



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 15ATEX1119X** Issue: **6**

4 Equipment: **The SI3 and SI4, Skilmatic Range of Electro-Hydraulic Control Modules**

5 Applicant: **Rotork UK Ltd.**

6 Address: **9 Brown Lane West
Holbeck
Leeds LS12 6BH
UK**

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

8 CSA Group Netherlands B.V., Notified Body Number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 IEC 60079-0:2018 EN 60079-1:2014/COR1:2018 EN IEC 60079-7:2015/A1 (2018)
EN ISO 80079-36:2016 EN ISO 80079-37:2016

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-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 db • h IIB T4 Gb IP66/68, or

Ex db • h IIC T4 Gb IP66/68,

• "eb" added on versions with increased safety terminal enclosure

, Only IP64 is endorsed by Sira on this certificate

(-f °C to +n °C)

f down to -50°C, n up to 70°C (Configuration 1 – IIB & IIC)

f down to -50°C, n up to 70°C (Configuration 2 – IIB)

f down to -20°C, n up to 70°C (Configuration 2 – IIC)

Project Number 80069555

Signed: J A May

Title: Director of Operations

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13 DESCRIPTION OF EQUIPMENT

The SI3 and SI4, Skilmatic Range of Electro-Hydraulic Control Modules for use with either an optional Power Module or a suitably approved third party motor and hydraulic pump ^[Note 1], which can be instantaneously switched to increase or decrease the hydraulic pressure to a suitable spring return or double acting, linear or quarter-turn actuator.

The Control Module consists of an electrical and terminal enclosure, with a hydraulic manifold.

The electrical enclosure has been designed to meet the requirements of the flameproof type of protection, and is formed by the main centre housing, hydraulic manifold, electrical cover with a display window, indication cover and blanking covers or the optional Power Module, all of which form flameproof spigot joints with the centre housing. The electrical enclosure may contain the following equipment: user-interface PCB (incl. Bluetooth radio module) , control PCB, power PCB, adaptor PCB, transformer, solenoid valve coils/bodies, pressure transducer bodies, up to four mechanical or proximity limit switches and operating cams and up to four option PCB's for ESD functions, device drivers or network communication.

The terminal enclosure connects to the electrical enclosure via the centre housing, their volumes being separated by a flameproof terminal bung. The flameproof terminal bung comprises a moulded plastic main body through which pass a number of terminals which are sealed in place with a potting compound. The terminal bung is secured in position by means of a circlip. In this form, the terminal enclosure meets the requirements of increased safety type of protection and only provides electrical field wiring terminations, all of which are at the terminal bung. However, the flameproof terminal bung may be replaced with a non-flameproof version, in which case the electrical and terminal compartments are considered as one flameproof enclosure closed by means of a cover, which connects to the centre housing by means of a tapered spigot flameproof joint.

Cable entry facilities are provided in the form of five threaded entries.

All external fasteners are stainless steel, grade A4-80 socket cap head screws.

There are two basic hydraulic manifold configurations providing different functionality depending on the number and type (normally open or normally closed), of solenoid valves and pressure transducers fitted.

Configuration 1

- Two solenoid valves and one pressure transducer.
- Three solenoid valves and one pressure transducer.

Configuration 2

- Three solenoid valves and two pressure transducers.
- Four solenoid valves and two pressure transducers.

Additional hydraulic manifold circuit configurations are permitted, provided the required functionality can be achieved using the basic manifold, solenoid and pressure transducer configurations 1 and 2 above.

The hydraulic circuits are separated from the electrical enclosure by threaded flameproof joints between the solenoid valve and pressure transducer bodies and the hydraulic manifold, which connects to the main centre housing by a flameproof tapered spigot joint to form part of the flameproof electrical enclosure.

The optional Power Module consists of a motor enclosure and hydraulic fluid reservoir which also contains the hydraulic pump, the motor enclosure and reservoir are connected by the motor/pump housing. The



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motor enclosure contains a motor fitted with thermal protection devices and connects to the motor/pump housing by means of a flameproof cylindrical spigot joint. The motor shaft forms a cylindrical flameproof joint through the motor pump housing and connects to the hydraulic pump in the reservoir via an oldham coupling. The hydraulic pump is not considered a source of ignition and the reservoir is not considered as part of the flameproof enclosure.

When the optional Power Module is mounted locally the electrical and motor enclosures are separated by a potted line bush that forms a cylindrical flameproof joint with the motor pump housing. When the Power Module is remotely mounted or a third party motor and pump is used^[Note 1] the connection is via additional cable entries in the blanking covers fitted with suitably approved cable entry devices.

The following basic configurations are included.

The table below shows the possible build arrangements for each model:

Model No.	Manifold Configuration	Power Module (Local)	Power Module (Remote)	Third Party Motor / Pump
SI3	1	Yes	No	No
SI3	1	No	Yes	No
SI3	1	No	No	Yes
SI4	1	Yes	No	No
SI4	1	No	Yes	No
SI4	1	No	No	Yes
SI4	2	Yes	No	No
SI4	2	No	Yes	No
SI4	2	No	No	Yes

Note 1: The utilisation of or a third party motor and hydraulic pump is outside the scope of this approval.

Variation 1 - This variation introduced the following changes:

- The introduction of alternative motor types for the 24 Vdc, single phase and three phase versions.
- Modifications to the 'k' and 'm' dimensions associated with the motor shaft flamepaths.
- Drawing amendments to address the above modifications, and certain other minor modifications

Variation 2 - This variation introduced the following changes:

- Introduction of the alternate DC motor cover, part number 10164.
- Typographical correction of the manufacturing process of the DC motor cover, part number 10527.

Variation 3 - This variation introduced the following changes:

- Introduction of the Type SI4 Skilmatic Range of Electro-Hydraulic Control Modules.
- Amend the type designation of the SI 3.3 to Type SI 3 Skilmatic Range of Electro-Hydraulic Control Modules, and the Condition of Manufacture were amended to recognise the new designations.
- The introduction of amended flamepath dimension for gas group IIB applications.
- Company name change. From Rotork Fluid Systems (A division of Rotork UK Ltd)' to 'Rotork (UK) Ltd.
- Amendments to various approval drawings.



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- vi. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012, EN 60079-1:2014, EN 60079-7:2007, EN 13463-1:2009 and EN 13463-5:2011 were replaced by EN IEC 60079-0:2018, N 60079-1:2014/COR1:2018, EN IEC 60079-7:2015/A1 (2018) EN ISO 80079-36:2016 and EN ISO 80079-37:2016, the markings in section 12 were updated.

Variation 4 - This variation introduced the following changes:

- i. Addition of an alternative terminal cover P/N 100561 manufactured in aluminium alloy BS 1490 LM25TF.
- ii. Introduce additional exemptions from routine overpressure testing.
- iii. Clarification of requirements relating to fastener strength, leading to the introduction of related Specific Conditions of Use, and Conditions of Manufacture.
- iv. Correction to tabulated Routine Test requirements as required.

Variation 5 - This variation introduced the following changes:

- i. To introduce the following alternative part numbers for manifold configuration 1 :
 - 2024948-C1 is an alternative to HPU-1343-C1
 - 2024948-C2 is an alternative to HPU-1343-C2
- ii. Removal of the Rochester site on certificates and drawing 2036223.
- iii. Change to the flash testing note on the drawing 2031357.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	13 August 2015	R70005452A	The release of the prime certificate.
1	28 July 2016	R70074942A	This Issue covers the following changes: <ul style="list-style-type: none">• EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. (In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)• The introduction of Variation 1.
2	24 October 2016	R70101920A	The introduction of Variation 2.
3	14 June 2019	R70209670A	The introduction of Variation 3.
4	22 August 2019	R80009871A	The introduction of Variation 4
5	15 October 2019	1139	Transfer of certificate Sira 15ATEX1119X from Sira Certification Service to CSA Group Netherlands B.V.
6	19 August 2021	R80069555A	The introduction of Variation 5.



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15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1. This equipment shall be installed such that the risk of impact to the window is low.
- 15.2. This equipment includes some external non-metallic parts, including the outer protective coating. The user shall therefore ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- 15.3. The equipment utilises A4-80 fasteners, if these are changed they shall only be replaced by A4-80 fasteners.
- 15.4. With reference to clause 5.1 of EN 60079-1:2014 - The flamepaths associated with this equipment are not to be repaired.
- 15.5. When covers are removed and replaced, all cover securing fasteners must be tightened to 20 to 22 Nm.

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 MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 All cover securing fasteners to be tightened to between 20 and 22 Nm.
- 17.4 When the terminal enclosure is intended to conform with the requirements of increased safety type of protection, the following electrical strength tests shall be applied to the termination facilities for at least 60 s and no more than 63 s as required by EN 60079-7 clause 6.1:

Test Voltage Applied Between	AC Test Voltage	DC Test Voltage
Three phase terminations/case	2200 V _{RMS}	3100 Vdc
Three phase terminals and low voltage terminations	2200 V _{RMS}	3100 Vdc
Low voltage terminations and case	1500 V _{RMS}	2100 Vdc

- 17.5 For 24 VDC equipment, the above test may be conducted with the DC power board located in the flame-proof electrical enclosure disconnected from the terminal bung.
- 17.6 The equipment requires a combination of routine overpressure tests and batch overpressure tests in accordance with the tables below for the design option and ambient temperature range stated. In all cases the pressure shall be maintained for at least 10 s as required by IEC/EN 60079-1 clause 16. There shall be no permanent deformation or damage to the enclosure:

Control Module Manifold Configuration 1, Flameproof Terminal Enclosure (Non-Ex Terminal Bung fitted)	Test Pressure	
	bar	lbf/in ²
Group IIB, Ambient Temperature -20°C to +70°C Routine Tests		
Solenoid Valves	12.54	181.88
Pressure Transducers		
Group IIB, Ambient Temperature -50°C to +70°C Routine Tests		
Solenoid Valves	17.15	248.74



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Control Module Manifold Configuration 1, Flameproof Terminal Enclosure (Non-Ex Terminal Bung fitted)	Test Pressure	
	bar	lbf/in ²
Pressure Transducer		
Group IIC, Ambient Temperature -20°C to +70°C Routine Tests		
Solenoid Valves	15.63	226.69
Pressure Transducers		
Group IIC, Ambient Temperature -50°C to +70°C Routine Tests		
Centre Housing	29.25	424.24
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Solenoid Valves		
Pressure Transducers		
Group IIC, Ambient Temperature -50°C to +70°C Batch Tests		
Terminal Cover (100551) when used	29.25	424.24
Control Module Manifold Configuration 1, Increased Safety Terminal Enclosure (Ex Terminal Bung fitted)	Test Pressure	
	bar	lbf/in ²
Group IIB, Ambient Temperature -20°C to +70°C Routine Tests		
Solenoid Valves	15.63	226.69
Pressure Transducers		
Group IIB, Ambient Temperature -20°C to +70°C Batch Tests		
Terminal Bung	15.63	226.69
Group IIB, Ambient Temperature -50°C to +70°C Routine Tests		
Solenoid Valves	14.97	217.12
Pressure Transducers		
Group IIC, Ambient Temperature -20°C to +70°C Routine Tests		
Centre Housing	23.87	346.21
Solenoid Valves		
Pressure Transducers		
Group IIC, Ambient Temperature -20°C to +70°C Batch Tests		
Indication Cover	23.87	346.21
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Group IIC, Ambient Temperature -50°C to +70°C Routine Tests		
Centre Housing	25.10	364.05
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Solenoid Valves		
Pressure Transducers		
Terminal Bung		



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Control Module Manifold Configuration 2, Flameproof Terminal Enclosure (Non-Ex Terminal Bung fitted)	Test Pressure	
	bar	lbf/in ²
Group IIB, Ambient Temperature -20°C to +70°C Routine Tests		
Solenoid Valves	18.78	272.38
Pressure Transducers		
Group IIB, Ambient Temperature -20°C to +70°C Batch Tests		
Centre Housing	18.78	272.38
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Group IIB, Ambient Temperature -50°C to +70°C Routine Tests		
Centre Housing	28.01	406.25
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Solenoid Valves		
Pressure Transducers	28.01	406.25
Terminal Cover (100551) when used		
Group IIC, Ambient Temperature -20°C to +70°C Routine Tests		
Centre Housing	30.14	437.14
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Solenoid Valves		
Pressure Transducers		
Group IIC, Ambient Temperature -20°C to +70°C Batch Tests		
Blanking Cover	30.14	437.14
Blanking Cover with Cable Entry		
Terminal Cover (100551) when used		
Control Module Manifold Configuration 2, Increased Safety Terminal Enclosure (Ex Terminal Bung fitted)		
Group IIB, Ambient Temperature -20°C to +70°C Routine Tests		
Solenoid Valves	20.04	290.66
Pressure Transducers		
Group IIB, Ambient Temperature -20°C to +70°C Batch Tests		
Centre Housing	20.04	290.66
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Terminal Bung	20.04	290.66
Group IIB, Ambient Temperature -50°C to +70°C Routine Tests		



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Control Module Manifold Configuration 2, Increased Safety Terminal Enclosure (Ex Terminal Bung fitted)	Test Pressure	
	bar	lbf/in ²
Centre Housing	26.30	381.45
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Solenoid Valves		
Pressure Transducers		
Terminal Bung		
Group IIC, Ambient Temperature -20°C to +70°C Routine Tests		
Centre Housing	30.50	442.37
Indication Cover		
Indication Cover for Beacon		
Electronics Cover		
Vandal Proof Electronics Cover		
Motor Loom Transfer Bush		
Solenoid Valves		
Pressure Transducers		
Terminal Bung		
Group IIC, Ambient Temperature -20°C to +70°C Batch Tests		
Blanking Cover	30.50	442.37
Blanking Cover with Cable Entry		
Power Module		
	Test Pressure	
	bar	lbf/in ²
Group IIB, Ambient Temperature -20°C to +70°C Batch Tests		
AC Motor Cover	17.82	258.46
DC motor cover (10164 when used)		
Motor/Pump Housing		
Group IIC, Ambient Temperature -20°C to +70°C Batch Tests		
AC Motor Cover	22.92	332.43
DC motor cover (10164 when used)		
Motor/Pump Housing		

Certificate Annexe



Certificate Number: Sira 15ATEX1119X

Equipment: The SI3 and SI4, Skilmatic Range of Electro-Hydraulic Control Modules

Applicant: Rotork UK Ltd.

Issue 0

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
HPU-A1106	1 to 8	05	06 Aug 15	Certification Drawing, Control Module, ATEX & IECEX (SI-3.3/4)
HPU-A1111	1 to 4	04	04 Aug 15	Certification Drawing, Power Module, ATEX & IECEX (SI3.3/4)
HPU-A1324	1 of 1	02	13 Aug 15	Certification Drawing, Assembly Configurations (SI 3.3/4)

Issue 1

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
HPU-A1106	1 to 8	06	19 Jul 16	Certification Drawing, Control Module, ATEX & IECEX (SI3.3/4)
HPU-A1111	1 to 4	07	19 Jul 16	Certification Drawing, Power Module, ATEX & IECEX (SI3.3/4)

Issue 2

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
HPU-A1111	1 to 4	8	07 Oct 16	Certification Drawing, Power Module, ATEX & IECEX (SI3.3/4)

Issue 3

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
2031357	17	4-0	03 Jun 19	SI3 & SI4 ATEX/IECEX Control Module
2036233	1	2-0	20 May 19	SI3 & SI4 ATEX IECEX Labels
HPU – A1111	4	10-0	03 Jun19	Certification Drawing, Power Module, ATEX & IECEX
2023399	1	0-0	20 May 19	Procedure, loom transfer bush potting
RS 308	2	9	20 May 19	Potting procedure for CENELEC and ATEX term blocks / mtr looms / rhs loom
RS 448	2	1	20 May 19	Window bonding procedure

Issue 4

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
2031357	17	6-0	21 Aug 19	SI3 & SI4 ATEX/IECEX Control Module
HPU – A1111	4	12-0	21 Aug 19	Certification Drawing, Power Module, ATEX & IECEX

Issue 5. No new drawings were introduced.

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Drawing	Sheets	Rev.	Date (Stamp)	Title
2031357	1 to 17	9-0	13 Aug 21	SI3 & SI4 ATEX/IECEX Control Module
HPU – A1111	1 to 4	12-0	04 Aug 21	Certification Drawing, Power Module, ATEX & IECEX
2036223	1 of 1	3	04 AUG 21	S13 & S14 ATEX IECEX LABELS

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