



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX ITS 13.0044X** Page 1 of 4 [Certificate history:](#)
Issue 0 (2013-11-14)

Status: **Current** Issue No: 1

Date of Issue: 2019-11-20

Applicant: **Delta Mobrey Limited**
Riverside Business Park
Dogflud Way
Farnham
Surrey, GU9 7SS
United Kingdom

Equipment: **MSM400 Control Unit and MSM433A/MSM448A Sensor Unit**

Optional accessory:

Type of Protection: **Intrinsic safety 'ia'**

Marking: **MSM400 Controller**
[Ex ia Ga] IIC -40°C ≤ Ta ≤ 55°C
MSM Sensor
Ex ia IIC Tx Ga
Refer to equipment description for T Class and ambient conditions permitted.

Approved for issue on behalf of the IECEx
Certification Body:

V. K. Varma

Position:

Certification officer

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

Intertek Testing & Certification Limited
ITS House, Cleeve Road
Leatherhead
Surrey, KT22 7SA
United Kingdom



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Manufacturer: **Delta Mobrey Limited**
158 Edinburgh Avenue
Slough
Berkshire SL1 4UE
United Kingdom

Additional
manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[GB/ITS/ExTR13.0053/00](#)

[GB/ITS/ExTR13.0053/01](#)

Quality Assessment Report:

[GB/BAS/QAR06.0033/09](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The MSM400 Control Unit is a microprocessor based electronic control unit designed to limit an intrinsically safe levels the power and signal connections to MSM Sensors situated in the hazardous area and provide galvanic isolation between the two units. The MSM400 Control Unit contains an unspecified circuit, intrinsically safe (IS) interface circuit and terminal blocks for hazardous area connections to sensors and non-hazardous area connections to unspecified apparatus. The IS circuit contains two channels, RX and TX. Each channel comprises an IS transformer, fuses, zener diodes, resistors and suppression capacitors and inductors. The fuse in each channel in series with the primary winding of IS transformer is a high breaking capacity (HBC) rated at 250 V, 4000 A.

Entry parameters for the Control Unit are reproduced in the annex of this certificate.

The MSM Sensor is designed to obtain signals proportional to the suspended solids concentration in the liquid between the two sensor faces. The MSM Sensor may be a MSM433A Tank Mount Sensor or a MSM448A Pipe Mount Sensor. The sensor comprises encapsulated piezoelectric crystals and a printed circuit board containing duplicate shunt zener diodes, housed within a metallic enclosure. The sensor is supplied with an integral cable.

The MSM Sensor type MSM433A or MSM448A is intended to be supplied from the MSM400 Control Unit.

The MSM Sensor can have the following T classes and ambient temperature ranges:

T class (Tx)	Process Temperature (Tp)
T6	-40°C to 70°C
T5	-40°C to 85°C
T4	-40°C to 120°C
T3	-40°C to 150°C

SPECIFIC CONDITIONS OF USE: YES as shown below:

Special Conditions for safe use:

The Degree of protection (IP20) for the Control Unit shall be maintained with use of suitable Cable glands for cables and blanking plugs for unused openings.

Routine Tests:

The dielectric strength test shall be conducted on the infallible transformer with the following test voltages for 60s.

1. 2500Vr.m.s between the input and output windings
2. 1000Vr.m.s between all the windings and the core

Alternatively, the test shall be carried for at least 1s at 1.2 times the above test voltages.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1: Intertek Project No. G104038037

Update to IEC 60079-0, from Ed. 6.0 to Ed. 7.0

Company name change, from Mobrey Measurement to Delta Mobrey Limited.

Revision to marking label to accept company name change and QAR provider.

Annex:

[IECEX ITS 13.0044X Issue 1 Annex.pdf](#)



Annex to IECEx Certificate of Conformity

Certificate No:	IECEX ITS 13.0044X	Issue No. 1
Annex No. 1		

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
I.S MSM400 CIRCUIT CONTROL UNIT	71097/970	3	02/10/00
APPR DRG I.S 3440/MSM400 CONTROL UNIT ASSY	71097/968	6	08/10/13
APPR DRG I.S 3440/MSM400 PSU P.C.B	71097/969	7	08/10/13
*APPR. DRG. MSM CONTROLLER CERT LABEL	71097/1318	C	29/10/19
*APPR. DRG. MSM SENSOR CERT LABEL	71097/1319	C	29/10/19
APPR. DRG. I.S. MSM SENSOR RANGE	71097/971	5	08/10/13

Equipment Entity Parameters:

The Control Unit has the following Output parameters:

Channel RX	Channel TX
$U_o = 1.2 \text{ V}$	$U_o = 4.6 \text{ V}$
$I_o = 42.1 \text{ mA}$	$I_o = 162 \text{ mA}$
$P_o = 13 \text{ mW}$	$P_o = 0.2 \text{ W}$

The equivalent parameters for both RX and TX are:

$C_i = 0.4 \text{ nF}$
$L_i = 40 \text{ } \mu\text{H}$
$C_o = 99.9 \text{ } \mu\text{F}$
$L_o = 0.7 \text{ mH}$
$L_o/R_o = 98 \text{ } \mu\text{H}/\Omega$
$U_m = 250 \text{ V}$