



Level Sensor / Füllstandssensor / Capteur de niveau  
LM200

Safety Specifications / Sicherheitstechnische Daten / Spécifications de Sécurité

Manufacturer / Hersteller / Fabricant

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SM/LM200-EN-FR-DE Rev D

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English



### Important

This safety-relevant information is an excerpt from the operating instructions, the Type Examination and EC Type-Examination certificates for the product. It is mandatory that you read and comply with these documents.



Sira 13ATEX4027X: II 3G Ex nA nC IIC T4 Gc; Ex op is IIC T4 Gc (-40°C ≤ Ta ≤ +60°C)

Sira 13ATEX9028X: II 2D Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +60°C)

IECEx SIR 13.0016X: Ex nA nC IIC T4 Gc; Ex op is IIC T4 Gc; Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +60°C)

### Laser Warning

The LM200 Level Sensor is a class 1M instrument during normal operation. However, at installation and after a restart a pointing laser is activated during 2 minutes to allow positioning of the LM200 Level Sensor. During these 2 minutes the LM200 Level Sensor is a 3R laser product.

#### During standard operation:



Class 1M laser (905nm) is safe for all conditions of use except when passed through magnifying optics such as microscopes and telescopes. Do not view directly with optical instruments (binoculars or telescopes).

#### During 2 minutes after startup:



Class 3R laser radiations (635nm, 2mW output power) are present at the bottom side of the instrument, i.e. originate from the pointing laser. Do not look in the laser beam.



Use of controls or adjustment of performance of procedures other than those specified herein may result in hazardous radiation exposure.

### SPECIAL CONDITIONS FOR SAFE USE

Unless specifically approved, no connection shall be made to the D connector (RS232) inside the hazardous area.

Appropriate insulated lugs or ferrules shall be used for external connections to the terminal blocks and external and internal earth. The flat washer shall be incorporated between the enclosure body and the lug to prevent corrosion from occurring.

Only glands that have been suitably certified by a notified body and are appropriate for the application shall be used for cable entry into the enclosure.

External transient protection of up to 40% (44 V) of the maximum supply voltage ( $32 \text{ V} \times 1.4 \leq 44 \text{ V}$ ) shall be incorporated in the power supply line to the equipment.

The lenses shall not be exposed to direct sunlight.

To make sure the electrical compartment is not too easily accessible, the compartment lid has to be firmly tightened by means of a tool that is inserted in the slot of the top of the cover.

Under certain extreme circumstances, exposed plastic (including powder coating) and unearthed metal parts of the enclosure may store an ignition-capable level of electrostatic charge. Therefore, the user/installer shall implement precautions to prevent the buildup of electrostatic charge, e.g. locate the equipment where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present and clean with a damp cloth.



Deutsch



### Wichtig

Diese Sicherheitstechnischen Daten sind ein Auszug aus der Betriebsanleitung und der Baumusterprüfungsbescheinigung des Produktes. Diese sind zwingend zu beachten.



Sira 13ATEX4027X: II 3G Ex nA nC IIC T4 Gc; Ex op is IIC T4 Gc (-40°C ≤ Ta ≤ +60°C)

Sira 13ATEX9028X: II 2D Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +60°C)

IECEx SIR 13.0016X: Ex nA nC IIC T4 Gc; Ex op is IIC T4 Gc; Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +60°C)

### Lasersicherheit

Der LM200 Füllstandssensor ist ein Klasse 1M Instrument während des normalen Betriebes. Doch bei der Installation und nach einem Neustart wird ein Laser 2 Minuten lang aktiviert, um die Positionierung des LM200 Füllstandssensores zu ermöglichen. Während diesen 2 Minuten ist der LM200 Füllstandssensor ein 3R Laserprodukt.

#### Im Standardbetrieb:



Ein Klasse 1M Laser (905nm) ist für alle Verwendungsbedingungen sicher, solange keine optischen Instrumente, wie Lupen oder Ferngläser verwendet werden.

#### Während der ersten 2 Minuten nach dem Einschalten:



Klasse 3R Laserstrahlungen (635 nm, 2 mW Ausgangsleistung) sind an der Unterseite des Gerätes vorhanden. Diese stammen von dem Positionierungslaser. Nicht in den Laserstrahl blicken.



Die Verwendung von anderen Bedienelementen oder Verfahren, als die, die hier angegebenen sind, kann zu einer gefährlichen Strahlenbelastung führen.

### BESONDERE BEDINGUNGEN FÜR DIE SICHERE VERWENDUNG

Sofern nicht ausdrücklich genehmigt ist, darf keine Verbindung zum D-Anschluss (RS232) innerhalb des explosionsgefährdeten Bereiches erfolgen.

Geeignete isolierte Kabelschuhe oder Aderendhülsen müssen für externe Verbindungen zu den Reihenklammern und zu den externen und internen Erdungsanschlüssen verwendet werden. Die Unterlegscheibe wird zwischen dem Gehäusekörper und der Lasche installiert, um jegliche Korrosion zu verhindern.

Nur Kabelverschraubungen, die durch eine zugelassene Stelle zertifiziert wurden und die sich für die Anwendung eignen, können zur Kabeleinführung in das Gehäuse eingesetzt werden.

Externer Überspannungsschutz von bis zu 40% (44 V) der maximalen Versorgungsspannung ( $32 \text{ V} \times 1,4 \leq 44 \text{ V}$ ) muss in der Stromversorgung des Geräts aufgenommen werden.

Die Linsen dürfen nicht direktem Sonnenlicht ausgesetzt werden.

Um sicherzustellen, dass das elektrische Abteil nicht zu leicht zugänglich ist, muss der Deckel des Füllstandssensores mittels eines Werkzeuges, das in den Schlitz der Oberseite der Abdeckung eingefügt wird, festgezogen werden.

Unter bestimmten extremen Umständen können freiliegender Kunststoff (einschließlich der Pulverbeschichtung) und nicht geerdete Metallteile des Gehäuses eine zündfähige elektrostatische Ladung speichern. Deshalb sollte der Anwender/Installateur Vorsichtsmaßnahmen treffen, um den Aufbau von elektrostatischer Ladung zu vermeiden, z. B. einen Installationsort in der Anlage wählen, an dem Ladungserzeugung (wie wehender Staub) unwahrscheinlich ist und mit einem feuchten Tuch reinigen.



### Important

Cette information concernant la sécurité est un extrait du manuel d'utilisation, des attestations d'examen de type ainsi que les attestations d'examen CE de type du produit. Il est obligatoire de lire et de se conformer à ces documents.



Sira 13ATEX4027X: II 3G Ex nA nC IIC T4 Gc; Ex op is IIC T4 Gc (-40°C ≤ Ta ≤ +60°C)

Sira 13ATEX9028X: II 2D Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +60°C)

IECEx SIR 13.0016X: Ex nA nC IIC T4 Gc; Ex op is IIC T4 Gc; Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +60°C)

### Avertissement du laser

Le capteur de niveau LM200 est un produit de classe 1M pendant le fonctionnement normal. Toutefois, lors de l'installation et après un redémarrage un laser de pointage est activé pendant 2 minutes pour permettre le positionnement du capteur de niveau LM200. Au cours de ces 2 minutes, le capteur à niveau LM200 est un produit laser de type 3R.

#### Pendant l'utilisation normale :



Un laser de classe 1M (905 nm) est sans danger dans toutes les conditions d'utilisation, sauf lorsqu'il passe à travers d'une optique grossissante comme un microscope et un télescope. Ne pas regarder directement avec des instruments optiques (jumelles ou télescope).

#### Pendant 2 minutes après le démarrage :



Des rayonnements laser de classe 3R (635nm, 2 mW de puissance de sortie) sont présents sur la face inférieure de l'instrument, provenant du laser de pointage. Ne pas regarder dans le faisceau laser



L'utilisation de procédures de commandes ou de réglages de la performance autres que celles spécifiées ici peuvent entraîner une exposition à des radiations dangereuses.

### CONDITIONS SPECIALES POUR UNE UTILISATION SÉCURITAIRE

Sauf lorsque spécifiquement autorisé, aucun raccordement ne doit être fait sur le connecteur D (RS232) à l'intérieur de la zone dangereuse.

Des cosses isolées ou des férules doivent être utilisées pour les connexions externes aux borniers et aux mises à la terre internes et externes. La rondelle plate doit être installée entre le corps de l'enceinte et la cosse pour empêcher la corrosion.

Seuls les presse-étoupes qui ont été convenablement certifiés par un organisme notifié et qui sont appropriés pour l'application doivent être utilisés pour l'entrée du câble dans l'enceinte.

Une protection externe contre les transitoires jusqu'à 40% (44 V) de la tension d'alimentation maximale (32 V x 1,4 ≤ 44 V) doit être incorporée dans la ligne d'alimentation électrique de l'équipement.

Les lentilles ne doivent pas être exposées directement au soleil.

Pour s'assurer que le compartiment électrique ne soit pas trop facilement accessible, le couvercle du compartiment doit être serré fermement à l'aide d'un outil qui est inséré dans la fente de la partie supérieure du couvercle.

Dans certaines circonstances extrêmes, des plastiques exposés (y compris le revêtement de poudre) et les parties métalliques qui ne sont pas reliées à la terre peuvent stocker un niveau de charge électrostatique qui est potentiellement inflammable. Par conséquent, l'utilisateur/installateur doit mettre en œuvre les précautions nécessaires pour éviter l'accumulation de charges électrostatiques, par exemple, placer l'équipement où une génération de charge (tel que la poussière soufflée par le vent) est peu susceptible et nettoyer avec un chiffon humide.



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 13ATEX4027X** Issue: **0**

4 Equipment: **LM200 Laser Distance Measuring Instrument**

5 Applicant: **ABB Inc.**

6 Address: 585 Charest Boulevard East  
Suite 300  
Québec  
(Québec) G1K 9H4  
Canada

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

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012

EN 60079-15:2010

EN 60079-28:2007

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 3G

Ex nA nC IIC T4 Gc

Ex op is IIC T4 Gc

Ta = (-40°C ≤ Ta ≤ +60°C)

Project Number 27408

C Ellaby  
Deputy Certification Manager

This certificate and its schedules may only be reproduced in its entirety and without change.



**SCHEDULE**

**TYPE EXAMINATION CERTIFICATE**

**Sira 13ATEX4027X  
Issue 0**

**13 DESCRIPTION OF EQUIPMENT**

The LM200 Series Laser Level and Distance measuring instrument consists of a power source, electronics and optical elements housed in a cylindrical, powder coated, aluminium enclosure that consists of four parts: a lid and a terminal head for the terminal compartment, the body tube and the front plate. The enclosure has two compartments, the terminal compartment at the top and the electronics/optical compartment at the bottom.

The LM200 is powered from:

Input: 18 V — 32 V DC (24 V typical) 0.40 A peak, 0.20 A continuous.

Input: 18 V — 32 V DC (24 V typical) 0.55 A peak, 0.35 A continuous (with heated lenses option (AC)).

Inside the terminal compartment, provision is made for two six way terminal strips for electrical connections (power, 4-20 mA current loop and contact relays) as well as a nine way "D" connector. This nine way "D" connector is used for initial setup and configuration of the device, it is not intended for permanent connection and is not to be used in the hazardous area.

Two ½" NPT entries are provided for the electrical connection on the side of the terminal head into the terminal compartment.

Three tie rods in stainless steel (with aluminium guide boss) secure the terminal head to the front plate, in between which there is the body tube (squeezed between the terminal head and the front plate). The front plate accommodates a nitrile O-ring to provide an effective seal with the body tube; same being for the terminal head.

A screw-on cover (lid) has a M117 x 2 mm internal threaded sections, which fits onto the terminal head. A groove accommodated nitrile O-ring is provided on the terminal head for an adequate sealing of the lid.

Two glass lenses, approximate diameters 50 mm, are mounted in the front plate using nitrile O-rings. The lenses are kept in position onto the O-rings mounted from the inside of the enclosure with separate optical mountings (lens tubes) and screws. An option is provided for a heated lens so as to avoid condensation altering the optical characteristics.

The device uses two individual lasers, one of which is used as a measuring laser (Class 1M) which produces an invisible infrared light. The other is only used during installation and has a visible aiming laser (Class 3R) which is used to align the measuring laser.

The model LM200 is produced with heated lenses version option to accommodate different process needs.

**14 DESCRIPTIVE DOCUMENTS**

**14.1 Drawings**

Refer to Certificate Annexes.

**14.2 Associated Sira Reports and Certificate History**

Issue	Date	Report no.	Comment
0	4 March 2013	R27408A/00	The release of the prime certificate.

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**SCHEDULE**

**TYPE EXAMINATION CERTIFICATE**

**Sira 13ATEX4027X**

**Issue 0**

**15 SPECIAL CONDITIONS FOR SAFE USE**

- 15.1 Appropriate insulated lugs or ferrules shall be used for external connections to the terminal blocks and external and internal earth. The flat washer must be incorporated between the enclosure body and the lug to prevent corrosion occurring.
- 15.2 Appropriately certified glands shall be used for cable entry into the enclosure having an Ingress Protection of at least IP54.
- 15.3 External transient protection of up to 40% (44 V) of the maximum supply voltage ( $32 \text{ V} \times 1.4 \leq 44 \text{ V}$ ) must be incorporated in the power supply line to the equipment.
- 15.4 No connection may be made to the D connector (RS232) inside the hazardous area.

**16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (EHSRs)**

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.

**17 CONDITIONS OF CERTIFICATION**

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of Type Examination Certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.3 The resistance between the screw-on cover and front plate must be measured to ensure it is less than  $0.1 \Omega$ .
- 17.4 As required for insulated windings by EN 60079-15:2010 Clause 23.2. 2, one of the following electric strength tests shall be applied:
- Either 1800 V ac, between the circuit and casing for at least 0.1 second (100 ms);
  - Or 1500 V a.c. r.m.s. between the circuit and casing for at least 60 second, alternatively, a d.c. test voltage may be used, however, the applied voltage shall be 170% of that specified for the a.c. r.m.s. test.
- No breakdown shall occur.

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**Sira Certification Service**

Rake Lane, Eccleston, Chester, CH4 9JN, England

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Fax: +44 (0) 1244 881330  
Email: [info@siracertification.com](mailto:info@siracertification.com)  
Web: [www.siracertification.com](http://www.siracertification.com)



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 13ATEX9028X** Issue: **0**

4 Equipment: **LM200 Laser Distance Measuring Instrument**

5 Applicant: **ABB Inc**

6 Address: 585 Charest Boulevard East  
Suite 300  
Québec  
(Québec) G1K 9H4  
Canada

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

8 Sira Certification Service, notified body number 0518 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 the confidential reports listed in Section 14.2.

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

EN 60079-0:2012

EN 60079-31:2009

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment 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 and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2D

Ex tb IIIC T85°C Db

Ta = (-40°C ≤ Ta ≤ +60°C)

Project Number 27408

C Ellaby  
Deputy Certification Manager

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## SCHEDULE

### EC TYPE-EXAMINATION CERTIFICATE

Sira 13ATEX9028X  
Issue 0

#### 13 DESCRIPTION OF EQUIPMENT

The LM200 Series Laser Level and Distance measuring instrument consists of a power source, electronics and optical elements housed in a cylindrical, powder coated, aluminium enclosure that consists of four parts: a lid and a terminal head for the terminal compartment, the body tube and the front plate. The enclosure has two compartments, the terminal compartment at the top and the electronics/optical compartment at the bottom.

The LM200 is powered from:

Input: 18 V — 32 V DC (24 V typical) 0.40 A peak, 0.20 A continuous.

Input: 18 V — 32 V DC (24 V typical) 0.55 A peak, 0.35 A continuous (with heated lenses option (AC)).

Inside the terminal compartment, provision is made for two six way terminal strips for electrical connections (power, 4-20 mA current loop and contact relays) as well as a nine way "D" connector. This nine way "D" connector is used for initial setup and configuration of the device, it is not intended for permanent connection and is not to be used in the hazardous area.

Two ½" NPT entries are provided for the electrical connection on the side of the terminal head into the terminal compartment.

Three tie rods in stainless steel (with aluminium guide boss) secure the terminal head to the front plate, in between which there is the body tube (squeezed between the terminal head and the front plate). The front plate accommodates a nitrile O-ring to provide an effective seal with the body tube; same being for the terminal head.

A screw-on cover (lid) has a M117 x 2 mm internal threaded sections, which fits onto the terminal head. A groove accommodated nitrile O-ring is provided on the terminal head for an adequate sealing of the lid.

Two glass lenses, approximate diameters 50 mm, are mounted in the front plate using nitrile O-rings. The lenses are kept in position onto the O-rings mounted from the inside of the enclosure with separate optical mountings (lens tubes) and screws. An option is provided for a heated lens so as to avoid condensation altering the optical characteristics.

The device uses two individual lasers, one of which is used as a measuring laser (Class 1M) which produces an invisible infrared light. The other is only used during installation and has a visible aiming laser (Class 3R) which is used to align the measuring laser.

The model LM200 is produced with heated lenses version option to accommodate different process needs.

#### 14 DESCRIPTIVE DOCUMENTS

##### 14.1 Drawings

Refer to Certificate Annexes.

##### 14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	4 March 2013	R27408A/00	The release of the prime certificate.

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**SCHEDULE**

**EC TYPE-EXAMINATION CERTIFICATE**

**Sira 13ATEX9028X  
Issue 0**

- 15 **SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)
- 15.1 Appropriate insulated lugs or ferrules shall be used for external connections to the terminal blocks and external and internal earth. The flat washer must be incorporated between the enclosure body and the lug to prevent corrosion occurring.
- 15.2 Appropriately certified glands shall be used for cable entry into the enclosure having an Ingress Protection of at least IP6X.
- 15.3 External transient protection of up to 40% (44 V) of the maximum supply voltage ( $32 \text{ V} \times 1.4 \leq 44 \text{ V}$ ) must be incorporated in the power supply line to the equipment.
- 15.4 No connection may be made to the D connector (RS232) inside the hazardous area.
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)
- The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.
- 17 **CONDITIONS OF CERTIFICATION**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.3 The resistance between the screw-on cover and front plate must be measured to ensure a resistance of less than  $0.1 \Omega$ .

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**Sira Certification Service**

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# 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.:  Issue No.:  Certificate history:

Status:

Date of Issue: **2013-03-04** Page 1 of 4

Applicant: **ABB Inc.**  
585 Charest Boulevard East  
Suite 300  
Québec  
(Québec) G1K 9H4  
Canada

Electrical Apparatus: **LM200 Laser Distance Measuring Instrument**  
Optional accessory:

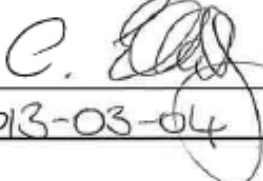
Type of Protection: **Type n, Inherently Safe Optical Radiation and Dust Protection by Enclosure**

Marking: Ex nA nC IIC T4 Gc  
Ex op is IIC T4 Gc  
Ex tb IIIC T85°C Db  
Ta = (-40° C ≤ Ta ≤ +60°C)

Approved for issue on behalf of the IECEx Certification Body: C Ellaby

Position: Deputy Certification Manager

Signature:  
(for printed version)

  
\_\_\_\_\_  
2013-03-04

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:

**SIRA Certification Service**  
Rake Lane  
Eccleston  
Chester  
CH4 9JN  
United Kingdom

**sira**  
CERTIFICATION



# IECEX Certificate of Conformity

Certificate No.: IECEx SIR 13.0016X

Date of Issue: 2013-03-04

Issue No.: 0

Page 2 of 4

Manufacturer: **ABB Inc.**  
585 Charest Boulevard East  
Suite 300  
Québec  
(Québec) G1K 9H4  
Canada

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 60079-15 : 2010</b> Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
<b>IEC 60079-28 : 2006-08</b> Edition: 1	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
<b>IEC 60079-31 : 2008</b> Edition: 1	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't'

*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:  
[GB/SIR/ExTR13.0046/00](#)

Quality Assessment Report:  
[NL/DEK/QAR12.0049/01](#)



# IECEx Certificate of Conformity

Certificate No.: IECEx SIR 13.0016X

Date of Issue: 2013-03-04

Issue No.: 0

Page 3 of 4

## Schedule

### EQUIPMENT:

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

The LM200 Series Laser Level and Distance measuring instrument consists of a power source, electronics and optical elements housed in a cylindrical, powder coated, aluminium enclosure that consists of four parts: a lid and a terminal head for the terminal compartment, the body tube and the front plate. The enclosure has two compartments, the terminal compartment at the top and the electronics/optical compartment at the bottom.

The LM200 is powered from:

Input: 18 V — 32 V DC (24 V typical) 0.40 A peak, 0.20 A continuous.

Input: 18 V — 32 V DC (24 V typical) 0.55 A peak, 0.35 A continuous (with heated lenses option (AC))

Inside the terminal compartment, provision is made for two six way terminal strips for electrical connections (power, 4-20 mA current loop and contact relays) as well as a nine way "D" connector. This nine way "D" connector is used for initial setup and configuration of the device, it is not intended for permanent connection and is not be used in the hazardous area.

Refer to EQUIPMENT (continued) for additional information

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

1. Appropriate insulated lugs or ferrules shall be used for external connections to the terminal blocks and external and internal earth. The flat washer must be incorporated between the enclosure body and the lug to prevent corrosion occurring.
2. Appropriately certified glands shall be used for cable entry into the enclosure having an Ingress Protection of at least IP6X for use with Dust and IP54 for Type n.
3. External transient protection of up to 40% (44 V) of the maximum supply voltage ( $32 \text{ V} \times 1.4 \leq 44 \text{ V}$ ) must be incorporated in the power supply line to the equipment.
4. No connection may be made to the D connector (RS232) inside the hazardous area.



# IECEx Certificate of Conformity

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## EQUIPMENT(continued):

Two 1/2" NPT entries are provided for the electrical connection on the side of the terminal head into the terminal compartment.

Three tie rods in stainless steel (with aluminium guide boss) secures the terminal head to the front plate, in between which there is the body tube (squeezed between the terminal head and the front plate). The front plate accommodates a nitrile O-ring to provide an effective seal with the body tube; same being for the terminal head. A screw-on cover (lid) has a M117 x 2 mm internal threaded sections, which fits onto the terminal head. A groove accommodated nitrile O-ring is provided on the terminal head for an adequate sealing of the lid.

Two glass lenses, approximate diameters 50 mm, are mounted in the front plate using nitrile O-rings. The lenses are kept in position onto the O-rings mounted from the inside of the enclosure with separate optical mountings (lens tubes) and screws. An option is provided for a heated lens so as to avoid condensation altering the optical characteristics.

The device uses two individual lasers, one of which is used as a measuring laser (Class 1M) which produces an invisible infrared light. The other is only used during installation and has a visible aiming laser (Class 3R) which is used to align the measuring laser.

The model LM200 is produced with heated lenses version option to accommodate different process needs.

### Conditions of manufacture

The Manufacturer shall comply with the following:

1. The resistance between the screw-on cover and front plate must be measured to ensure it is less than 0,1  $\Omega$ .
2. As required for insulated windings by IEC 60079-15:2010 Clause 23.2. 2, one of the following electric strength tests shall be applied:
  - Either 1800 V ac, between the circuit and casing for at least 0.1 second (100 ms);
  - Or 1500 V a.c. r.m.s. between the circuit and casing for at least 60 second, alternatively, a d.c. test voltage may be used, however, the applied voltage shall be 170% of that specified for the a.c. r.m.s. test.

No breakdown shall occur.