[1] # EC-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

[3] EC-Type Examination Certificate Number: **DEMKO 13 ATEX 1214149X Rev. 0**

[4] Equipment or Protective System: **Zener Diode Safety Barrier**

[5] Manufacturer: **Migatron Corp.**

[6] Address: **935 Dieckman Street, Woodstock, IL 60098 USA**

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

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. **12NK14149**

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

EN 60079-0:2012 **EN 60079-11:2012**
EN 60079-26:2007 **EN 50303:2000**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe 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 the certificate.

[12] The marking of the equipment or protective system shall include the following:

I M(1) / II (1) GD, [Ex ia Ma/Ga] I/IIC, [Ex ia Da] IIIC

Certification Manager
Jan-Erik Storgaard

Notified Body

This is to certify that the sample(s) of the Product(s) described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Equipment Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Applicant. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured products. UL has not established Follow-Up Service or other surveillance of the product. The Applicant/Manufacturer are solely and fully responsible for conformity of all products to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2013-08-20

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

[13] **Schedule**

[14] **EC-TYPE EXAMINATION CERTIFICATE No.**

DEMKO 13 ATEX 1214149X Rev. 0

Report: 12NK14149

[15] Description of Equipment or protective system

Model ZSB-409A is a 3-channel dc positive polarity zener diode safety barrier providing intrinsically safe circuits as identified under Electrical data.

Nomenclature for type *ZSB-409A:*
Model ZSB-409A

Temperature range

The ambient temperature range is -40°C to +60°C.

Electrical data

Input:
U_m : 250 V rms or dc

Channel #	Terminals	Supply Voltage maximum (V dc)	Supply Current maximum (mA)
1	7 & GND	25.5	89
2	5 & GND	10.4	5
3	6 & GND	10.4	5

GND = Safe Area ground terminals are 8, 13, 14, 15, & 16

Intrinsically Safe Entity Parameters:

ZSB-409A Entity Parameters																
Model Number	Terminals	Voc or Uo (V dc)	Isc or Io (mA)	Po (W)	Ca or Co (µF)				La or Lo (mH)				La/Ra or Lo/Ro (µH/ohm)			
					I*	A, B, or IIC	C, E, or IIB	D, F, G, or IIA	I*	A, B, or IIC	C, E, or IIB	D, F, G, or IIA	I*	A, B, or IIC	C, E, or IIB	D, F, G, or IIA
ZSB-409A	3 & GND	28.4	100	0.710	3.64	0.079	0.632	2.07	5	1	5	5	657	50	200	401
	1 & GND	11.6	6	0.017	46.0	1.59	10.8	43.0	1000	987	1000	1000	26800	2040	8170	16300
	2 & GND	11.6	6	0.017	46.0	1.59	10.8	43.0	1000	987	1000	1000	26800	2040	8170	16300

GND = Hazardous Location ground terminals are 4, 9, 10, 11, & 12.
* Values are for Group I, ATEX and IECEx installations only.

Installation instructions

None.

Mounting instructions

None.

Routine tests

A routine test shall be carried out on each completed barrier to check correct operation of each barrier component and the resistance of any fuse.

[16] Report No.

Project Report No.: 12NK14149 (Hazardous Location Testing)

Documents:

Description:	**Drawing No.:**	**Rev. Level:**	**Date:**
ZSB-409A Schematic Diagram	Ex08121115	4	2012-11-20
ZSB-409A Zener Safety Barrier Bill of Materials	Ex08181114	2	2013-08-01
ZSB-409A Host Board Gerbers (Trace Layouts)	Ex05021109	2	2013-08-02
User Manual for ZSB-409A	Ex12301115	1	2013-07-31
ZSB-409A Control Drawing	Ex05121109	1	2013-08-01
ZSB-409A Marking Label	Ex01181208	1	2013-07-31
ZSB-409A Housing Drawing	Ex04281114	3	2012-11-21
ZSB-409A Assembly Drawing	Ex11301211	1	2013-08-01

[13] [14]

Schedule
EC-TYPE EXAMINATION CERTIFICATE No.
DEMKO 13 ATEX 1214149X Rev. 0
Report: 12NK14149

[17] Special conditions for safe use:

- For installations in which both the Ci and Li of the intrinsically safe apparatus exceeds 1% of the Co and Lo parameters of the associated apparatus/equipment (excluding cable), then no more than 50% of Co and Lo parameters are applicable. Additionally, the reduced capacitance of the external circuit (including cable) shall not be greater than 1 µF for Groups I, IIA, IIB, IIIA, IIIB, and IIIC, and 600 nF for IIC.
- Model ZSB-409A must be installed inside an end-use enclosure with suitable ratings for the environment, with at least an ingress protection rating of IP20.

[18] Essential Health and Safety Requirements

Concerning ESR this Schedule verifies compliance with the Annex III of ATEX directive only. The manufacturer's Declaration of Conformity declares compliance with other relevant Directives.

Additional information

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in ANNEX III to Directive 94/9/EC of the European Parliament and the Council of 23 March 1994.