

1 EC-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 **EC-Type Examination Certificate No:** FM12ATEX0094X

4 **Equipment or protective system:** Photoelectric Sensor Series SMI9, SMI30, MIAD9, Q45, T30
(Type Reference and Name)

5 **Name of Applicant:** Banner Engineering Corporation

6 **Address of Applicant:** 9714 Tenth Ave N
Minneapolis, MN 55441
United States

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd, notified body number 1725 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:

3046293 dated 21st August 2014

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN 60079-0: 2012, EN 60079-11: 2012, and EN 60079-26: 2007

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.



Digitally signed by Nicholas Ludlam
DN: cn=Nicholas Ludlam,
o=Deputy Certification
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Nicholas Ludlam
Deputy Certification Manager, FM Approvals Ltd.

Issue date: 22nd August 2014

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F ATEX 020 (Apr/14)

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- 12 The marking of the equipment or protective system shall include:

MIAD9 Series. Photoelectric Sensors.

II 1 G Ex ia IIC T5 Ga Ta = -40°C to 70°C

Q45 Series. Photoelectric Sensors.

II 1 G Ex ia IIC T5 Ga Ta = -40°C to 70°C

SMI9 Series. Photoelectric Sensor.



II 2 G Ex ib IIC T5 Gb Ta = -40°C to 70°C

SMI30 Series. Photoelectric Sensor.

II 2 G Ex ib IIC T5 Gb Ta = -40°C to 70°C

T30 Series. Photoelectric Sensor.

II 1 G Ex ia IIC T6 Ga Ta = -40°C to 70°C

- 13 **Description of Equipment or Protective System:**

SMI30 Series Photoelectric Sensors

The SMI30 Series Photoelectric sensors either emit or receive a light signal depending on the sensor type (emitter or receiver). The sensors consist of one or two circuit boards, fully encapsulated in a threaded plastic case (barrel) which is equipped with a connector. The case measures approximately 3.87 in. (100mm) long and 1.16 in. (30mm) diameter. The sensors use a cable/connector assembly which threads onto the sensor connector. The operating temperature range is -40°C to +70°C.

SMI30a. Photoelectric Sensor.

Electrical Parameters:

$U_i = 30\text{ V}$, $I_i = 350\text{ mA}$, $P_i = 750\text{ mW}$, $C_i = 0$, $L_i = 0$.

a = 6EQ, 6EBQ, 6ECQ, 6EYCQ, AN6RQ, AN6RBQ, AN6RCQ, RN6RQ, RN6RBQ, RN6RCQ, 6EYQ, N6RYQ, AN6RYCQ, RN6RYQ, RN6RYCQ.

SMI9 Series Photoelectric Sensors

The SMI9 Series Photoelectric sensors either emit or receive a light signal depending on the sensor type (emitter, receiver or combined emitter/receiver unit). The sensors consist of one circuit board, fully encapsulated in a molded plastic case equipped with either a connector or a cable. The case measures approximately 1.375 in. (100mm) x 1.375 in. x 2 in. (30mm). The sensors use a cable/connector assembly which threads onto the sensor connector or are provided with an attached cable. The operating temperature range is -40°C to +70°C.

SMI91a. Photoelectric Sensor.

Electrical Parameters:

$U_i = 30\text{ V}$, $I_i = 350\text{ mA}$, $P_i = 750\text{ mW}$, $C_i = 0\text{ }\mu\text{F}$, $L_i = 0\text{ mH}$.

a = 1RQD, RSRQD, RFQD, EQD, ESRQD or EFQD

MIAD9 Series Photoelectric Sensors

The MIAD9 Series Photoelectric sensors either emit or receive a light signal depending on the sensor type (emitter, receiver or combined emitter/receiver unit). The sensors consist of one circuit board, fully encapsulated in a molded plastic case equipped with either a connector or a cable. The case measures

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approximately 2.25 in. (57mm) x 1.25 in. (32mm) x 0.5 in. (12.5mm). The sensors use a cable/connector assembly which threads onto the sensor connector or are provided with an attached cable. The operating temperature range is -40°C to +70°C.

MIAD9ab, MI9Eb. Photoelectric Sensors.

Electrical Parameters:

$U_i = 15$ V dc, $I_i = 60$ mA, $P_i = 225$ mW, $C_i = 0.3$ μ F, $L_i = 0$ mH.

a = Sensing mode D, W, F, LV, LVAG, CV, CV2 or R.

b = Connection method Q or blank.

T30 Series Photoelectric Sensors

The T30 Series Photoelectric sensors either emit and receive a light signal with the same unit. The sensors consist of one circuit board, fully encapsulated in a molded plastic case equipped with either a connector or a cable. The case measures approximately 1.5 in. (38mm) diameter x 1.75 in. (44mm) long. The sensors use a cable/connector assembly which threads onto the sensor connector or are provided with an attached cable. The operating temperature range is -40°C to +70°C.

T30AD9FF150, T30AD9FF150Q. Photoelectric Sensor.

Electrical Parameters:

$U_i = 30$ V, $I_i = 350$ mA, $P_i = 750$ mW, $C_i = 0$, $L_i = 0$.

Q45 Series Photoelectric Sensors

The T30 Series Photoelectric sensors either emit and receive a light signal with the same unit. The sensors consist of one circuit board, fully encapsulated in a molded plastic case equipped with either a connector or a cable. The case measures approximately 2.5 in. (63.5mm) x 1.75 in. (44mm) x 1.75 in. (44mm). The sensors use a cable/connector assembly which threads onto the sensor connector or are provided with an attached cable. The operating temperature range is -40°C to +70°C.

Q45AD9ab, Q459Eb. Photoelectric Sensors.

Electrical Parameters:

$U_i = 15$ V dc, $I_i = 60$ mA, $P_i = 225$ mW, $C_i = 0.3$ μ F, $L_i = 0$ mH.

a = Sensing mode D, DL, F, FP, FV, LV, LP, CV, CV4 or R.

b = Connection method Q or blank.

14 Specific Conditions of Use:

Potential Electrostatic Charging Hazard – To prevent the risk of electrostatic sparking the non-metallic surfaces should only be cleaned with a damp cloth.

15 Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 Test and Assessment Procedure and Conditions:

This EC-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

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This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
22 nd August 2014	Original Issue.

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