



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

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SCHEDULE

TYPE EXAMINATION CERTIFICATE

Sira 13ATEX4027X
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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 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) 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.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

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

Certificate Annexe

Certificate Number: Sira 13ATEX4027X
Equipment: LM200 Laser Distance Measuring Instrument
Applicant: ABB Inc.



Issue 0

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
0051-00-0-00006-01	1 of 1	B	11 Feb 13	LM200 - Instrument
0051-01-2-00001-01_BOM	1 & 2	B	11 Feb 13	LM Family Top BOM
LM80-009 0051-01-2-00001-01_SCH	1 of 1	1	11 Feb 13	LM Family Top Schematic
0051-01-2-00002-01_BOM	1 & 2	B	11 Feb 13	LM Family Bottom BOM
LM80-0003 0051-01-2-00002-01_SCH	1 of 1	1	11 Feb 13	LM Family Bottom Schematic
0051-06-2-00001-01_BOM	1 to 3	C	11 Feb 13	LM Family RXR BOM
LM80-0007 0051-06-2-00001-01_SCH	1 of 1	1	11 Feb 13	LM Family RXR Schematic
0051-11-2-00001-01_BOM	1 & 2	B	11 Feb 13	LM Family Processor BOM
LM80-0005 0051-11-2-00001-01_SCH	1 of 1	1	11 Feb 13	LM Family Processor Schematic
0051-11-2-00004-01_BOM	1 & 2	C	11 Feb 13	LM Family Interface BOM
0051-11-2-00004-01_SCH	1 of 1	C	11 Feb 13	LM Family Interface Schematic
AA008082-01	1 of 1	E	11 Feb 13	LM 200 Body Tube
AA008083-01	1 & 2	E	11 Feb 13	LM200 Front Plate
AA008084-01	1 & 2	D	11 Feb 13	LM200 Terminal Head
AA008085-01	1 of 1	B	11 Feb 13	LM200 Guide Boss
AA008087-02	1 of 1	D	11 Feb 13	LM200 Detector Lens Tube
AA008087-03	1 of 1	B	11 Feb 13	LM200 Detector Lens Tube
AA008087-12	1 of 1	B	11 Feb 13	LM200 Detector Heated Lens Tube
AA008087-13	1 of 1	B	11 Feb 13	LM200 Detector Heated Lens Tube
AA008088-01	1 of 1	C	11 Feb 13	LM200 Lid
AA008089-02	1 of 1	C	11 Feb 13	LM200 Laser Lens Tube
AA008089-03	1 of 1	B	11 Feb 13	LM200 Laser Lens Tube
AA008089-12	1 of 1	B	11 Feb 13	LM200 Laser Heated Lens Tube
AA008089-13	1 of 1	B	11 Feb 13	LM200 Laser Heated Lens Tube
AA008160-01	1 of 1	A	11 Feb 13	LM200 Laser Pointer Adaptor
AA008398-03	1 of 1	A	11 Feb 13	LM200 Label (IECEX & ATEX)
AA008617-01	1 to 4	A	11 Feb 13	LM200 Lens Specifications
AA008618-01	1 to 4	A	11 Feb 13	LM200 Lens Specifications
AA008632-01	1 to 4	A	11 Feb 13	LM200 Lens Specifications
AA008633-01	1 to 4	A	11 Feb 13	LM200 Lens Specifications
ABBCABOM-00473	1 to 7	B	11 Feb 13	LM200 Descriptive Note

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