3 and 4 32		200 1.2		0.02 0.01	
12 and 13	32	159	1.2	0.03	0.01

a = Display at 0 mA: XXXX.

b = Display at 20 mA: XXXX (with decimal point position and polarity).

c = Accessories: backlight, root extractor or calibrator, scale card, tag strip.

Special conditions of use

1. To maintain the Type 4 enclosure rating the BA307C shall be installed in accordance with the mounting conditions provided on drawing numbers Cl300-32.

The BA307C shall be installed in compliance with the enclosure, mounting, spacing and segregation



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requirements of the ultimate application.

The BA307C shall be protected from direct exposure to sunlight.

BA308Cabc - 4/20 mA Loop Powered 3 1/2 Digit Indicator

IS / I / 1 / ABCDEFG /T4 Ta = 60°C;— Cl300-22; Entity; Type 4*

 $NI/I/2/ABCD/T4Ta = 60^{\circ}C$; Type 4*;

*front panel only

Entity parameters

Terminals	Vmax (V)	Imax (mA)	Pmax (W)	Ci (μF)	Li (mH)	
1, 2, 3 and 4	32	200	1.2	0.02	0.01	
12 and 13	32	159	1.2	0.03	0.01	

a = Display at 0 mA: XXXX.

b = Display at 20 mA: XXXX (with decimal point position and polarity).

c = Accessories: root extractor or calibrator, scale card, tag strip.

Special conditions of use

- 1. To maintain the Type 4 enclosure rating the BA308C shall be installed in accordance with the mounting conditions provided on drawing numbers Cl300-32.
- 2. The BA308C shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
- The BA308C shall be protected from direct exposure to sunlight.

BA324Cabcde - 4/20 mA Loop Powered 4 1/2 Digit Indicator

IS / I, II, III / 1 / ABCDEFG /T4 Ta = 60°C; — CI320-22; Entity; Type 4

NI / 1 / 2 / ABCD /T4 Ta = 60°C; Type 4; S / II, III / 2 / FG /T4 Ta = 60°C; Type 4

Entity parameters

paramo					
Terminals	Vmax (V)	lmax (mA)	Pmax (W)	Ci (µF)	Li (mH)
1, 2, 3 and 4	, 3 and 4 32 200		1.2	0.02	0.01
12 and 13	32	159	1,2	0.03	0.01
8 and 9;	32	159	1.2	0.04	0.02
10 and 11		.			,

- a = Display mode: linear or root extracting.
- b = Display at 0 mA: XXXX.
- c = Display at 20 mA: XXXX (with decimal point position and polarity).
- d = Display resolution: 1, 2, 5 or 10 digits.
- e = Accessories: alarms, tare function, lineariser, scale card, tag strip, pipe mounting kit, panel mounting kit.

Special conditions of use

The BA324C shall be protected from direct exposure to sunlight.

BA327Cabcd - 4/20 mA Loop Powered 4 1/2 Digit Indicator

IS / I / 1 / ABCDEFG/T4 Ta = 60°C; — Cl320-22; Entity; Type 4*

NI / I / 2 / ABCD /T4 Ta = 60°C; Type 4*; >

*front panel only

Entity parameters

Terminals	Vmax (V)	Imax (mA)	Pmax (W)	Ci (µF)	Li (mH)	
1 CHIIII I AIS	VIIIax (V)	IIIIax (IIIA)	Fillax (VV)			
1, 2, 3 and 4 32		200	1.2	0.02	0.01	
12 and 13	32	159	1.2	0.03	0.01	
8 and 9;	32	159	1.2	0.04	0.02	
10 and 11						



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a = Display mode: linear or root extracting.

b = Display at 0 mA: XXXX.

c = Display at 20 mA: XXXX (with decimal point position and polarity).

d = Accessories: backlight, alarms, tare function, lineariser, scale card, tag strip.

Special conditions of use

1. To maintain the Type 4 enclosure rating the BA327C shall be installed in accordance with the mounting conditions provided on drawing numbers Cl320-22.

2. The BA327C shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.

The BA327C shall be protected from direct exposure to sunlight.

BA328Cabcd - 4/20 mA Loop Powered 4 1/2 Digit Indicator

IS / I / 1 / ABCDEFG/T4 Ta = 60°C; — Cl320-22; Entity; Type 4* NI / 1 / 2 / ABCD/T4 Ta = 60°C; Type 4*;

*front panel only

Entity parameters

with pondition					
Terminals	Vmax (V)	Imax (mA)	Pmax (W)	Ci (μF)	Li (mH)
1, 2, 3 and 4	32	200	1.2	0.02	0.01
12 and 13	32	159	1.2	0.03	0.01
8 and 9;	32	159	1.2	0.04	0.02
10 and 11					

a = Display mode: linear or root extracting.

b = Display at 0 mA: XXXX.

c = Display at 20 mA: XXXX (with decimal point position and polarity).

d = Accessories: alarms, tare function, lineariser, scale card, tag strip.

Special conditions of use

- To maintain the Type 4 enclosure rating the BA328C shall be installed in accordance with the mounting conditions provided on drawing numbers Cl320-22.
- 2. The BA328C shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
- The BA328C shall be protected from direct exposure to sunlight.

Equipment Ratings:

BA304C and BA324C

Intrinsically safe for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G Hazardous (Classified) Locations when installed in accordance with the entity concept in accordance with Control Drawings Cl300-22 and Cl320-22; Nonincendive for Class I, Division 2, Groups A, B, C and D Hazardous (Classified) Locations; Suitable for Class II and III, Division 2, Groups E, F and G Hazardous (Classified) Locations. Temperature class T4 at an ambient of 60°C. Enclosure Type 4.

BA307C, BA308C, BA327C and BA328C

Intrinsically safe for Class I, Division 1, Groups A, B, C and D (Classified) Locations when installed in accordance with the entity concept in accordance with Control Drawings Cl300-22 and Cl320-22; Nonincendive for Class I, Division 2, Groups A, B, C and D Hazardous (Classified) Locations. Temperature class T4 at an ambient of 60°C. Enclosure Type 4 front panel only.

FM Approved for:

BEKA associates

Hitchin, Hertfordshire SG5 2DA, United Kingdom



This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	1998
Class 3610	2010
Class 3611	2004
Class 3810	2005

Original Project ID: 4B3A7.AX

Approval Granted: September 29, 1997

Subsequent Revision Reports / Date Approval Amended

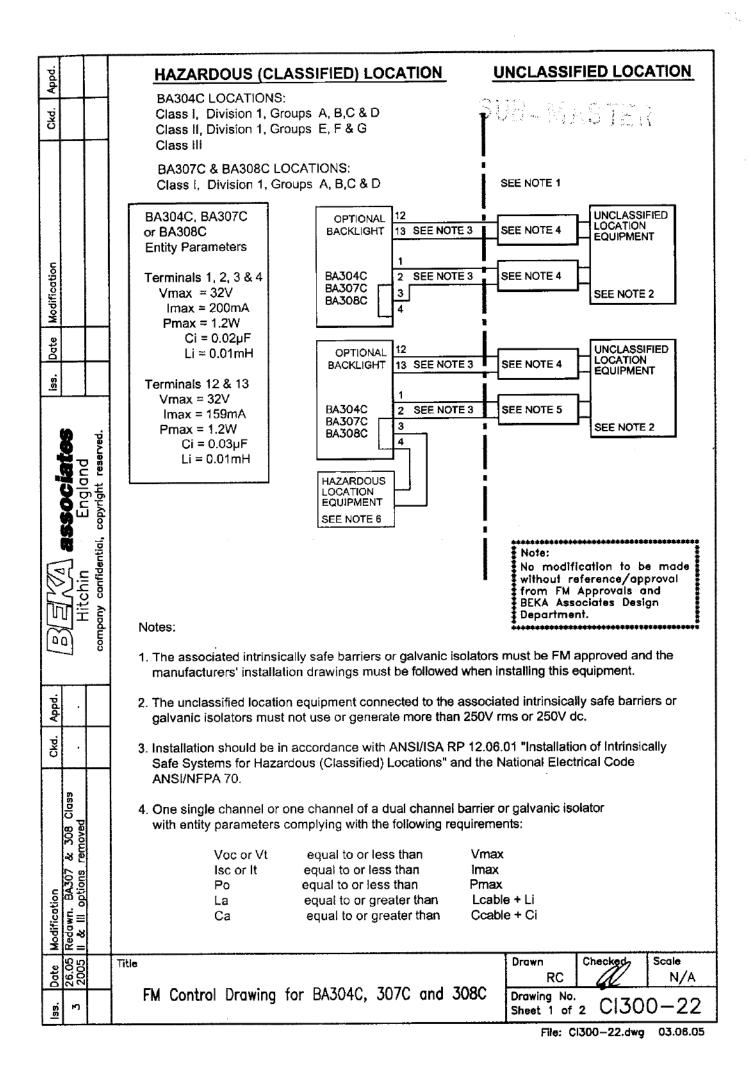
Report Number	Date	Report Number	Date
040804	May 19, 2004		
050526	June 10, 2005		
101217	Marh 16, 2011		

FM Approvals LLC

Timothy J Adalm

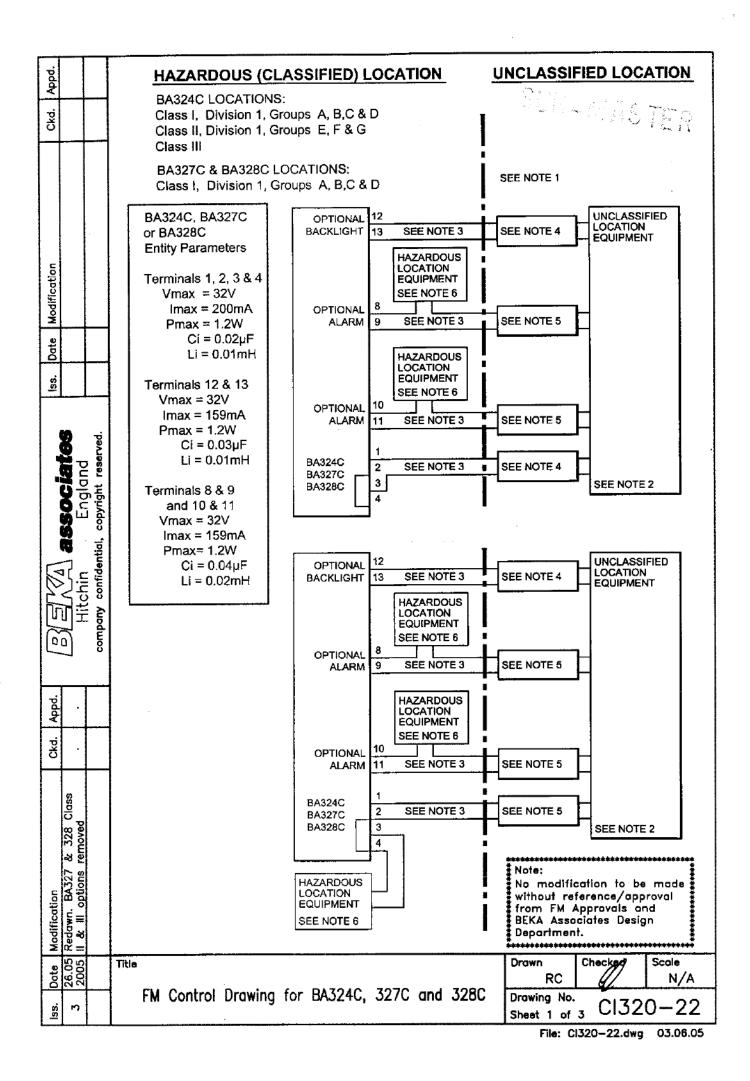
Technical Team Manager

March 16, 20'



Appd.	5. One single channel or one channel of a dual channel barrier or galvanic isolator with entity parameters complying with the following requirements:
Ckd.	CAUTION: THESE REQUIREMENTS MUST BE FOLLOWED FOR NEW INSTALLATIONS OR MODIFICATIONS TO EXISTING INSTALLATIONS.
	Voc or Vt equal to or less than The lowest Vmax of the FM Approved apparatus installed in the respective loop.
tion	Isc or It equal to or less than The lowest Imax of the FM Approved apparatus installed in the respective loop.
Modification	Po equal to or less than Pmax
Date	La equal to or greater than The sum of the cable inductances and the internal inductance Li of each FM Approved apparatus installed in the respective loop.
86.	Ca equal to or greater than The sum of the cable capacitance and the internal capacitance Ci of each FM Approved apparatus in the respective loop.
ckd. Appd. BBACCLates Hitchin England company confidential, copyright reserved.	 Hazardous (classified) location equipment may be simple apparatus or FM Approved equipment with entity parameters meeting the requirements of note 5. The BA304C is FM Approved as nonincendive for Class I, II, III, Division 2, Groups A, B, C, D, E, F & G Hazardous (classified) locations without connection to associated protective barriers or galvanic isolators when installed per the National Electrical Code (ANSI/NFPA 70) and the voltages do not exceed 32V dc. The BA307C and BA308C are FM Approved as nonincendive for Class I, Division 2, Groups A, B, C & D Hazardous (classified) locations without connection to associated protective barriers or galvanic isolators when installed per the National Electrical Code (ANSI/NFPA 70) and the voltages do not exceed 32V dc. When mounting BA307C and BA308C in an enclosure to maintain NEMA 4 front panel rating: Minimum panel thickness should be 2mm (0.08inches) Steel 3mm (0.12inches) Aluminium Outside panel finish should be smooth, free from particle inclusions, runs or build-up around cut-out. Panel cut-out should be BA307C 43.5 x 90.0mm -0.00 +0.5 (1.71 x 3.54 inches -0.00 +0.02)
Modification Redown, BA307 & 308 Class II & III options removed	BA308C 66.2 x 136.0mm -0.0 +0.5 (2.60 x 5.35 inches -0.00 +0.02) Edges of panel cut-out should be deburred and clean Each panel mounting clip should be tighened to between: 20 and 22cNm (1.77 to 1.95 inLb) Note: BA308C requires four panel clips.
lss. Date 3 26.05	FM Control Drawing for BA304C, 307C and 308C Drawn Checked RC N/A Drawing No. Sheet 2 of 2 C1300-22

File: Cl300-22.dwg 03.06.05



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Appd.			Notes:		••	ing in the second of the secon		K			
Ckd.			The associated intrinsically manufacturers' installation	/ safe barriers or galv drawings must be fol	ranic isolators mu llowed when insta	ist be FM appr alling this equir	roved and the oment.				
ိ			manufacturers' installation drawings must be followed when installing this equipment.								
			The unclassified location equipment connected to the associated intrinsically safe barriers or galvanic isolators must not use or generate more than 250V rms or 250V dc.								
			 Installation should be in accordance with ANSI/ISA RP 12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code ANSI/NFPA 70. 								
Modification			One single channel or one with entity parameters con	channel of a dual ch nplying with the follow	annel barrier or g ving requirements	alvanic isolato :	рГ				
뎵			Voc or Vt	equal to or less than	Vmax						
8			Isc or It	equal to or less than							
-	-	-	Po	equal to or less than	Pmax						
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lss.		<u></u>	One single channel or one with entity parameters cor	channel of a dual ch nplying with the follow	annel barrier or g ving requirements	galvanic isolato ::	or				
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	BSSOCIAI Frolond	copyright reserved.	Voc or Vt equa	al to or less than	The lowest Vmax of the FM Approved apparatus installed in the respective loop.						
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Ckd. Appd.	 		. Ca equa	il to or greater than	The sum of the the internal cap FM Approved a respective loop	pacitance Ci of apparatus in th	f each				
	 		Hazardous (classified) loc equipment with entity para				proved				
Modification			equipment with entity parameters meeting the requirements of note 5. 7. The BA324C is FM Approved as nonincendive for Class I, II, III, Division 2, Groups A, B, C, D, E, F & G Hazardous (classified) locations without connection to associated protective barriers or galvanic isolators when installed per the National Electrical Code (ANSI/NFPA 70) and the voltages do not exceed 32V dc. The BA327C and BA328C are FM Approved as nonincendive for Class I, Division 2, Groups A, B, C & D Hazardous (classified) locations without connection to associated protective barriers or galvanic isolators when installed per the National Electrical Code (ANSI/NFPA 70) and the voltages do not exceed 32V dc.								
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BS.	1		FM Control Drawing	or BA324C, 327	C and 328C	Drawing No Sheet 2 of	3 Cl32	0-22			

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Appd.			_	_					Jac-		-:- NIEMA <i>A</i>		rating
Ckd.			8. When mounting BA327C and BA328C in an enclosure to maint Minimum panel thickness should be 2mm (0.08inches) Steel									iront panel	raung:
Ö			Minimum panel thickness should be 2mm (0.08inches) Steel 3mm (0.12inches) Alumi										
					el finish sho und cut-out.	uld be s	mooth,	free fron	n partic	ole inclusi	ons, runs or		
			P	anel cut-ou	ut should be	BA32	7C			n -0.00 + iches -0.0	0.5 00 +0.02)		
Modification						BA32	8C			m -0.0 +1 nches -0.0	0.5 00 +0.02)		
Modifi			E	dges of pa	nel cut-out s	hould b	e debur	red and	clean				
Date			Е	ach panel	mounting cli	p should	d be tigh	nened to	betwe	en: 20	and 22cNm	(1.77 to 1.9	5 inLb)
38.			N	ote: BA3	28C requires	s four pa	anel clip	s.					
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Appd.													
Ckd													
Modification	5 Redawn, BA327 & 328 Class		Tab								Draws	Checked	Scale
Date	26.05 2005		Title	u o l	l D	f 5/	17040	מדמד	المصرورة	7000	Drawn RC	Checked	Scale N/A
ŝŝ	ы		F	M Contro	l Drawing	TOT BA	1024U,	32/C	ana	J28U	Drawing No Sheet 3 of	3 CI32	20-22

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