1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 09ATEX5172X** Issue: **0**

4 Equipment: **Optical Encoder**

5 Applicant: **Dynapar Corporation**

6 Address: 1675 Delany Road
Gurnee
Illinols
60031-1282
USA

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 60079-0:2006
IEC 60079-0:2007 (used for guidance in respect of marking)
EN 60079-7:2007
EN 60079-11:2007
EN 60079-18:2004

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 2G
Ex ia mb e IIC T4 Gb
Ta = -50°C to +100°C

Project Number 59A16953
C. Index 13

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Certification Officer

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13 **DESCRIPTION OF EQUIPMENT**

The equipment is an optical encoder that is intended to be attached to the rotating shaft of a machine. It uses an anodized aluminium enclosure that has three internal compartments. A compartment at one end of the equipment contains certified 'Ex e' terminals that are used for external connections; external cables enter this compartment via certified 'Ex e' cable glands and any unused entries are blanked by certified 'Ex e' plugs. This 'Ex e' compartment is fitted with a lid that allows access to the terminals. The compartment at the other end of the encoder contains 'Ex m' devices that include an encapsulated printed circuit board assembly. The central compartment houses an optically encoded disc, this is fitted to a shaft that emerges from the wall of the compartment. The disc is fitted with an optical reading device that is protected by intrinsic safety, 'Ex ia', however there are no intrinsically safe inputs or outputs.

An alternative version of the equipment is fitted with a permanently connected cable. This version of the equipment has no Ex 'e' terminal compartment. Entry of the cable is again via an 'Ex e' cable gland.

Supply Input: Rated supply voltage U = 15 V
U_m = 250 V

Driver Outputs: Rated load current at each driver output = 125 mA

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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	17 September 2009	R59A16953A	The release of the prime certificate.

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

15.1 All cable entry holes shall be fitted with either an ATEX certified 'Ex e' cable gland or an ATEX certified 'Ex e' plug. The type of cable and the cable glands selected shall have temperature ratings of at least the maximum ambient temperature of where the equipment is installed.

15.2 The terminals shall only be fitted with wires that have cross sectional area falling within the following limitations:

Rigid: 0.14 to 2.5 mm^2 / 26 to 14 AWG
Flexible: 0.14 to 1.5 mm^2 / 26 to 16 AWG

15.3 The equipment shall be supplied from a power supply that has an output that is isolated from earth.

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 All complete manufactured units shall be subjected to a routine 500 V r.m.s. a.c. between all terminals and the equipment enclosure, in accordance with Clause 10.3 of EN 60079-11:2007.

17.4 All manufactured units shall be subjected to a visual inspection on the encapsulation. No damage shall be evident such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure in adhesion or softening.

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Certificate Annexe

Certificate Number: **Sira 09ATEX5172X**

Equipment: **Optical Encoder**

Applicant: **Dynapar Corporation**

Issue 0

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
114507-0001	1 of 1	B	17 Sep 09	LABEL,4428,EN,ATEX
200869-0001	1 of 3	D	15 Sep 09	DWG, ASSEMBLY, EN, ATEX
200869-0002	2 of 3	D	15 Sep 09	DWG, ASSEMBLY, EN, ATEX
200869-0003	3 of 3	D	15 Sep 09	DWG, ASSEMBLY, EN, ATEX
200870-0001	1 of 1	-	15 Sep 09	DWG, ARTWORK, EN ATEX
200871-0001	1 of 1	C	15 Sep 09	DWG, SCHEMATIC, EN, ATEX
200885-0001	1 of 1	-	15 Sep 09	ATEX NON BARRIER POTTING INSTRUCTIONS
502947-0001	1 of 1	A	15 Sep 09	ASIC MODULE ASSEMBLY

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