

# CERTIFICATE OF CONFORMITY

1. **ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM16NUS0001

3. **Equipment:** IN-SITU ZIRCONIA OXYGEN ANALYZER  
**(Type Reference and Name)** Oxygen Analyzer

4. **Name of Listing Company:** Fuji Electric Co Ltd

5. **Address of Listing Company:** 1 Fuji Machi  
c/o Fuji Electric Corp of America  
Hino City Tokyo-To  
191-8502  
Japan

6. The examination and test results are recorded in confidential report number:

3035115 dated 28<sup>th</sup> May 2009

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3810:2005, ANSI/NEMA 250:2003, ANSI/IEC 60529:2004

8. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

9. **Equipment Ratings:**

Type 4X, IP66, IP67

**Certificate issued by:**



J. E. Marquedant  
Manager, Electrical Systems

20 May 2016

Date

26 August 2016

Reissue Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmapprovals.com](mailto:information@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

# SCHEDULE



US Certificate Of Conformity No: FM16NUS0001

## 10. Description of Equipment:

**General** - The Zirconia Oxygen Analyzer consists of the ZFK8 Detector used to continuously monitor oxygen concentration in combustible exhaust gas of industrial boilers or furnaces and is suited for combustion management and control. The ZFK8 detector is inserted directly into the flue gas and a remote converter box with the processing electronics communicates with the ZKM Converter.

**Construction** - The system consist of the ZFK Detector, ZKM, Converter, ZRZKR Cable and the ZTA Ejector.

**Ratings** - The rated voltage is 90-132 Vac or 190 to 264 Vac. The converter is rated for an ambient temperature range of -20°C to +55°C. The detector rated operating temperature is -20°C to +60°C with installation required to be such that the maximum flange surface temperature be less than 125°C for use with flue gas temperatures up to 600°C or when used with the model ZTA Ejector system to provide thermal isolation flue gas temperatures up to +1500°C.

### **ZFK8Rab5-cde-fgh. Detector.**

- a = Cal. Gas inlet 1, 2 or 3.
- b = Power supply 1 or 3.
- c = Flow guide tube (three digits alphanumeric).
- d = Protection cover Y or A.
- e = Reference air inlet Y, A or B.
- f = Filter spec. 1, 2 or 3.
- g = Instruction manual language (one letter).
- h = Specification name plate A, B or C.

### **ZKMabcd1-efgh. Converter.**

- Type 4X and either IP66\* or IP67\*\*
- a = Construction 1\* or 2\*\*.
- b = Output signal B, E or Z.
- c = Transmission output function 1 or 2.
- d = Mounting bracket Y, 1 or 2.
- e = Optional functions Y, 1, 2, 3, 4, 5, 6, 7.
- f = Display language (one letter).
- g = Cock Y, 1 or 2.
- h = Specification name plate 6, 7 or 8.

### **ZKMabcd2-efg1h-YRi. Converter.**

- Type 4X and either IP66\* or IP67\*\*
- a = Enclosure A\* or B\*\*.
- b = Output signal B or E.
- c = Communication function Y, 2 or 3.
- d = Mounting bracket Y, 1 or 2.
- e = Optional functions Y, 1, 2, 3, 4, 5, 6, 7.
- f = Display language (one letter).
- g = Selector valve/flowmeter Y, 1, 2, 3, or 4.
- h = Cable gland Y or A.
- i = Thermocouple Y, R or K.

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# SCHEDULE



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**ZRZKR1-b. Exclusive Cable.**

a = Cable YA, YB, YC, YD, YE, YF, YG, YH, YJ, YK, YL, YM, AA, BB, CC or DD.

b = Cable treatment 0, 1 or 2.

**ZTAa1bc. Ejector.**

a = Measured gas temperature 1 or 2.

b = Insertion length (mm).

c = Power supply 1, 3 or 5.

**11. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**12. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

**13. Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
28 <sup>th</sup> May 2009	Original Issue.
20 <sup>th</sup> May 2016	<u>Supplement 1:</u> Report Reference: 3058270 dated 20 May 2016  Description of the Change: Add HART communications.
26 <sup>th</sup> August 2016	<u>Supplement 10 Reissue 1:</u> Project should have been in addition to the existing listing and not replace the existing listing. The original listing is reinstated.

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# CERTIFICATE OF CONFORMITY

1. **ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** FM16NCA0001
3. **Equipment:** IN-SITU ZIRCONIA OXYGEN ANALYZER  
**(Type Reference and Name)** Oxygen Analyzer
4. **Name of Listing Company:** Fuji Electric Co Ltd
5. **Address of Listing Company:** 1 Fuji Machi  
c/o Fuji Electric Corp of America  
Hino City Tokyo-To  
191-8502  
Japan
6. The examination and test results are recorded in confidential report number:  
3035115 dated 28<sup>th</sup> May 2009
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
CSA-C22.2 No. 1010.1;2004
8. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
9. **Equipment Ratings:**  
Type 4X, IP66, IP67

**Certificate issued by:**



J.E. Marquedant  
Manager, Electrical Systems

20 May 2016

Date

26 August 2016

Reissue Date

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# SCHEDULE



Canadian Certificate Of Conformity No: FM16NCA0001

## 10. Description of Equipment:

**General** - The Zirconia Oxygen Analyzer consists of the ZFK8 Detector used to continuously monitor oxygen concentration in combustible exhaust gas of industrial boilers or furnaces and is suited for combustion management and control. The ZFK8 detector is inserted directly into the flue gas and a remote converter box with the processing electronics communicates with the ZKM Converter.

**Construction** - The system consist of the ZFK Detector, ZKM, Converter, ZRZKR Cable and the ZTA Ejector.

**Ratings** - The rated voltage is 90-132 Vac or 190 to 264 Vac. The converter is rated for an ambient temperature range of -20°C to +55°C. The detector rated operating temperature is -20°C to +60°C with installation required to be such that the maximum flange surface temperature be less than 125°C for use with flue gas temperatures up to 600°C or when used with the model ZTA Ejector system to provide thermal isolation flue gas temperatures up to +1500°C.

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- b = Power supply 1 or 3.
- c = Flow guide tube (three digits alphanumeric).
- d = Protection cover Y or A.
- e = Reference air inlet Y, A or B.
- f = Filter spec. 1, 2 or 3.
- g = Instruction manual language (one letter).
- h = Specification name plate A, B or C.

### **ZKMabcd1-efgh. Converter.**

- Type 4X and either IP66\* or IP67\*\*
- a = Construction 1\* or 2\*\*.
- b = Output signal B, E or Z.
- c = Transmission output function 1 or 2.
- d = Mounting bracket Y, 1 or 2.
- e = Optional functions Y, 1, 2, 3, 4, 5, 6, 7.
- f = Display language (one letter).
- g = Cock Y, 1 or 2.
- h = Specification name plate 6, 7 or 8.

### **ZKMabcd2-efg1h-YRi. Converter.**

- Type 4X and either IP66\* or IP67\*\*
- a = Enclosure A\* or B\*\*.
- b = Output signal B or E.
- c = Communication function Y, 2 or 3.
- d = Mounting bracket Y, 1 or 2.
- e = Optional functions Y, 1, 2, 3, 4, 5, 6, 7.
- f = Display language (one letter).
- g = Selector valve/flowmeter Y, 1, 2, 3, or 4.
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b = Cable treatment 0, 1 or 2.

**ZTAa1bc. Ejector.**

a = Measured gas temperature 1 or 2.  
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