



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEX SIR 14.0109X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 6	Issue 5 (2022-10-04)
Date of Issue:	2024-01-12		Issue 4 (2020-08-17)
Applicant:	Sun Yeh Electrical Ind. Co., Ltd No. 68, Lane 854, Sec.1, Shatian Rd., Dadu District Taichung City TW-432403 Taiwan		Issue 3 (2019-03-21)
Equipment:	SE Series Explosion-Proof Spring Return Actuators		Issue 2 (2016-10-20)
Optional accessory:			Issue 1 (2015-07-09)
Type of Protection:	Flameproof and Dust Protection by Enclosure		Issue 0 (2015-02-10)
Marking:	For SE series utilized with non-electrical gear box Ex db h IIB T4 Gb Ex tb h IIIC T130°C Db For SE series without utilizing non-electrical gear box Ex db IIB T4 Gb Ex tb IIIC T130°C Db		

Approved for issue on behalf of the IECEx
Certification Body:

Michelle Halliwell

Position:

Director Operations, UK & Industrial Europe

Signature:
(for printed version)

Date:
(for printed version)

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 www.iecex.com or use of this QR Code.



Certificate issued by:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
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United Kingdom





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Date of issue: 2024-01-12

Issue No: 6

Manufacturer: **Sun Yeh Electrical Ind. Co., Ltd**
No. 68, Lane 854, Sec.1, Shatian Rd., Dadu District
Taichung City TW-432403
Taiwan

Manufacturing locations: **Sun Yeh Electrical Ind. Co., Ltd**
No. 68, Lane 854, Sec.1, Shatian Rd.,
Dadu District
Taichung City TW-432403
Taiwan

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 equipment 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 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-31:2022](#) Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
Edition:3.0

[ISO 80079-36:2016](#) Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
Edition:1.0

[ISO 80079-37:2016](#) Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"
Edition:1.0

This Certificate **does not** indicate compliance with 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:

Test Reports:

[GB/SIR/ExTR15.0030/00](#)
[GB/SIR/ExTR19.0082/00](#)
[GB/SIR/ExTR24.0015/00](#)

[GB/SIR/ExTR15.0197/00](#)
[GB/SIR/ExTR20.0151/00](#)

[GB/SIR/ExTR16.0247/00](#)
[GB/SIR/ExTR22.0158/00](#)

Quality Assessment Report:

[NO/NEM/QAR14.0013/06](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The SE Series Explosion-Proof Spring Return Actuator comprises an aluminium flameproof enclosure, containing a motor and associated electronics which drive a carbon steel transmission shaft via a mechanical transmitting unit. A rotating handle may be used to manually drive the mechanical transmitting unit when the equipment is unpowered which can be removed from the mechanical circuit to prevent movement of the handle when the motor is driven. Screws and Spring washer are made from stainless steel (SUS304). The enclosure is made from aluminium (ADC10).

The non-electrical equipment ignition hazard assessment is applied to the gear box and rotating handle of manual override only.

Within the flameproof enclosure is a double rack and pinion arrangement driven by the transmission shaft. Each rack is supported by a pair of springs, such that when power to the equipment is lost the actuator will be driven back to its original position.

Refer to the Annexe for additional information

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The flamepaths in this equipment are different to the standard dimensions given in IEC 60079-1. If specific flamepath dimensions are required then the manufacturer (OEM) must be contacted.
2. Caution - Use fasteners with yield stress $\geq 450\text{MPa}$.



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Date of issue: 2024-01-12

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

This issue, Issue 6, recognises the following changes; refer to the certificate annex to view a comprehensive history:

1. Postal code change from 43244 to 432403.
2. Warning plate change YIELD STRESS value from "≥ 700MPa" to "≥ 450Mpa".
3. For the middle plate, adjust the accuracy for outside dimension from $\varnothing 166(-0.1 \text{ to } -0.05)$ into $\varnothing 166(-0.15 \text{ to } +0.08)$.
4. Adjust the accuracy for the drive shaft from $\varnothing 10(-0.02 \text{ to } +0)$ into $\varnothing 10(-0.04 \text{ to } +0)$
5. Change the outer length for End Cap from 100 mm to 99 mm.
6. Upgrade IEC 60079-31:2013 to IEC 60079-31:2022.
7. To separate Certification Codes with/without non-electrical gear box.

Annex:

[IECEX SIR 14.0109X Annexe Issue 6.pdf](#)

Annexe to: IECEx SIR 14.0109X Annexe Issue 6

Applicant: Sun Yeh Electrical Ind. Co., Ltd.

Apparatus: SE Series Explosion-Proof Spring Return Actuators



The flameproof enclosure has a mechanical indicator at the upper end to show the position of the actuator valve which can be viewed through a cemented toughened glass window.

The internal motor winding contains a bimetallic strip for thermal protection, which is set to operate at 125°C. The motor is provided with class F insulation.

The equipment is rated as IP68 (7 metres for 72 hours), which is maintained by O-ring seals in each joint and oil seals in the interface between the main housing and transmission/drive handle shafts.

The flameproof housing features two threaded cable entries, which may be NPT3/4", NPT1/2", M20x1.5 or M25x1.5. Each cable entry is supplied by the manufacturer with a proprietary stainless steel blanking plug which may be replaced by the end user with suitably certified and rated flameproof cable entry devices.

Model Nomenclature:

SE-X1-X2-X3-X4-X5

S – Spring Return Actuator

E – Explosion Proof

X1 – Torque (Nm)

X2 – Voltage:

D24 – 24 VDC	24 – 24 VAC	100 – 100 VAC
120 – 110-120 VAC	200 – 200 VAC	220 – 220-240 VAC
380 – 380 VAC	440 – 440 VAC	

X3 – Direction of Rotation:

- CW – Clockwise

- CCW – Counter Clockwise

X4 – Control Method:

- T – Two Position

- M – Modulating

- F - Floating

X5 – Manual Override:

- Y – With Manual Override

- N – Without Manual Override

Annexe to: IECEx SIR 14.0109X Annexe Issue 6

Applicant: Sun Yeh Electrical Ind. Co., Ltd.

Apparatus: SE Series Explosion-Proof Spring Return Actuators



Conditions Of Manufacture

- i. Each unit shall withstand an overpressure test according to IEC 60079-1 clause 16, at a pressure no less than those listed below for a period of at least ten seconds. The test shall be considered as satisfactory if on completion the enclosure has suffered no permanent deformation or damage affecting the type of protection.
 - For SE-500- - - - : The static overpressure test is not less than 9 bar.
 - For SE-1300- - - - : The static overpressure test is not less than 10 bar.
 - For SE-2000 and SE-2600- - - - : The static overpressure test is not less than 12 bar.
- ii. IEC 60079-1:2014, Cl.16 and Cl.15.2.3.2 Routine testing and acceptance criteria applied to all Models.

Test conditions as below:

Applied Model Series	Routine test value (MPa)	Test Duration (Second)
SE-500	≥ 0.9	≥ 10
SE-1300	≥ 1.0	
SE-2000, SE-2600	≥ 1.2	

Note: Equivalent unit and value may be applied as long as actual value meet above criteria.

Full Certificate Change History

Issue 1 – this Issue introduced the following change:

1. The company logo was changed on the label drawing.

Issue 2 – this Issue introduced the following changes:

1. The Certificate Holder's address was changed:

From:	To;
No. 81, Lane 355, San Kang Rd.,	No. 68 Lane 854, Sec. 1, Shatian Road,
Lung Ching Vil.	Dadu District,
Lung Ching District	Taichung City, 43244
Taichung City, 43444	Taiwan, R.O.C
Taiwan, R.O.C	

2. Introduction of alternative models that show the 'power fail' in the anti-clockwise position (manual over-ride on the left).

Issue 3 – this Issue introduced the following changes:

1. The reinforcement of the Top Cover.
2. The introduction of transparent paint on labels.
3. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, IEC 60079-0:2011 Ed.6 and IEC 60079-1:2007 Ed.6 were replaced by IEC 60079-0:2017 Ed.7 and IEC 60079-1:2014/COR1:2018, the Specific Conditions of Use, the Product Description and the Markings were amended to recognise the new standards.

Annexe to: IECEx SIR 14.0109X Annexe Issue 6

Applicant: Sun Yeh Electrical Ind. Co., Ltd.

Apparatus: SE Series Explosion-Proof Spring Return Actuators



Issue 4 – this Issue introduced the following changes:

1. Change the type key and related ratings as follows:

Previous	New
110 stands for 110VAC 120 stands for 120VAC	120 stands for 110-120VAC
220 stands for 220VAC 240 stands for 240VAC	220 stands for 220-240VAC

2. Change of opening indicator type.
3. Change Applicant's and Manufacturer's address and separate ATEX and IECEx label drawing.

Issue 5 – this Issue introduced the following changes:

1. To include a non-electrical gear box of manual override function and together with hand wheel to Models SE Series. The manual override shall be used during the power shortage.
2. To add non-electrical equipment standards IEC 80079-36, -37.
3. To add stainless steel material to screws and spring washer to non-electrical gear box of manual override function.

Issue 6 – this Issue introduced the following changes:

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2. Warning plate change YIELD STRESS value from "≥ 700MPa" to "≥ 450Mpa".
3. For the middle plate, adjust the accuracy for outside dimension from $\varnothing 166(-0.1$ to $-0.05)$ into $\varnothing 166(-0.15$ to $+0.08)$.
4. Adjust the accuracy for the drive shaft from $\varnothing 10(-0.02$ to $+0)$ into $\varnothing 10(-0.04$ to $+0)$
5. Change the outer length for End Cap from 100 mm to 99 mm.
6. Upgrade IEC 60079-31:2013 to IEC 60079-31:2022.
7. To separate Certification Codes with/without non-electrical gear box.