CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM18US0329X**
3. **Equipment:** **OHC 800 Calorimeter**
   (Type Reference and Name)
4. **Name of Listing Company:** **Riken Keiki Co Ltd**
5. **Address of Listing Company:** **2-3,Minamisakae-cho**
   Kasukabe Saitama-Ken 344-0057
   Japan
6. The examination and test results are recorded in confidential report number:

   3063639 dated 15th October 2019

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

   FM Class 3600:2018, FM Class 3615:2018, FM Class 3810:2018, ANSI/ISA 60079-0:2013, ANSI/UL 60079-1:2015, ANSI/UL 61010-1:2015; ANSI/UL 50E: 2012; ANSI/IEC 60529:2004

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. 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.
10. Equipment Ratings:

    Explosionproof for Class I, Division 1, Groups B, C and D, T4; and Flameproof for Class I, Zone 1, AEx db IIB+H2 T4 Gb hazardous (classified) locations, indoors and outdoors (Type 6, IP67). AC supply units have an ambient temperature range of -20°C to 55°C, while DC supply units have an ambient temperature range of -20°C to +60°C.

Certificate issued by:

J.E. Marquedant

J.E. Marquedant
VP, Manager - Electrical Systems

15 October 2019
Date

To verify the availability of the Approved product, please refer to 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 www.fmapprovals.com

SCHEDULE

US Certificate Of Conformity No: FM18US0329X

11. The marking of the equipment shall include:

Class I Division 1, Groups B, C, D; T4

Class I, Zone 1, AEx db IIB+H2 T4 Gb

AC Supply: Ta = -20°C to +55°C; DC Supply: Ta = -20°C to +60°C

Type 6, IP67

12. **Description of Equipment:**

General- The OHC-800 Calorimeter is an explosion-proof analyzer. According to measured values, a 4-20mA signal and digital signals are output. This Analyzer is an explosion-proof calorimeter in a flame-proof enclosure designed for continuous, fast-response measurement of the "Calorific value," "Density," and "WOBBE index" of various fuel gases such as natural gas, coke oven gas, blast furnace gas, converter gas, biomass gas, and biogas. The types of fuel gases that can be measured depend on the specifications The calorimeter measures the speeds of "light" and "sound" that travel through the measuring gas by using an "optical sensor" and a "sonic sensor" and applying the Opt-Sonic calculation processing* to the measuring result. This enables the high-accuracy measurement of "Calorific value" and "Density" of fuel gases containing interference gases such as nitrogen and carbon dioxide.

Construction- The enclosure is constructed from Aluminum. The enclosure cover is constructed form aluminum with a polycarbonate window embedded within the cover body. The cover is secured to the enclosure base with twelve Class A2-70 stainless steel bolts. The enclosure base contains five ¾" NPT wiring (cable) entries to provide connection of the assembly. The process gases are connected to the assembly through three threaded gas ports. Each Gas port entry contains a process connection to allow gas into the assembly. The gas ports are connected through intermediate assemblies called a flame arrestors. A connection is made from the flame arrestor to the enclosure body using a M30 x 2 6H/6g thread. The flame Arrestor assembly contains the arrestor body and a plug assembly that prevents flame propagation and restricts gas flow from gas sources to the OHC-800 Calorimeter. The gas ports are connected through intermediate assemblies called flame arrestors. They are constructed from Stainless Steel. Each Gas port entry contains a process connection to allow gas into the assembly.

Ratings: The OHC-800 Calorimeter operates at 100-240 VAC or at 24VDC. The AC supply units have an ambient temperature range of -20°C to +55°C, while the DC supply units have an ambient temperature range of -20°C to +60°C.

Model Code:

OHC-800 Calorimeter

13. **Specific Conditions of Use:**

1) *The Gas IN supplied to the OHC 800 needs to be regulated to +7kPaG (Gauge Pressure) or less.*
2) *Specify that Flameproof joints are not repairable*
3) *All bolt with the hexagon socket must use the stainless steel material of property class "A2-70".*

SCHEDULE

US Certificate Of Conformity No: FM18US0329X

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

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

15. **Schedule Drawings**

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

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
15th October 2019	Original Issue.

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CERTIFICATE OF CONFORMITY

1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** **FM18CA0159X**
3. **Equipment:** **OHC-800 Calorimeter**
   (Type Reference and Name)
4. **Name of Listing Company:** **Riken Keiki Co Ltd**
5. **Address of Listing Company:** **2-3,Minamisakae-cho**
   Kasukabe Saitama-Ken 344-0057
   Japan
6. The examination and test results are recorded in confidential report number:

   3063639 dated 15th October 2019

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. 94.2:R2012, CAN/CSA-C22.2 No. 60079-0:2015, CAN/CSA-C22.2 No. 60079-1:2016, CSA-C22.2 No. 60529:R2010, CAN/CSA-C22.2 No. 61010-1:2015

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. 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.
10. Equipment Ratings:

    Flameproof as Ex db IIB+H2 T4 Gb hazardous locations, indoors and outdoors (Type 6 IP67). AC supply units have an ambient temperature range of -20°C to 55°C, while DC supply units have an ambient temperature range of -20°C to +60°C.

11. The marking of the equipment shall include:

    Ex db IIB+H2 T4 Gb

    AC Supply: Ta = -20°C to +55°C; DC Supply: Ta = -20°C to +60°C

    Type 6, IP67

Certificate issued by:

J. E. Marquedant
VP, Manager - Electrical Systems

15 October 2019
Date

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SCHEDULE

Canadian Certificate Of Conformity No: FM18CA0159X

12. **Description of Equipment:**

General-The OHC-800 Calorimeter is an explosion-proof analyzer. According to measured values, a 4-20mA signal and digital signals are output. This Analyzer is an explosion-proof calorimeter in a flame-proof enclosure designed for continuous, fast-response measurement of the "Calorific value," "Density," and "WOBBE index" of various fuel gases such as natural gas, coke oven gas, blast furnace gas, converter gas, biomass gas, and biogas. The types of fuel gases that can be measured depend on the specifications The calorimeter measures the speeds of "light" and "sound" that travel through the measuring gas by using an "optical sensor" and a "sonic sensor" and applying the Opt-Sonic calculation processing* to the measuring result. This enables the high-accuracy measurement of "Calorific value" and "Density" of fuel gases containing interference gases such as nitrogen and carbon dioxide.

Construction- The enclosure is constructed from Aluminum. The enclosure cover is constructed form aluminum with a polycarbonate window embedded within the cover body. The cover is secured to the enclosure base with twelve Class A2-70 stainless steel bolts. The enclosure base contains five ¾" NPT wiring (cable) entries to provide connection of the assembly. The process gases are connected to the assembly through three threaded gas ports. Each Gas port entry contains a process connection to allow gas into the assembly. The gas ports are connected through intermediate assemblies called a flame arrestors. A connection is made from the flame arrestor to the enclosure body using a M30 x 2 6H/6g thread. The flame Arrestor assembly contains the arrestor body and a plug assembly that prevents flame propagation and restricts gas flow from gas sources to the OHC-800 Calorimeter. The gas ports are connected through intermediate assemblies called flame arrestors. They are constructed from Stainless Steel. Each Gas port entry contains a process connection to allow gas into the assembly. Each gas port consists of a Stainless Steel is constructed with Flame arrestors

Ratings: The OHC-800 Calorimeter operates at 100-240 VAC or at 24VDC. The OHC-800 Calorimeter AC ambient temperature range is -20°C to +55°C or a DC ambient temperature range of -20°C to +60°C.

Model Code

OHC-800 Calorimeter

13. **Specific Conditions of Use:**

1) *The Gas IN supplied to the OHC-800 needs to be regulated to +7kPaG (Gauge Pressure) or less.*
2) *Specify that Flameproof joints are not repairable*
3) *All bolt with the hexagon socket must use the stainless steel material of property class "A2-70".*

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

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

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SCHEDULE

Canadian Certificate Of Conformity No: FM18CA0159X

15. **Schedule Drawings**

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

16. **Certificate History**

Details of the supplements to this certificate are described below:

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