



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 05.0052X issue No.:3

Status: **Current**

Certificate history:

Issue No. 3 (2013-6-21)

Issue No. 2 (2010-9-30)

Issue No. 1 (2006-3-31)

Date of Issue: **2013-06-21** Page 1 of 4

Applicant: **Rotork Skilmatic (A division of Exeeco Ltd)**
Regina House, Ring Road
Bramley, Leeds LS13 4ET
United Kingdom

Electrical Apparatus: **SI - 2 Electro-Hydraulic Power Unit**
Optional accessory:

Type of Protection: **Flameproof and Increased Safety**

Marking: Ex d IIB T4
Ex de* IIB T4 (Ta = -40°C to +60°C)
* 'e' if the Increased Safety terminal facility is specified on single phase and DC versions only

Approved for issue on behalf of the IECEx Certification Body: C Ellaby

Position: Deputy Certification Manager

Signature:
(for printed version)

Date:


2013-06-21

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](http://www.iecex.com).

Certificate issued by:

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

sira
CERTIFICATION



IECEx Certificate of Conformity

Certificate No.: IECEx SIR 05.0052X

Date of Issue: 2013-06-21

Issue No.: 3

Page 2 of 4

Manufacturer: **Rotork Skilmatic (A division of Exeeco Ltd)**
Regina House, Ring Road
Bramley, Leeds LS13 4ET
United Kingdom

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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2003 Edition: 5	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosure 'd'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

*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

IECEx ATR:	File Reference:
UK/SIR/05/R51L12777A; GB/SIR/ExTR13.0177/00	51L12777
GB/SIR/ExTR06.0037/00	Sira 04.019 ; GB/SIR/QAR07.0033/03
GB/SIR/ExTR10.0234/00	GB/SIR/QAR07.0033/02; GB/SIR/QAR07.0033/04



IECEx Certificate of Conformity

Certificate No.: IECEx SIR 05.0052X

Date of Issue: 2013-06-21

Issue No.: 3

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The **SI-2 Elecyto-Hydraulic Power Unit** - a self-contained electrically operated hydraulic power source. The power supply of the unit can either be:

24 Vdc ($\pm 10\%$)
115 / 230Vac, 50 / 60Hz single-phase ($\pm 10\%$)
380-480Vac, 50 / 60Hz 3-phase ($\pm 10\%$)

(See certificate annexe for full product description)

CONDITIONS OF CERTIFICATION: YES as shown below:

The maximum constructional gap (Ic) is less than that required by Table 2 of IEC 60079-1:2003, as detailed below:

Flamepath	Maximum Gap (mm)
Electrical Cover/Enclosure	0.150
Terminal Cover/ Enclosure 3Ø	0.150
Terminal Cover/ Enclosure 1Ø	0.150
Terminal Bung/Enclosure 3Ø	0.115
Terminal Bung/ Enclosure 1Ø	0.115
Motor Cover/Enclosure	0.150
Motor Flange/Enclosure	0.080
Motor Bushing/Enclosure	-0.014 Interference fit.
Motor Shaft/Motor Bushing	0.150
Solenoid Bonnet/Enclosure	0.080



IECEx Certificate of Conformity

Certificate No.: IECEx SIR 05.0052X

Date of Issue: 2013-06-21

Issue No.: 3

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1 – this Issue introduced the following changes:	
1	The introduction of drawing changes to correct dimensions, this has resulted in the amendment of the condition of certification.
Issue 2 – this Issue introduced the following changes:	
1	Lemac type motors were introduced as an alternative to the original Crompton motor.
2	The motor shaft on the 24 V dc versions has been modified to the same dimensions that are applied to the single-phase version.
3	The introduction of the following parts: <ul style="list-style-type: none">* an alternative window material.* an alternative terminal bung.* an alternative terminal enclosure lid.
Issue 3 – this Issue introduced the following change:	
1.	The recognition of an alternative control board (SMP-00-50825) on the SI-2, with a dual screen display.

Annexe to: IECEx SIR 05.0052X Issue 3
Applicant: Rotork Skilmatic (A division of Exeeco Ltd)
Apparatus: SI - 2 Electro-Hydraulic Power Unit



The SI-2, Electro-Hydraulic Power Unit, is a self-contained electrically operated source of hydraulic power, which can be instantaneously switched to increase or decrease the pressure to a suitable spring return/double acting, linear or quarter-turn actuator. The power unit consists of four distinct enclosures, which are separated by the centre housing casting.

The electrical enclosure has a display window and can contain the following equipment, control PCB, power PCB, transformer and pressure transducer. This enclosure has been designed to meet the requirements of Ex d type of protection.

The terminal enclosure contains the electrical connections for external use. The single-phase and 24 Vdc units use the standard terminal cover. The 3-phase units use an extended version of the terminal cover. The enclosure, when fitted with either terminal cover has been designed to meet the requirements of Ex d type of protection. The electrical connections when used in conjunction with the standard terminal cover have been designed to meet the requirements of Ex e type of protection.

The motor enclosure contains an electric motor and up to three solenoid valves. Connection between the electrical enclosure and the motor enclosure is made with a threaded bush.

The oil reservoir contains a pump, pressure relief valve and a check valve.

The power supply of the unit can either be:

- 24 Vdc ($\pm 10\%$)
- 115 / 230Vac, 50 / 60Hz single-phase ($\pm 10\%$)
- 380-480Vac, 50 / 60Hz 3-phase ($\pm 10\%$)

The enclosure is manufactured from aluminium (containing less than 6% magnesium by mass).

Product Code Breakdown

SI-2-abcde

a	b	c	d	e
0 FAIL-SAFE	0 STANDARD INTERNAL S.V.	0 SINGLE-PHASE 115Vac 50/60Hz	0 BASIC	0 W/T
1 FAIL IN POSITION	1 STANDARD DOUBLE INTERNAL S.V.	1 SINGLE-PHASE 230Vac 50/60Hz	1	1 ATEX
2 FAIL-SAFE W/O PRESSURE TRANSMITTER	2 STANDARD INTERNAL S.V. & ESD S.V.	2 24Vdc	2 PAKSCAN	2 IECEX
3 FAIL IN POSITION W/O PRESSURE TRANSMITTER	3	3 3-PHASE 380-480V 50/60Hz	3 PAKSCAN ANALOGUE INPUTS	3 FM
4 DOUBLE ACTING	4	4	4 MODBUS SINGLE CHANNEL	4 CSA
5 DOUBLE ACTING W/O PRESSURE TRANSMITTER	5	5	5 MODBUS DUAL CHANNEL	5
6	6	6	6 PROFIBUS DUAL CHANNEL	6
7	7	7	7 DEVICENET	7
8	8	8	8 FOUNDATION FIELDBUS	8
9	9 DOUBLE ACTING	9	9 PROFIBUS SINGLE CHANNEL	9

Annexe to: IECEx SIR 05.0052X Issue 3
Applicant: Rotork Skilmatic (A division of Exeeco Ltd)
Apparatus: SI - 2 Electro-Hydraulic Power Unit



The Manufacturer shall comply with the following conditions of manufacture:

- Each device shall be subjected to a routine overpressure test in accordance with the table below. In all cases, the pressure shall be maintained for at least 10 s as required by clause 16 of EN 60079-1:2004. There shall be no permanent deformation or damage to the enclosure.

Equipment	Hydrostatic overpressure test pressure	
	Bar	Lbf/in ²
Terminal Compartment 1Ø/ DC	13.77	199.67
Terminal Compartment 3Ø	14.22	206.19
Terminal Lid (Short) Pressure Die Cast	13.77	199.67
Terminal Lid (Long) Pressure Die Cast	14.22	206.19
Electrical Cover (Short cover) Pressure Die Cast	17.54	254.33
Electrical Compartment	17.54	254.33
Terminal Bung	17.54	254.33
Electrical Cover Window	17.54	254.33
Pressure Transducer	17.54	254.33
Electrical Enclosure 1Ø fitted with Makrolon @ 6717 window	15.70	227.66
Electrical Enclosure DC (3Ø) fitted with Makrolon @ 6717 window	17.54	254.33
Electrical Enclosure 1Ø fitted with CRASTIN @ ST830FRUV terminal bung	15.70	227.66
Electrical Enclosure DC (3Ø) fitted with CRASTIN @ ST830FRUV terminal bung	17.54	254.33

- When the termination facility is to be designated as 'Ex e', 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 clause 7.2 of IEC 60079-7:2001.

Test Voltage Applied Between	Test Voltage
Three phase terminations/case	1000 +2U V _{RMS} (+5%/ -0%) or 1500 V _{RMS} (+5% / -0%)
Three phase terminations and low voltage terminations	WHICHEVER IS GREATER (U BEING THE SUPPLY VOLTAGE)
Low voltage terminations and case	500 V _{RMS} (+5%/ - 0%)