Assessment Report

Title:
Report on: UKCA 'ia' Certification of Type K30L and K50L LED Indicator Lights

Applicant:
Banner Engineering Corporation

Report No.
R80106744A

Date of issue:
June 2022

CSA Issuing Body	Scheme	CSA Project No.s
CSA Group Testing UK Ltd, Unit 6, Hawarden Industrial Park, Hawarden, Deeside, CH5 3US, United Kingdom	UKCA	80106744

1 Report Summary

1.1 Certification Overview

This report is to issue UKCA certification of the Type K30L and K50L LED Indicator Lights based on the ATEX certificate, Sira 13ATEX2058X (Issue 9).

1.2 Applicant's Name & Address

Banner Engineering Corporation
9714 Tenth Avenue North
Minneapolis
MN 55441
United States of America

1.3 Manufacturer's Name & Address

Banner Engineering Corporation
9714 Tenth Avenue North
Minneapolis
MN 55441
United States of America

The product is manufactured at the following location, covered by the same QAN:

Banner Engineering Corporation
715 North County Road
Aberdeen SD 57401
United States of America

1.4 Product Name/Model Number

Type K30L and K50L LED Indicator Lights

1.5 Rating

The total combined intrinsically safe electrical parameters are:

U_i = 30 V	I_i = 1 A	P_i – Dependent on Equipment Protection Level (EPL) & Ambient Temperature – See Table Below
C_i = 0	L_i = 0	

P_i Rating:

Equipment Protection Level (EPL)	P_i & associated Ambient Temperature
EPL Ga & Ma	P_i = 3.4 W @ 40°C ambient temperature P_i = 2.8 W @ 50°C ambient temperature
EPL Da	P_i = 2.7 W @ 40°C ambient temperature P_i = 2.2 W @ 50°C ambient temperature

The values of I_i and P_i are the total of all input current and the total of all input powers at all connections.

1.6 Assessment Standards

UKCA
EN IEC 60079-0:2018
EN 60079-11:2012

This report may be issued against standards that do not appear on the UKAS Scope of Accreditation, but have been added through CSA Group Testing UK Ltd.'s flexible scope of accreditation.

1.7 Marking

Detail	UKCA
Certificate number:	CSAE 21UKEX2681X
Certification code:	Ex ia IIC T4 Ga Ex ia IIIC T_{200} 130°C Da Ex ia I Ma
Other marking:	UKCA 1725 Ex II 1G II 1D I M1
Model number:	Type K30L and K50L LED Indicator Lights
Manufacturer's name:	Banner Engineering Corporation
Manufacturer's address:	9714 Tenth Avenue North, Minneapolis, Minnesota 55441. USA
Ambient range:	Ta = -40°C to +40°C (Pi = 3.4W for EPL Ga & Ma and Pi = 2.7W for EPL Da) Ta = -40°C to +50°C (Pi = 2.8W for EPL's Ga & Ma and Pi = 2.2W for EPL Da)
Serial number:	As appropriate
Year of manufacture:	As appropriate
Warnings:	None.

Example Nameplates:

1.8 Product Description

Type K30L and K50L LED Indicator Lights comprise LEDs mounted on a printed circuit board and encapsulated within a plastic housing with a transparent dome. The Type K50L is physically larger than the K30L having more LEDs than the K50L. The indicator lights have either a screw on plug and socket connector or an integral cable fitted for the electrical connections.

The total combined intrinsically safe electrical parameters are:

U_i = 30 V	I_i = 1 A	P_i – Dependent on Equipment Protection Level (EPL) & Ambient Temperature – See Table Below
C_i = 0	L_i = 0	

P_i Rating:

Equipment Protection Level (EPL)	P_i & associated Ambient Temperature
EPL Ga & Ma	P_i = 3.4 W @ 40°C ambient temperature P_i = 2.8 W @ 50°C ambient temperature
EPL Da	P_i = 2.7 W @ 40°C ambient temperature P_i = 2.2 W @ 50°C ambient temperature

The values of I_i and P_i are the total of all input current and the total of all input powers at all connections.

Incorporated amendments

The product description includes the following applicable amendments from the previous supporting assessments. Only amendments directly applicable to UKCA certification have been included in this list. The amendments are numbered to include a reference to the variation at which these were introduced.

i) (Variation 1)
- The specification of the material used for the K30L and K50L LED indicator covers was changed, one of the options being removed.

ii) (Variation 2)
- A number of editorial changes to the documentation.
  - Replace drawing 126905 with drawing 164906.
  - Replace drawing 133593 with drawing 164905.

iii) (Variation 3)
- The use of an alternative encapsulation material was approved.

iv) (Variation 4)
- The recognition of minor drawing modifications; these modifications do not affect the aspects of the product that are relevant to explosion safety.
- Compliance with EN 60079-26 is no longer required for Ex ia Ga equipment, therefore this standard has been removed from the certificate.
- Standard EN 60079-0:2012 was updated to EN 60079-0:2012/A11:2013.

v) (Variation 5)
- Drawing 173292 has been revised from rev A to rev B to update cable details for the LED Indicator lights.

vi) (Variation 6)
- A number of editorial changes not affecting compliance have been made to the drawings for the LED Indicator lights.

vii) (Variation 7)
- Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012/A11: 2013 were replaced by EN IEC 60079-0:2018. Where applicable, the markings were updated accordingly to recognise the new standard.

  As a result of the assessment, reduced P_i parameters have been derived for the equipment when installed in an explosive dust atmosphere, Equipment Protection Level (EPL) Da. The previous stated P_i parameters are still applicable for explosive gas and mining atmospheres, EPL's Ga & Ma.
- Drawing and documentation update.

1.9 Manufacturer's Documents

1.9.1 Documents common to ATEX Certification

Drawing	Sheets	Rev.	Date (Stamp)	Title
119759	1 of 1	-	12 Jul 13	PCB RAW panel (dimensions), T18 EZ light – K30L
128145	1 of 1	A	12 Jul 13	PCB Raw Panel (dimensions) K50L
133592	1 of 1	K	27 Apr 22	Base K30 EZ Light
133594	1 of 1	D	22 Jan 19	Nut M22 X 1.5
133595	1 of 1	A	12 Jul 13	Washer assembly
145878	1 of 1	A	12 Jul 13	Foam spacer EZ Light K30L
158032	1 to 4	B	12 Jul 13	PCB K30L track and component layout
158032	1 of 1	B	12 Jul 13	PCB RAW, K30L Intrinsic Safe EZ light
158033	1 of 1	K	27 Apr 22	Schematic Diagram K30L EZ light Intrinsic Safety
158034	1 to 2	A	12 Jul 13	PCB assy, K30L Intrinsically safe 3 colour
158034	1 of 1	A	12 Jul 13	PCB BOM. Intrinsically safe 3 colour
158251	1 to 4	B	12 Jul 13	PCB K50L track and component layout
158251	1 of 1	B	12 Jul 13	PCB Raw, K50L Intrinsic Safe EZ light

Drawing	Sheets	Rev.	Date (Stamp)	Title
158252	1 of 1	J	27 Apr 22	Schematic Diagram K50L EZ light Intrinsic Safety
158358	1 to 2	A	12 Jul 13	PCB assy, K50L Intrinsically safe 3 colour
158358	1 of 1	A	12 Jul 13	PCB BOM, K50L Intrinsically safe 3 colour
162904	1 of 1	D	09 Feb 17	Base K50 IS Black M30x1.5 mounting base
164905	1 of 1	C	09 Feb 17	Cover K30 EZ Light
164906	1 of 1	J	04 Apr 18	Cover K50 IS EZ light 2nd GEN
168051	1 to 2	D	27 Apr 22	Proc Potting K50L Hazardous Environment Cable Final Assy
169012	1 to 7	B	12 Jul 13	K50L, IS Final assembly
169013	1 to 8	C	27 Apr 22	DWG K30L IS Final Assembly
169014	1 to 2	E	27 Apr 22	Proc Potting K50L Hazardous Environment QD Final Assy
169015	1 & 2	E	22 Jan 19	Proc potting K30L Hazardous Environment Final Assembly
173292	1 of 1	C	27 Apr 22	Cable
217424	1 & 2	L	27 Apr 22	Dwg Hex Nut with Knurl M30 x 1.5

1.9.2 Drawings added as part of UKCA Certification

Drawing	Sheets	Rev.	Date (Stamp)	Title
171463	1 of 1	E	01 Jun 22	K30/K50 IS Markings Label

1.10 Supporting Documents

Number	Details	Pages
R26812A/00	(Issue 0) Original ATEX Report – 12 July 2013	32
R26812A/01	(Issue 1) Report replacing original Report No. R26812A/00 – 12 February 2014	32
R70034003A	(Issue 2) Supplementary Report Variation 1 – 7 July 2015	8
R70115581A	(Issue 3) Supplementary Report Variation 2 – 6 March 2017	10
R70115798A	(Issue 4) Supplementary Report Variation 3 – 11 July 2017	14
R70177521A	(Issue 5) Supplementary Report Variation 4 – 24 April 2018	10
R70188875A	(Issue 6) Supplementary Report Variation 5 – 12 September 2018	8
R70205810A	(Issue 7) Supplementary Report Variation 6 – 4 February 2019	8
0344	(Issue 8) Transfer of certificate Sira 13ATEX2058X from Sira Certification Service to CSA Group Netherlands B.V. – 15 October 2019	4
R80074932A	(Issue 9) Supplementary Report Variation 7	34

1.11 Specific Conditions Of Use

i. In certain extreme circumstances, the non-metallic enclosure of these LED Indicator Lights could generate an ignition-capable level of electrostatic charge. Therefore, the user/installer shall ensure that the equipment is not installed in a location where it may be subject to external conditions (such as high-pressure steam) which conducive to creating a build-up of electrostatic charge on non-conducting surfaces. Additionally, cleaning of the equipment should only be done with a damp cloth. This condition is particularly important if the equipment is used in a zone 0 or zone 20 applications or when installed in dust environments where it is likely to be regularly cleaned.

ii. When more than one intrinsically safe supply (e.g. two or three barriers) is connected to an LED Indicator the combined electrical parameters of the supply must remain intrinsically safe.

iii. The user/installer shall install these LED Indicator Lights taking into account the following ambient temperature ranges:

Ta = -40°C to +40°C (Pi = 3.4W for EPL Ga & Ma installations & Pi = 2.7W for EPL Da installations)
Ta = -40°C to +50°C (Pi = 2.8W for EPL Ga & Ma installations & Pi = 2.2W for EPL Da installations)

1.12 Production Control

i. Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders.

1.13 Conclusion

The equipment described in this report satisfies the requirements of the listed standards, the relevant certification code being as indicated in section 1.7. The tests and assessments are limited to the standards aforementioned. In addition, the equipment meets the requirements UKSI 2016:1107 (as amended by UKSI 2019:696 – Schedule 3A, Part 1) for UK Type Examination, for the Category indicated in section 1.7.

1.14 Signatories

Compiled by + signature	**M Munro** Certifier III	M. Munro
Reviewed by + signature	**Goutam Das** Certification Specialist	Goutam Das

2 Supporting Assessments

The assessment and tests conducted for this equipment are based primarily on the assessment performed for ATEX certification, and the associated Test Reports as indicated in section 1.10. A copy of the reports are archived in the Test Data folder associated with this project.

IECEx & ATEX Certificate Numbers	Sira 13ATEX2058X, issue 9
Assessment Reports	See Section 1.10 above
Standards	EN IEC 60079-0:2018 & EN 60079-11 :2012

The assessment report is accepted in full against the listed standards in section 1.6 and the assessment and test data has been considered acceptable in demonstrating compliance with these listed standards.

3 Assessment against UKCA Regulations

The table below lists all relevant Essential Health and Safety Requirements (EHSRs) in Schedule 1 of UKCA Regulations that are not addressed by the listed standards.

EHSR	Title	Justification for compliance
9	Enclosed structures and prevention of leaks	N/A – Equipment is not capable of releasing flammable gases or dusts.
11	Additional means of protection	N/A – Equipment is not exposed to external stresses.
19	Hazards arising from overheating	N/A – The equipment is not susceptible to overheating caused by friction or impacts occurring.
20	Hazards arising from pressure compensation operations	N/A – Equipment not operated under pressure.
22, 23, 24, 25	Requirements in respect to safety-related devices	N/A – Equipment is not a safety-related device.
26, 27, 29	Integration of safety requirements relating to the system	N/A – Equipment is not a safety-related device.
38, 39, 40, 41, 42, 43	Supplementary requirements in respect of protective systems	N/A – Equipment is not a protective system.