



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx ULD 10.0013X Issue No: 3 Certificate history:  
Status: **Current** Page 1 of 6 Issue No. 3 (2015-01-22)  
Date of Issue: **2015-01-22** Issue No. 2 (2014-12-17)  
Issue No. 1 (2012-02-24)  
Issue No. 0 (2011-05-11)

Applicant: **Emerson Process Management Marine Tank Management**  
Damcos A/S  
Aaderupvej 41  
4700 Naestved  
**Denmark**

Electrical Apparatus: **Type MAS 2600, 4-20 mA Two Wire Level Transmitter**  
*Optional accessory:*

Type of Protection: **Intrinsic Safety "ia"**

Marking:  
Ex ia IIC T4 Ga/Gb  
IECEX ULD 10.0013X

Approved for issue on behalf of the IECEx  
Certification Body:

Jasmin Omerovic

Position:

Program Manager

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**UL International Demko A/S**  
Borupvang 5A,  
DK-2750 Ballerup  
Denmark





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Manufacturer: **Emerson Process Management Marine Tank Management**  
Damcos A/S  
Aaderupvej 41  
4700 Naestved  
Denmark

Additional Manufacturing  
location(s):

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 electrical apparatus 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:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-11 : 2011</b> Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-26 : 2006</b> Edition:2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*This Certificate **does not** indicate compliance with electrical 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 Report:

DK/ULD/ExTR11.0003/00  
DK/ULD/ExTR11.0003/03

DK/ULD/ExTR11.0003/01

DK/ULD/ExTR11.0003/02

##### Quality Assessment Report:

DK/ULD/QAR11.0001/01



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The MAS 2600 is a 2-wire 4-20 mA level transmitter consisting of a transducer and an amplifier interconnected by a 6-core vented cable. The MAS 2600 has been developed for level measuring in ballast, oil, service and fresh water tanks as well as tanks containing media, which are not hostile to titanium. The transducer is a pressure sensitive silicon micro strain gauge sensor mounted in a glass to metal seal. The sensor is protected by an isolation diaphragm, welded to the transducer housing, with an oil filling between the sensor and the diaphragm. Pressure changes on the front of the diaphragm will bring a resistance change in the Wheatstone bridge of the transducer. This change in the Wheatstone bridge will be transmitted to the amplifier as a change in the electrical signal. The transducer is fully welded, housed in titanium with a titanium diaphragm. The transducer is available in three versions: gauge, absolute and high temperature gauge. This certificate does not cover the optional PT100 temperature sensor. The amplifier is available in the following options: programmable version (calibration is made by dip switches and potentiometers) and differential version (for measuring of both pressure and vacuum measuring). The amplifier is to be placed in areas where EPL Gb equipment is required and the transducer is to be placed in areas where EPL Ga equipment is required.

**CONDITIONS OF CERTIFICATION: YES as shown below:**



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1: The applicant name has been changed from Emerson Process Management to Emerson Process Management Marine Tank Management. The equipment was evaluated according to the requirements of IEC 60079-0 edition 5. The value of resistors R17 and R18 have been changed and a new capacitor C25 has been added to the circuit. These changes have been evaluated and do not affect the safety of the product.

Issue 2: Alternate cables, minor PCB revision, standards upgrade.

Issue 3: Added EPL Ga/Gb to marking section as previously omitted.



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**Additional information:**

Annex to IECEx certificate IECEx ULD 10.0013X.

**Annex:**

[Annex to IECEx ULD 10.0013X Issue No. 3.pdf](#)

Annex to: IECEx ULD 10.0013X Issue No. 3  
Manufacturer: Emerson Process Management Marine Tank Management Damcos A/S  
Electrical apparatus: 4-20 mA Two Wire Level Transmitter, Type MAS 2600

Nomenclature for type MAS 2600 a b c - dd - e / f g:

a - type:

A: absolute transducer  
G: gauge transducer  
H: high temperature gauge transducer

b - transducer range:

1: 3,5 mH<sub>2</sub>O gauge or high temp  
2: 7,0 mH<sub>2</sub>O gauge or high temp  
3: 16,0 mH<sub>2</sub>O gauge or high temp  
4: 35,0 mH<sub>2</sub>O gauge or 0,8-3,5 bar absolute  
7: 0,8-2,0 bar absolute

c - temperature sensor:

0: without  
1: built-in PT100 (Not available for IS installations)

d - cable (length in meters)

XX - Standard cable (-20 °C to 80 °C)  
Maximum length: Hazardous area 44 m

XX - High temperature cable (-20 °C to 125 °C) (-20 °C to 80 °C for IS installation)  
Maximum length: Hazardous area 34 m

e - mounting:

0: without fittings  
1: brackets for internal mounting  
2: pole mounting  
3: 1" pipe end mounting  
4: flange mounting DN 25  
5: flange mounting DN 40  
6: flange mounting DN 50  
9: flexible rubber tube mounting  
P: flexible PTFE tube mounting  
V: DN25 flange with 1" ball valve mounting  
A-M: replacement

f - amplifier box:

0: not supplied  
1: standard box with PG 11 / PG 11  
2: standard box with PG 11 / PG 13,5  
3: standard box with PG 11 / PG 16  
5: standard box with PG 13,5 / PG 13,5

g - amplifier PCB:

0: not supplied, without terminals for temperature sensors:  
P: programmable output range gauge  
D: differential output range gauge, with terminals for temperature sensors (Not available for IS installations)

Temperature range

The ambient temperature range for amplifier and transducer is -20 °C to +80 °C.

Electrical data

Intrinsically safe specifications:  
Output circuit, terminals 5 and 6.  
U<sub>i</sub> : 29 Vdc  
I<sub>i</sub> : 93 mA  
P<sub>i</sub> : 0.68 W  
L<sub>i</sub> : 20 µH  
C<sub>i</sub> : 60 nF

Installation instructions

The equipment must be electrically connected via an approved or certified isolating interface/zener barrier placed outside hazardous locations.

Mounting instructions

Refer to Installation and User Manual, ed. 21.

Routine tests

None.

Documents

The Schedule documents are listed in the document entitled "MAS 2600 IS Document List", issue 4, dated 2014-12-12.

Additional information

The amplifier has in addition passed the tests for Ingress Protection to IP 56 and the transducer for Ingress Protection to IP 68 in accordance with IEC 60529.

This Annex is valid only in combination with certificate IECEx ULD 10.0013X issue no. 3 and may only be reproduced in its entirety and without any change.  
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