



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX1280X** Issue: **8**

4 Equipment: **R and M Series Optical Shaft Encoders**

5 Applicant: **Hohner Automation Limited**

6 Address: **Unit 15  
Whitegate Industrial Estate  
Wrexham  
LL11 8UG  
UK** (The products bearing this certificate number may be manufactured at any Hohner facility that has a Quality Assurance Notification and has been audited for the manufacture of the types of protection associated with Sira 05ATEX1280, see Condition of Certification.)

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 60079-0:2004	EN 61241-0:2006	EN 13463-1:2001
EN 60079-1:2004	EN 61241-1:2004	EN 13463-5:2003

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 2 G D c

Ex d IIC T5 (Ta -20°C to +60°C)

Ex d IIC T5 (Ta -40°C to +60°C)

Ex tD A21 T92°C (Ta -20°C to +60°C)

Ex tD A21 T92°C (Ta -40°C to +60°C)



I M2 c

Ex d I (Ta -20°C to +60°C)

Ex d I (Ta -40°C to +60°C)

Project Number 27779

C Ellaby  
Deputy Certification Manager

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## SCHEDULE

### EC TYPE-EXAMINATION CERTIFICATE

Sira 05ATEX1280X  
Issue 8

#### 13 DESCRIPTION OF EQUIPMENT

The R and M Series Optical Shaft Encoders are manufactured from stainless steel; they are cylindrical in shape and comprise a main body and a cover. The cover is secured to the main body by five, M3, socket head cap screws. The main body contains a PCB assembly and has an M16 threaded hole on its sidewall, towards the base, that will accommodate a suitable cable entry device. The cover contains a shaft and bearing assembly to facilitate the equipment's measuring function.

Fasteners used to secure the end caps which form spigot joints on the enclosures are of the hexagon socket head type and are made of 316 stainless steel (A4-70) with a minimum yield stress of 450 N/mm<sup>2</sup>.

#### Design options

- The Optical Shaft Encoders may be manufactured from aluminium (not Group I).
- The cable entry point may be in the base of the main body.

**Variation 1** - This variation introduced the following changes:

- i. The recognition of alternative assembly sites in Brasil and Canada.
- ii. Dimension change on drawing RR-LD-001-02.

**Variation 2** - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 61241 series of dust standards, EN 50281-1-1:1998 was replaced by EN 61241-0:2006 and EN 61241-1:2004 and the product markings were updated to show the following:  
Ex tD A21 T92°C
- ii. Instructions appertaining to the permissible manufacturing sites replaced specific addresses.

**Variation 3** - This variation introduced the following changes

- i. The reduction of the outside diameter of the enclosure

**Variation 4** - This variation introduced the following changes:

- i. The addition of an end-cap to one end of the enclosure. This forms a spigot joint at the opposite end of the enclosure to the existing end-cap which employs the rotating shaft. There are five M3 fasteners securing the end-cap and up to three M16 entries threaded into the side. There is a recess at the base of the cylindrical part of the spigot joint into which an O-ring is fitted. The new end-cap is made of 316 stainless steel.
- ii. Clarification of the fastener type and required minimum yield stress. The minimum yield stress of any fasteners replaced by the end user is 450 N/mm<sup>2</sup>. Replacement fasteners shall have hexagon socket heads and shall be made of 316 stainless steel (A4-70), the description was amended to reflect this change, as a result of the above changes the certificate number now includes an 'X' suffix with the introduction of two new Special Conditions for Safe Use/Conditions of Certification.
- iii. Clarification of the minimum wall thickness surrounding threaded fasteners.
- iv. Removal of the aluminium enclosure material option.
- v. Minor changes to marking drawing. The certification code is unchanged.



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Sira 05ATEX1280X  
Issue 8

#### 14 DESCRIPTIVE DOCUMENTS

##### 14.1 Drawings

Refer to Certificate Annexe.

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

Issue	Date	Report no.	Comment
0	19 May 2006	R51L14237A	The release of the prime certificate.
1	12 September 2007	N.A.	This Issue covers the following changes: <ul style="list-style-type: none"><li>All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format.</li><li>The correction of typographical errors.</li></ul>
2	15 November 2007	R51L14237C	Report number R51L14237A was replaced by R51L14237C to clarify model numbers.
3	13 February 2008	R51A17730A	The Introduction of Variation 1.
4	26 August 2008	N.A.	The number of the replacement report that was introduced by Issue 2 was corrected.
5	30 November 2009	R51L14237D	The Introduction of Variation 2.
6	12 May 2010	R51L21987A	The Introduction of Variation 3
7	13 June 2011	N/A	Issued to correct the Stamp date of the drawing at issue 3.
8	07 June 2013	R27779A/00	The Introduction of Variation 4.

#### 15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

- 15.1 Fasteners shall be hexagon socket head type, 316 stainless steel (A4-70) and with a minimum yield stress of 450 N/mm<sup>2</sup>.
- 15.2 Cable entries are M16 x 1.5 or M20 x 1.5.

#### 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 products bearing the certificate number Sira 05ATEX1280 shall only be manufactured at a Hohner facility that has a Quality Assurance Notification issued by a notified body and has been audited for the manufacture of the types of protection associated with Sira 05ATEX1280 (Note: the actual name and address of the manufacturer together with the number of the notified body associated with their Quality Assurance Notification shall appear on the product label.)

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# Certificate Annexe

Certificate Number: Sira 05ATEX1280X  
Equipment: R and M Series Optical Shaft Encoders  
Applicant: Hohner Automation Limited



## Issue 0

Number	Sheet	Rev.	Date (Sira stamp)	Description
RR-AS-001-01	1 of 5	-	21 Apr 06	R SERIES ASSEMBLY (EEx d)
RR-BD-001-01	2 of 5	-	21 Apr 06	R SERIES BODY (EEx d)
RR-LD-001-01	3 of 5	-	21 Apr 06	R SERIES LID (EEx d)
RR-SS-001-01	4 of 5	-	21 Apr 06	R SERIES SHAFT (EEx d)
RR-LB-001-01	5 of 5	-	21 Apr 06	R SERIES LABEL

Issue 1 (No new drawings were introduced)

Issue 2 (No new drawings were introduced)

Issue 3 Stamp Date corrected at issue 7

Number	Sheet	Rev.	Date (Sira stamp)	Description
RR-LD-001-02	3 of 5	-	18 Feb 08	R SERIES LID (EEx d)

Issue 4 (No new drawings were introduced)

## Issue 5

Number	Sheet	Rev.	Date (Sira stamp)	Description
RR-LB-001-02	5 of 5	02	10 Nov 09	LABEL

## Issue 6

Number	Sheets	Rev.	Date (Sira Stamp)	Title
RF-BD-002-01	1 of 1	1	06 Apr 10	69 Ø R Series Body
RF-LD-A02-01	1 of 1	1	06 Apr 10	60 Ø R Series Lid

Issue 7 (No new drawings were introduced)

## Issue 8

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
RR-AS-001-01	1 of 5	2	05 Jun 13	R Series Assembly (EEx d)
RR-BD-001-01	2 of 5	2	05 Jun 13	R Series Body (EEx d)
RR-LD-001-02	3 of 5	2	05 Jun 13	R Series Lid (EEx d)
RR-SS-001-01	4 of 5	2	05 Jun 13	R Series Shaft (EEx d)
RR-LB-001-02	5 of 5	2	06 Jun 13	R Series Label
ME-LD-PBS-01	1 of 1	1	05 Jun 13	M series lid for ProfiBus Openable
ME-TL-PBS-01	1 of 1	1	05 Jun 13	M series top lid for ProfiBus Openable

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