



Member of the FM Global Group

FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

4228abc1def00FM. P1.1 Sample Gas Pump.

a = Motor voltage: 1, 2, 3 or 4.
b = Pump head position: 1 or 2.
c = Pump head material: 1, 2, 3 or 4.
d = Screw-in connections / pipe fitting: 0, 1, 2, 3, 5 or 6.
e = Mounting accessories: 0, 1 or 2.
f = Housing: 0, 1 or 2.

Equipment Ratings:

Electrical Equipment for use indoor unclassified or Ordinary locations.

FM Approved for:

Bühler Technologies GmbH
Ratingen, Germany

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

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

CAN C22.2 No. 213	2012
CAN C22.2 No. 1010.1	2004

Original Project ID: 3057155CGP

Approval Granted: April 11, 2016

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
---------------	------	---------------	------

FM Approvals LLC



J.E. Marquedant
Manager, Electrical Systems

11 April 2016

Date


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

CERTIFICATE OF CONFORMITY



1. **ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
2. **Certificate No:** FM16NCA0008
3. **Equipment:** P1.1 Sample Gas Pumps
(Type Reference and Name)
4. **Name of Listing Company:** Bühler Technologies GmbH
5. **Address of Listing Company:** Harkortstraße 29
40880, Ratingen, Germany
6. The examination and test results are recorded in confidential report number:
3057155 dated 11th April 2016
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. 213:2012, CAN/CSA-C22.2 No. 61010-1:2004
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:**
Electrical equipment for use indoor unclassified or Ordinary locations

Certificate issued by:


J. E. Marquedant
Manager, Electrical Systems

9 December 2016
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



to Canadian Certificate Of Conformity No: FM16NCA0008

10. Description of Equipment:

The P1 sample gas pumps carry gases from various processes to analyzers. The gas circuit typically has additional analysis components such as sample gas probe, filter, flow meter, cooler, etc. The sample gas pump P1 consists of the main components, the pump head and motor. An eccentric converts the rotation of the motor into an up and down motion using a connecting rod, thus producing the pump mechanism. Inside the so-called pump body, above the bellows, which facilitates the pump motion, are inlet and outlet valves. The user connects the gas circuits to the sample gas pump through screw-in connections.

The P1 sample gas pumps are available as 12Vdc, 24Vdc, 115Vac, 60Hz or 230Vac, 50Hz. The 115Vac and 230Vac sample gas pumps are available with or without a cover over the electronics and motor. The 115Vac and 230Vac sample gas pumps have internal self resetting thermal protection built into the motor. The P1.1 sample gas pump is for general purpose non-hazardous locations.

Model Code Structure:

4228abc1def00FM. P1.1 Sample Gas Pump.

a = Motor voltage: 1, 2, 3 or 4.

b = Pump head position: 1 or 2.

c = Pump head material: 1, 2, 3 or 4.

d = Screw-in connections / pipe fitting: 0, 1, 2, 3, 5 or 6.

e = Mounting accessories: 0, 1 or 2.

f = Housing: 0 or 1

11. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian 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
11 th April 2016	Original Issue.
9 th December 2016	<u>Supplement 1:</u> Report Reference: – RR207245 dated 9 th December 2016 Description of the Change: Changes per this revision request are for the NI version of the product and don't affect this certificate. This certificate has been put into the new format.

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@fmaprovals.com www.fmaprovals.com

CERTIFICATE OF CONFORMITY



1. **ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**

2. **Certificate No:** FM16NCA0008

3. **Equipment:** P1.1 Sample Gas Pumps
(Type Reference and Name)

4. **Name of Listing Company:** Bühler Technologies GmbH

5. **Address of Listing Company:** Harkortstraße 29
40880, Ratingen, Germany

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

3057155 dated 11th April 2016

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. 213:2012, CAN/CSA-C22.2 No. 61010-1:2004

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:**

Electrical equipment for use indoor unclassified or Ordinary locations

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

2 April 2020

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@fmaprovals.com www.fmaprovals.com

SCHEDULE



to Canadian Certificate Of Conformity No: FM16NCA0008

10. Description of Equipment:

The P1 sample gas pumps carry gases from various processes to analyzers. The gas circuit typically has additional analysis components such as sample gas probe, filter, flow meter, cooler, etc. The sample gas pump P1 consists of the main components, the pump head and motor. An eccentric converts the rotation of the motor into an up and down motion using a connecting rod, thus producing the pump mechanism. Inside the so-called pump body, above the bellows, which facilitates the pump motion, are inlet and outlet valves. The user connects the gas circuits to the sample gas pump through screw-in connections.

The P1 sample gas pumps are available as 12Vdc, 24Vdc, 115Vac, 60Hz or 230Vac, 50Hz. The 115Vac and 230Vac sample gas pumps have internal self resetting thermal protection built into the motor. The P1.1 sample gas pump is for general purpose non-hazardous locations.

Model Code Structure:

4228abc1def00FM. P1.1 Sample Gas Pump.

a = Motor voltage: 1, 2, 3 or 4.

b = Pump head position: 1 or 2.

c = Pump head material: 1, 2, 3 or 4.

d = Screw-in connections / pipe fitting: 0, 1, 2, 3, 5 or 6.

e = Mounting accessories: 0, 1 or 2.

f = Housing: 0 or 1

11. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian 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
11 th April 2016	Original Issue.
9 th December 2016	<u>Supplement 1:</u> Report Reference: – RR207245 dated 9 th December 2016. Description of the Change: Changes per this revision request are for the NI version of the product and don't affect this certificate. This certificate has been put into the new format.
2 nd April 2020	<u>Supplement 2:</u> Report Reference: – PR455937 dated 2 nd April 2020.

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@fmaprovals.com www.fmaprovals.com

SCHEDULE



to Canadian Certificate Of Conformity No: FM16NCA0008

Date	Description
	Description of the Change: Add option for gas pump cover DC motors.

FM Approvals

FM Approvals

FM Approvals

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@fmaprovals.com www.fmaprovals.com