



Member of the FM Global Group

FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

BA386ab. LED BEACON

IS / I / 1 / ABCD / T4 Ta = 60°C - CI386-12; Entity

IS / I / 0 / AEx ia / IIC / T4 Ta = 60°C - CI386-12; Entity

IS / I / 1 / CD / T4 Ta = 60°C - CI386-13; Entity

IS / I / 0 / AEx ia / IIB / T4 Ta = 60°C - CI386-13; Entity

NI / I / 2 / ABCD / T4 Ta = 60°C - CI386-12, CI386-13

NI / I / 2 / IIC / T4 Ta = 60°C - CI386-12, CI386-13

Entity and Nonincendive Parameters: Per Control Drawings CI386-12 and CI386-13

a = Color: R (red), A (amber), G (green) or other.

b = Accessories: Legend and Combining kit.

Equipment Ratings:

Intrinsically safe for Class I, Division 1, Groups A, B, C and D; Intrinsically Safe for Class I, Zone 0 Group IIC Hazardous (Classified) Locations when installed per Control Drawing CI386-12.

Intrinsically safe for Class I, Division 1, Groups C and D; Intrinsically Safe for Class I, Zone 0 Group IIB Hazardous (Classified) Locations when installed per Control Drawing CI386-13.

Nonincendive for Class I, Division 2, Groups A, B, C and D; Nonincendive for Class I, Zone 2, Group IIC when installed per Control Drawing CI386-12 or CI386-13.

Temperature Class T4 at 60°C ambient.

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: 3014996

Approval Granted: December 17, 2002

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
101217	March 16, 2011		

FM Approvals LLC

Timothy Adam
Technical Team Manager

March 16, 2011

Date

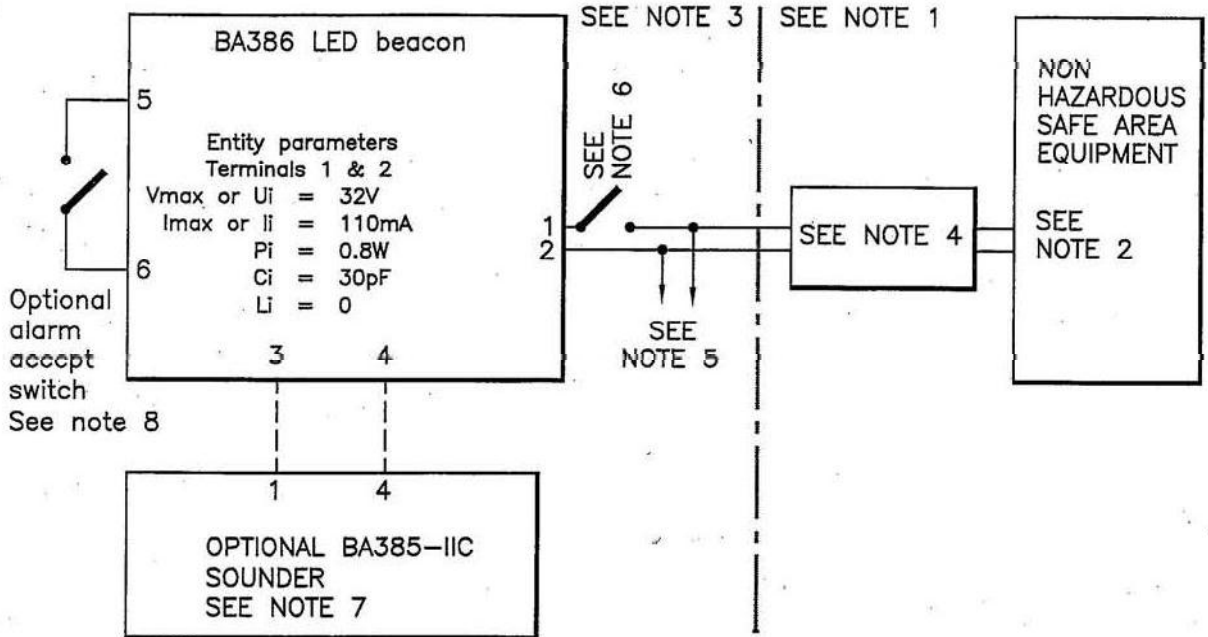
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ENTITY APPROVAL

HAZARDOUS LOCATION

NON-HAZARDOUS AREA

Class I, Division 1 or 2, Groups A, B, C & D
 or Class I, Zone 0, 1 or 2, Groups IIA, IIB & IIC



NOTES:

1. The associated protective barriers must be FM Approved and the manufacturers installation drawings must be followed when installing this equipment.
2. The non-hazardous location equipment connected to the associated protective barriers must not use or generate more than 250Vrms or Vdc.
3. Installation should be in accordance with ANSI/ISA RP 12.6.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code ANSI/NFPA 70.
4. One single channel, or one two channel barrier or a galvanic isolator. The combination must be FM Approved with entity parameters meeting the following requirements:

V_{oc} or V_t	\leq	32V	
I_{sc} or I_t	\leq	110mA	
P_o	\leq	0.8W	
C_a	\geq	30pF + C_{cable} between all BA386 Beacons and the barrier (including to device in NOTE 6) + C_{cable} between BA386 Beacon and BA385-IIC Sounder	
L_a	\geq	L_{cable} between all BA386 Beacons and the barrier (including to device in NOTE 6) + L_{cable} between BA386 Beacon and BA385-IIC Sounder	

CAUTION: THESE REQUIREMENTS MUST BE FOLLOWED FOR NEW INSTALLATIONS OR MODIFICATIONS TO EXISTING INSTALLATIONS

Title

FM Control drawing for BA386 and BA385-IIC in groups A, B, C & D

Drawn RH	Checked 	Scale NTS
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Drawing No. Sheet 1 of 2 **CI386-12**

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5. Terminals 1 and 2 of up to three BA386 beacons may be connected in parallel.
6. BA386 beacon may be controlled by simple apparatus switches or FM Approved equipment with Entity parameters:
 $V_{max} \geq 32V$, $I_{max} \geq 110mA$, $P_{max} \geq 0.8W$, $C_i = 0\mu F$, $L_i = 0mH$
 or $V_{oc} = 0V$, $I_{sc} = 0mA$, $C_a \geq 1000\mu F$, $L_a \geq 1000mH$
7. One FM Approved BA385-IIC Sounder (FM file 3001558) may be connected to terminals 3 & 4 of a single BA386 beacon.
8. Alarm accept terminals may be connected to simple apparatus switches or FM Approved equipment with Entity parameters of $V_{oc} = 0V$, $I_{sc} = 0mA$, $C_a \geq 1000\mu F$, $L_a \geq 1000mH$ and with cable length not greater than 5000ft (1500m).
9. The BA386 is approved as nonincendive suitable for use in Class I, Division 2, Groups A, B, C and D when connected to an FM approved associated apparatus having noincendive parameters $V_{oc} \leq 32V$, $I_{sc} \leq 132mA$ and capacitance and inductance requirements in Note 4 are met.
 The BA386 can also be installed in Division 2 when using PLTC or ITC cables and cable entry Killark CGUAXM20 following National Electrical Code (ANSI/NFPA70) and the voltages do not exceed 32Vdc. This installation is restricted to one BA386 and one BA385 and the external silence switch cannot be part of the system.

Iss.	Date	Title	Drawn	Checked	Scale
1	07.02	FM Control drawing for BA386 and BA385-IIC in groups A, B, C & D	RH		NTS
			Drawing No. CI386-12 Sheet 2 of 2		

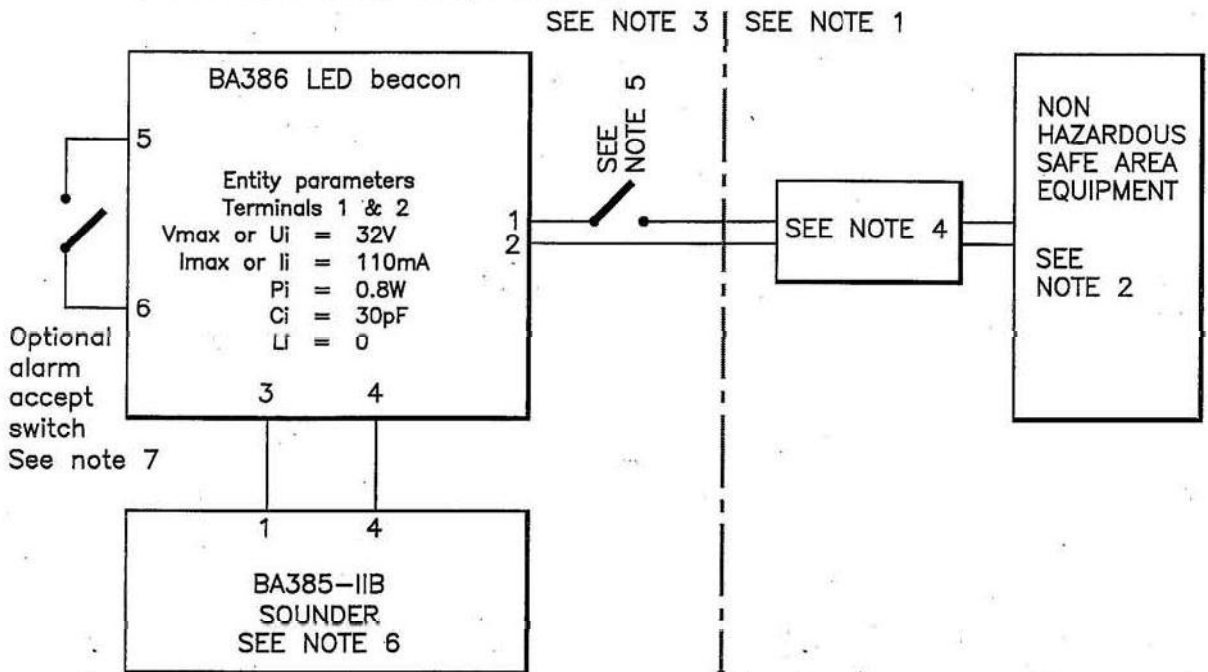
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ENTITY APPROVAL

HAZARDOUS LOCATION

NON-HAZARDOUS AREA

Class I, Division 1 or 2, Groups C & D
 or Class I, Zone 0, 1 or 2, Groups IIA & IIB



NOTES:

1. The associated protective barriers must be FM Approved and the manufacturers installation drawings must be followed when installing this equipment.
2. The non-hazardous location equipment connected to the associated protective barriers must not use or generate more than 250Vrms or Vdc.
3. 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.
4. One single channel, or one two channel barrier or a galvanic isolator. The combination must be FM Approved with entity parameters meeting the following requirements:

Voc or Vt	≤	32V
Isc or It	≤	110mA
Po	≤	0.8W
Ca	≤	30pF + Ccable between the BA386 Beacon and the barrier (including to device in NOTE 5) + Ccable between BA386 Beacon and BA385-IIB Sounder
La	≤	Lcable between the BA386 Beacon and the barrier (including to device in NOTE 5) + Lcable between BA386 Beacon and BA385-IIB Sounder

CAUTION: THESE REQUIREMENTS MUST BE FOLLOWED FOR NEW INSTALLATIONS OR MODIFICATIONS TO EXISTING INSTALLATIONS

Title	FM Control drawing for BA386 and BA385-IIB in groups C & D	Drawn RH	Checked <i>[Signature]</i>	Scale NTS
Iss.	1	Drawing No. Sheet 1 of 2 CI386-13		

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5. BA386 beacon may be controlled by simple apparatus switches or FM Approved equipment with Entity parameters:
 $V_{max} \geq 32V$, $I_{max} \geq 110mA$, $P_{max} \geq 0.8W$, $C_i = 0\mu F$, $L_i = 0mH$
or $V_{oc} = 0V$, $I_{sc} = 0mA$, $C_a \geq 1000\mu F$, $L_a \geq 1000mH$

6. One FM Approved BA385-IIB Sounder (FM 3001558) may be connected to terminals 3 & 4 of a single BA386 beacon.

7. Alarm accept terminals may be connected to simple apparatus switches or FM Approved equipment with Entity parameters of $V_{oc} = 0V$, $I_{sc} = 0mA$, $C_a \geq 1000\mu F$, $L_a \geq 1000mH$ and with cable length not greater than 5000ft (1500m).

8. The BA386 is approved as nonincendive suitable for use in Class I, Division 2, Groups C and D when connected to an FM approved associated apparatus having noincendive parameters $V_{oc} \leq 32V$, $I_{sc} \leq 132mA$ and capacitance and inductance requirements in Note 4 are met.
The BA386 can also be installed in Division 2 when using PLTC or ITC cables and cable entry Killark CGUAXXM20 following National Electrical Code (ANSI/NFPA70) and the voltages do not exceed 32Vdc. This installation is restricted to one BA386 and one BA385 and the external silence switch cannot be part of the system.

Iss.	1	Date	07.02	Title	FM Control drawing for BA386 and BA385-IIB in groups C & D	Drawn	Checked	Scale
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						Drawing No.	CI386-13	
						Sheet 2 of 2		