

EC-TYPE EXAMINATION CERTIFICATE



[1]

[2]

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

[3]

EC-Type Examination Certificate Number: **DEMKO 10 ATEX 0962579X Rev. 1**

[4]

Equipment or Protective System: **Density Meter**

[5]

Manufacturer: **Integrated Sensing Systems**

[6]

Address: **391 Airport Industrial Drive, Ypsilanti, MI 48198 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. **13NK07287**

[9]

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

EN 60079-0:2012

EN 60079-11:2007

EN 60079-26:2007

[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:

II 1 G Ex ia IIC T4 -20°C≤Ta≤+60°C Ga

Certification Manager
Jan-Erik Storgaard

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: 2010-07-30

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Notified Body

[13]

Schedule

[14]

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Description of Equipment or protective system

The apparatus is intended to measure the density of liquid fuels. The model nomenclature is as follows:

Fuelsense or MassSense Models

LDM, GDM or LFV	Alphanumeric characters	0, 1 or 2	U,R, 4 or S	1	Alphanumeric characters
I	II	III	IV	V	VI

- I. Product Designator; LDM for Liquid Density, GDM for Gas Density, or LFV for Liquid Flow Viscosity
- II. 2 alphanumeric characters which is an option to discretion of Integrated Sensing Systems
- III. Analog Outputs (4-20 mA), 0 = none, 1 = 1 output, 2 = 2 outputs
- IV. Digital Outputs, R = RS232 option, 4 = RS485 option, U = USB option, S = SPI option
- V. Test certificate; 1 = intrinsically safe
- VI. 16 alphanumeric characters which is an option to discretion of Integrated Sensing Systems

Temperature range

The relation between ambient temperature and the assigned temperature class is as follows:

Ambient temperature range	Temperature class
-20 °C to +60 °C	T4

Electrical data

Intrinsically safe specifications:

The following entity parameters are declared by the manufacturer for the Power input:

$$U_i = 30V, I_i = 300 \text{ mA}, P_i = 1.10W, C_i = 55nF, L_i = 220\mu H.$$

The following entity parameters are declared by the manufacturer for the RS-232 input:

$$U_i = 15V, I_i = 90mA, P_i = 1.10W, C_i = 700nF, L_i = 1000\mu H.$$

The following entity parameters are declared by the manufacturer for the RS-485 input:

$$U_i = 15V, I_i = 90mA, P_i = 1.10W, C_i = 700nF, L_i = 1000\mu H.$$

The following entity parameters are declared by the manufacturer for the 4-20mA circuits:

$$U_i = 30V, I_i = 320 \text{ mA}, P_i = 1.1W, C_i = 48nF, L_i = 150\mu H.$$

The following entity parameters are declared by the manufacturer for the SPI input:

$$U_i = 9V, I_i = 110 \text{ mA}, P_i = 1.1W, C_i = 1000nF, L_i = 10\mu H.$$

The apparatus has following output entity parameters:

$$U_o = 5.88V, I_o = 400 \text{ mA}, P_o = 0.6W, C_o = 41000nF, L_o = 20\mu H$$

Installation instructions

See drawings 105917 for the RS232 version, 106607 for the RS485 version, 105918 for the USB version, and 105919 for the SPI version, specific version is identified as item V in the nomenclature above.

Mounting instructions

Refer to "Instructions".

Performance Testing

The optical radiation output of the apparatus with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 94/9/EC is not covered in this certificate.

Routine tests

None



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Schedule

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[16]

Report No.
Project Report No.: 13NK07287 (Hazardous Location Testing)

Documents:

Description:	Drawing No.:	Rev. Level:	Date:
Certification Drawing	106184	E	2013-07-16
Assembly Drawing (3 pages)	106271	B	2012-10-22
Grounding Assembly	106186	D	2012-10-22
Tab for USB Cap	105992	C	2012-10-22
Connector Prep Drawing (2 pages)	106019	D	2012-10-22
4-20mA board Artwork	106191	D	2012-11-14
Potting Compound Locations, 4-20 mA board (2 pages)	106187	E	2013-03-18
PCB Comm board Artwork	106189	D	2012-11-14
Potting Compound Locations, Comm board (2 pages)	106188	E	2013-03-18
Main board Artwork	106190	D	2012-11-14
Potting Compound Locations, Main board	106231	E	2013-03-18
Bill of Materials	QSF258	E	2013-08-27
MassSense Label, General	106180	D	2012-10-22
MassSense Label, RS232 specific	106181	F	2013-03-14
MassSense Label, USB specific	106182	F	2013-03-14
MassSense Label, SPI specific	106183	F	2013-03-14
MassSense Label, RS485 specific	106608	A	2013-07-16
FuelSense Label, General	105913	D	2012-10-22
FuelSense Label, RS232 specific	105870	G	2013-03-14
FuelSense Label, USB specific	105977	F	2013-03-14
FuelSense Label, SPI specific	106179	F	2013-03-14
Installation Instructions, RS232 version	105917	G	2013-03-18
Installation Instructions, USB version	105918	G	2013-03-18
Installation Instructions, SPI version	105919	G	2013-03-18
Installation Instructions, RS485 version	106607	A	2013-06-21

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Specific conditions of use:

- The apparatus enclosure contains aluminium. Care must be taken to avoid ignition hazards due to impact or friction.
- Disconnect power before servicing.
- Do not connect USB and Power simultaneously.

[18]

Essential Health and Safety Requirements

Concerning ESRs this Schedule verifies compliance with the Annex III of ATEX directive only. By placing the product on the market, the manufacturer declares compliance with other relevant Directives, and all other safety related requirements including those of Annex II of this Directive.

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.

