



1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira14ATEX1306X** Issue: **7**

4 Equipment: **LE Series Explosion-Proof Linear Valve Actuators**

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

6 Address: **No. 68 Lane 854, Sec. 1, Shatian Road,
Dadu District,
Taichung City, 432403
Taiwan**

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/AC:2018-09 EN 60079-31:2014

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 2 GD
Ex db IIB T4 Gb
Ex tb IIIC T130°C Db
Ta = -30°C to +70°C

IP68 (72h, 7m)

Signed: Michelle Halliwell

Title: Director of Operations



Project Number 80190144

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira14ATEX1306X
Issue 7

13 DESCRIPTION OF EQUIPMENT

The LE Series Explosion-Proof Linear Valve Actuator comprises a cylindrical aluminium flameproof enclosure, containing a motor and associated electronics which drive a stainless steel linear actuator 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.

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 actuator/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:

LE-X1-X2-X3

L – Linear Valve Actuator

E – Explosion Proof

X1 – Thrust (kg): 250 / 500 / 1000 / 2000

X2 – Voltage:

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

X3 – Control Method:

- M – Modulating
- F – Floating

Variation 1 - This variation introduced the following change:

- i. The company logo was changed on the label drawing.

Variation 2 - This variation introduced the following changes:

- i. 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 |

- ii. The introduction of a 'D' Shaped drive to the output shaft.

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

**Sira14ATEX1306X
Issue 7**

Variation 3 - This variation introduced the following changes:

- i. To permit all model series linear valve actuators to be fitted with an alternative worm gear shaft. The external face of the shaft is recessed with a female square keyway, enabling the valve actuators to be connected to end user type specific output couplings.
- ii. Rationalisation of scheduled drawings to remove those that have been replaced, and/or are no longer used to support manufacturing compliance. In addition to the removal of the IP68 rating from being part of the concept of protection coding text string on the product nameplate.
- iii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012 and EN 60079-1:2007, were replaced by EN 60079-0:2012/A11:2013 and EN 60079-1:2014, the markings were updated accordingly. Inclusive of a reduction of the NPT thread length on the blanking devices.

Variation 4 – This variation introduced the following changes:

- i. The reinforcement of the Top Cover.
- ii. The introduction of transparent paint on labels.
- iii. The amendment of NPT threaded Blanking Elements.
- iv. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012 and EN 60079-1:2014 were replaced by EN IEC 60079-0:2018 and EN 60079-1:2014/AC: 2018-09, the Specific Conditions of Use, the Product Description and the Markings were amended to recognise the new standards

Variation 5 - This variation introduced the following changes:

- i. 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 |

- ii. Correction of the Applicant’s and Manufacturer’s Name & Address and introduce separate nameplate drawings for ATEX and IECEx

Variation 6 – This variation introduced the following changes:

- i. Postal code change from 43244 to 432403.
- ii. Warning plate change YIELD STRESS value from “≥ 700MPa” to “≥ 450Mpa”.
- iii. For the middle plate, adjust dimension from Ø140(-0.05 to +0) into Ø140(-0.1 to +0)
For the middle plate, adjust the accuracy of the bearing hole from Ø25.4(+0.01 to +0.03) to Ø25(+0.01 to +0.03)
- iv. Adjust the accuracy for the worm gear from JIS Level 4 to JIS Level 6
- v. Cancel the accuracy of the drive shaft.
- vi. Material change for the Handwheel from Plastic (N6) to ADC10.
- vii. Based on Prime ExTR assessed complied result, add IP68 together with markings

Project Number 80190144

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira14ATEX1306X
Issue 7

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

| Issue | Date | Report number | Comment |
|-------|------------------|---------------|---|
| 0 | 29 January 2015 | R70009099A | The release of the prime certificate. |
| 1 | 08 July 2015 | R70038697A | The introduction of Variation 1. |
| 2 | 20 October 2016 | R70087357A | 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 2. |
| 3 | 07 November 2017 | R70156905A | The introduction of Variation 3. |
| 4 | 21 March 2019 | R70211224A | The introduction of Variation 4. |
| 5 | 31 October 2019 | 0698 | Transfer of certificate Sira14ATEX1306X from Sira Certification Service to CSA Group Netherlands B.V. |
| 6 | 13 August 2020 | R80039657A | The introduction of Variation 5. |
| 7 | 02 April 2024 | R80190143A | The introduction of Variation 6. |

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

15.1 The flamepaths in this equipment are different to the standard dimensions given in EN 60079-1. If specific Flamepath dimensions are required then the manufacturer (OEM) must be contacted.

15.2 Caution - Use fasteners with yield stress \geq 450MPa.

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.

Project Number 80190144

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira14ATEX1306X
Issue 7

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. 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 IEC 60079-1:2014, Cl.16.1.1 Routine overpressure test – first method and acceptance criteria applied to all Models.

Test conditions as below:

| Applied Model Series | Batch testing routine test value (MPa) | Duration (seconds) |
|----------------------|--|--------------------|
| LE-250, LE-500 | ≥ 1.0 | ≥ 10 |
| LE-1000, LE-2000 | ≥ 1.1 | ≥ 10 |

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

Certificate Annexe



Certificate Number: Sira14ATEX1306X
Equipment: LE Series Explosion-Proof Linear Valve Actuators
Applicant: Sun Yeh Electrical Ind. Co., Ltd.

Issue 0

| Drawing | Sheets | Rev. | Date (Sira Stamp) | Title |
|------------|--------|------|-------------------|---------------------------------|
| Ex 10030 | 1 of 2 | 1 | 16 Jan 15 | Explosion proof linear actuator |
| Ex 10030 | 2 of 2 | 1 | 16 Jan 15 | Explosion proof linear actuator |
| Ex 10031 | 1 of 2 | 1 | 16 Jan 15 | Explosion proof linear actuator |
| Ex 10031 | 2 of 2 | 1 | 16 Jan 15 | Explosion proof linear actuator |
| Ex 20207-4 | 1 of 1 | 1 | 16 Jan 15 | Main housing (M20) |
| Ex 20207-3 | 1 of 1 | 1 | 16 Jan 15 | Main housing (M25) |
| Ex 20209-4 | 1 of 1 | 1 | 16 Jan 15 | Main housing (M20) |
| Ex 20207-2 | 1 of 1 | 1 | 16 Jan 15 | Main housing (NPT 1/2") |
| Ex 20209-3 | 1 of 1 | 1 | 16 Jan 15 | Main housing (M25) |
| Ex 20207-1 | 1 of 1 | 1 | 16 Jan 15 | Main housing (NPT 3/4") |
| Ex 20209-2 | 1 of 1 | 1 | 16 Jan 15 | Main housing (NPT 1/2") |
| Ex 20209-1 | 1 of 1 | 1 | 16 Jan 15 | Main housing NPT3/4" |
| Ex 20208 | 1 of 1 | 1 | 16 Jan 15 | Top cover |
| Ex 30502 | 1 of 1 | 1 | 16 Jan 15 | Casting end cap |
| Ex 30503 | 1 of 1 | 1 | 16 Jan 15 | Drive shaft |
| Ex 30504 | 1 of 1 | 1 | 16 Jan 15 | Casting end cap |
| Ex 30505 | 1 of 1 | 1 | 16 Jan 15 | Plate |
| Ex 30506 | 1 of 1 | 1 | 16 Jan 15 | Worm gear |
| Ex 30507 | 1 of 1 | 1 | 16 Jan 15 | Drive shaft |
| Ex 30508 | 1 of 1 | 1 | 16 Jan 15 | Casting end cap |
| Ex 30509 | 1 of 1 | 1 | 16 Jan 15 | Worm gear |
| Ex 30510 | 1 of 1 | 1 | 16 Jan 15 | Plate |
| Ex 30511 | 1 of 1 | 1 | 16 Jan 15 | Top cover |
| Ex 40778 | 1 of 1 | 1 | 16 Jan 15 | Nameplate |
| Ex 40780 | 1 of 1 | 1 | 16 Jan 15 | Casting end cap |
| Ex 40804-4 | 1 of 1 | 1 | 16 Jan 15 | Ex plug (M20) |
| Ex 40804-3 | 1 of 1 | 1 | 16 Jan 15 | Ex plug (M25) |
| Ex 40804-2 | 1 of 1 | 1 | 16 Jan 15 | Ex plug (NPT 1/2") |
| Ex 40804-1 | 1 of 1 | 1 | 16 Jan 15 | Ex plug (NPT 3/4") |

Issue 1

| Drawing | Sheets | Rev. | Date (Sira stamp) | Description |
|----------|--------|------|-------------------|-------------|
| Ex 42381 | 1 of 1 | - | 08 Jul 15 | Nameplate |

Issue 2

| Drawing | Sheets | Rev. | Date (Sira stamp) | Title |
|----------|--------|------|-------------------|-------------|
| Ex 31528 | 1 of 1 | 1 | 11 Aug 16 | Drive Shaft |
| Ex 31530 | 1 of 1 | 1 | 11 Aug 16 | Drive Shaft |
| Ex 42381 | 1 of 1 | 1 | 04 Oct 16 | Nameplate |

Issue 3

| Drawing | Sheets | Rev. | Date (Sira stamp) | Title |
|------------|--------|------|-------------------|---------------------------------|
| Ex 10030 | 1 to 3 | 2 | 13 Oct 17 | Explosion proof linear actuator |
| Ex 10031 | 1 to 3 | 2 | 13 Oct 17 | Explosion proof linear actuator |
| Ex 30506-1 | 1 of 1 | 1 | 13 Oct 17 | Explosion proof linear actuator |
| Ex 30509-1 | 1 of 1 | 1 | 13 Oct 17 | Explosion proof linear actuator |
| Ex 40804-1 | 1 of 1 | 3 | 13 Oct 17 | Ex plug (M20) |

Project Number 80190144

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Certificate Annexe



Certificate Number: Sira14ATEX1306X
Equipment: LE Series Explosion-Proof Linear Valve Actuators
Applicant: Sun Yeh Electrical Ind. Co., Ltd.

| Drawing | Sheets | Rev. | Date (Sira stamp) | Title |
|------------|--------|------|-------------------|--------------------|
| Ex 40804-2 | 1 of 1 | 3 | 13 Oct 17 | Ex plug (M25) |
| Ex 40804-3 | 1 of 1 | 3 | 13 Oct 17 | Ex plug (NPT 1/2") |
| Ex 40804-4 | 1 of 1 | 3 | 13 Oct 17 | Ex plug (NPT 3/4") |
| Ex 42381 | 1 of 1 | 2 | 06 Nov 17 | Nameplate |

Issue 4

| Drawing | Sheets | Rev. | Date (Sira stamp) | Title |
|------------|--------|------|-------------------|--------------------|
| Ex 42381 | 1 of 1 | 3 | 05 Mar 19 | Nameplate |
| Ex 20208 | 1 of 1 | 2 | 05 Mar 19 | Top cover |
| Ex 40804-1 | 1 of 1 | 4 | 05 Mar 19 | Ex plug (NPT 3/4") |
| Ex 40804-2 | 1 of 1 | 4 | 05 Mar 19 | Ex plug (NPT 1/2") |

Issue 5. No new drawings were introduced.

Issue 6

| Drawing | Sheets | Rev. | Date (Stamp) | Title |
|----------|--------|------|--------------|---------------------------------|
| Ex 10030 | 1 to 3 | 3 | 25 May 20 | Explosion proof linear actuator |
| Ex 10031 | 1 to 3 | 3 | 25 May 20 | Explosion proof linear actuator |
| Ex 42381 | 1 of 1 | 4 | 07 Aug 20 | Nameplate |

Issue 7

| Drawing | Sheets | Rev. | Date (Stamp) | Title |
|---------|--------|------|--------------|--|
| Ex10030 | 1 to 3 | 4 | 19 Mar 2024 | LE-250-X1-X2 and LE-500-X1-X2 Explosion-proof Linear Valve Actuator Assembly Drawing |
| Ex10031 | 1 to 3 | 4 | 19 Mar 2024 | LE-1000-X1-X2 and LE-2000-X1-X2 Explosion-proof Linear Valve Actuator Assembly Drawing |
| Ex30506 | 1 of 1 | 2 | 19 Mar 2024 | LE-1000-X1-X2 and LE-2000-X1-X2 Worm Gear |
| Ex30509 | 1 of 1 | 2 | 19 Mar 2024 | LE-250-X1-X2 and LE-500-X1-X2 Worm Gear |
| Ex30510 | 1 of 1 | 2 | 19 Mar 2024 | LE-250-X1-X2 and LE-500-X1-X2 Plate |
| Ex31528 | 1 of 1 | 2 | 19 Mar 2024 | LE-250-X1-X2 and LE-500-X1-X2 Drive shaft |
| Ex31530 | 1 of 1 | 2 | 19 Mar 2024 | LE-1000-X1-X2 and LE-2000-X1-X2 Drive shaft |
| Ex42381 | 1 of 1 | 7 | 21 Mar 2024 | Nameplate for LE series |

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