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

Certificate No.:	IECEx SIR 13.0016X issue No.:0	Certificate history:
Status:	**Current**	
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)

Date: 2013-03-04

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.

Certificate issued by:

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

sira CERTIFICATION

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Manufacturer: **ABB Inc.**
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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:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-28 : 2006-08 Edition: 1	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
IEC 60079-31 : 2008 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

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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 V x 1.4 ≤ 44 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.

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EQUIPMENT(continued):

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) 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 font plate must be measured to ensure it is less than 0.1 Ω.
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.