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 CML 15.0089X**

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Certificate history:

Issue 3 (2020-05-05)
Issue 2 (2020-02-07)
Issue 1 (2018-04-18)
Issue 0 (2016-05-20)

Status: **Current**

Issue No: 4

Date of Issue: 2020-06-12

Applicant: **PPI Engineering Ltd**
44 Rose Lane
Norwich
Norfolk
NR1 1PN
United Kingdom

Equipment: **Purge Controller**

Optional accessory:

Type of Protection: **Flameproof "db", Purged and Pressurized "[pxb]", Increased Safety "eb", Intrinsic Safety "[ib]", Encapsulation "mb", Dust Ignition "tb"**

Marking: **Purging System Models:** PP1214.1.1, PP1214.1.2, PP1214.2.1, PP1214.2.2, PP1214.3.1, PP1214.4.1, PP0919.1.1, PP0919.2.1, PP0919.3.1, PP0919.4.1

Ex db eb mb [ib] [pxb] IIC T4 Gb
Ex tb [pxb] [ib] IIIC T135°C Db

Tamb = -40°C to +55°C

Prestart Ventilation Models: PP1214.PV.3.1, PP1214.PV.4.1, PP0919.PV.3.1, PP0919.PV.4.1

Ex db eb mb [ib] IIC T4 Gb
Ex tb [ib] IIIC T135°C Db

Tamb = -40°C to +55°C

Approved for issue on behalf of the IECEx Certification Body: **A C Smith**

Position: **Technical Operations Director**

Signature: (for printed version)

Date: 2020-06-12

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:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom

IECEx Certificate of Conformity

Certificate No.: **IECEx CML 15.0089X**

Date of issue: 2020-06-12 Issue No: 4

Manufacturer: **PPI Engineering Ltd**
44 Rose Lane
Norwich
Norfolk
NR1 1PN
United Kingdom

Additional manufacturing locations:

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 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-18:2014 Explosive atmospheres – Part 18: Equipment protection by encapsulation “m”
Edition:4.0

IEC 60079-2:2014-07 Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"
Edition:6

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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/CML/ExTR15.0093/00
GB/CML/ExTR16.0063/00
GB/CML/ExTR18.0087/00
GB/CML/ExTR18.0088/00
GB/CML/ExTR19.0266/00
GB/CML/ExTR20.0108/00
GB/CML/ExTR20.0135/00

Quality Assessment Report:

GB/CML/QAR15.0012/04

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Purge Controller consists of two separate assemblies, the inlet and outlet unit.

Refer to Annex for full description and conditions of manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Refer to Annex for specific conditions of use.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1

This variation introduced the following changes:

1. Extension of ambient temperature range to: -20/-40 °C to +55 °C
2. Changes to mechanical arrangement.
3. Introduction of an alternative outlet solenoid valve.
4. Amendment to markings.

Issue 2

This variation introduced the following changes:

1. The introduction of higher-flow models, Type PP0919.*.*
2. Introduction of combined purge/relief valve system.
3. Removal of the -20 °C lower ambient temperature limitation.
4. The description and marking have been updated in accordance with the above modifications.
5. Assessment against current editions of standards.

Issue 3

This variation introduced the following changes:

1. Mechanical changes to outlet solenoid assembly.
2. Introduction of new flow diagram describing functionality.

Issue 4

This variation introduced the following changes:

1. Introduction of models with inlet unit stop valve, Types PP1214.1.2 and PP1214.2.2.
2. Changes to mechanical fixing arrangement of solenoid valve(s) in outlet units.
3. Changes to mechanical drawings.

Annex:

IECEx CML 15.0089X Issue 4 - Annex_1.pdf

Annexe to:	IECEx CML 15.0089X Issue 4
Applicant:	PPI Engineering Ltd
Apparatus:	Purge Controller

Description

The Purge Controller consists of two separate assemblies, the inlet unit and outlet unit.

The inlet unit comprises a flameproof enclosure, an intrinsically safe pressure sensor, two increased safety enclosures, regulator, filter, proportional solenoid valve/manual ball valve and purge solenoid valve (if supplied as a pre-start purge controller the proportional solenoid valve is removed as no leakage compensation is required). Some models are also fitted with a solenoid stop valve.

The flameproof enclosure is used to house the microcontroller and intrinsically safe interface. It has a window through which an LCD is visible and this shows status information such as purging time and estimated leakage compensation air flow.

One increased safety enclosure houses the switch and indicators (control station) whilst the second enclosure is used for field connections and connections to the outlet unit.

The outlet unit comprises an actuator or solenoid valve (depending on model number), intrinsically safe pressure sensor, particle barrier and an increased safety enclosure. The actuator or solenoid valve will energise when over pressure condition is detected to ensure safe operation.

All parts are mounted on a stainless steel frame and the inlet unit has a protective stainless steel cover with cut-outs in order to access the control station.

The outlet unit has a stainless steel cover sealed to the frame which houses the particle barrier.

In addition to the indicators, dry electrical outputs are provided to indicate purge status and provide a facility to de-energise the purged equipment should a purge failure be detected.

Remote operation is achievable when connecting dry contacts to the appropriate field connections.

The model numbers for purge control units are as follows:

Model	Flow	Control	Leakage Compensation
PP1214.1.1	Normal	Remote	Manual ball valve
PP1214.1.2		Remote	Manual ball valve with stop valve
PP1214.2.1		Local	Manual ball valve
PP1214.2.2		Local	Manual ball valve with stop valve
PP1214.3.1		Remote	Automatic electrical solenoid valve
PP1214.4.1		Local	Automatic electrical solenoid valve
PP0919.1.1	Max Flow	Remote	Manual ball valve

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Model	Flow	Control	Leakage Compensation
PP0919.2.1		Local	Manual ball valve
PP0919.3.1		Remote	Automatic electrical solenoid valve
PP0919.4.1		Local	Automatic electrical solenoid valve

The model numbers for the pre-start purge control units are as follows:

Model	Flow	Control	Leakage Compensation
PP1214.PV.3.1	Normal	Remote	Pre-start Ventilation
PP1214.PV.4.1		Local	Pre-start Ventilation
PP0919.PV.3.1	Max Flow	Remote	Pre-start Ventilation
PP0919.PV.4.1		Local	Pre-start Ventilation

Marking

The equipment shall be marked with the following:

Purging System Models:

PP1214.1.1, PP1214.1.2, PP1214.2.1, PP1214.2.2, PP1214.3.1, PP1214.4.1, PP0919.1.1, PP0919.2.1, PP0919.3.1, PP0919.4.1

Ex db eb mb [ib] [pxb] IIC T4 Gb

Ex tb [pxb] [ib] IIIC T135°C Db

Ta = -40°C to +55°C

Prestart Ventilation Models:

PP1214.PV.3.1, PP1214.PV.4.1, PP0919.PV.3.1, PP0919.PV.4.1

Ex db eb mb [ib] IIC T4 Gb

Ex tb [ib] IIIC T135°C Db

Ta = -40°C to +55°C

Conditions of manufacture

The following are conditions of manufacture

i. Where the product incorporates certified parts or safety critical components, the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.

ii. A dielectric strength test shall be performed on each of the increased safety enclosures at 500 V r.m.s. for at least 60 seconds, as per IEC 60079-7, clause 7.1. No breakdown shall occur.

iii. A functional test of the system shall be performed on each purge controller in accordance with IEC 60079-2, clause 17.1.

iv. The pressure regulator shall be set no higher than 3.5 Bar if the Proportional Valve Type 64 is fitted, and no higher than 5.5 bar the Proportional Valve Type 64 is not fitted.

v. For purge controllers marked with a minimum ambient temperature of -40°C, the flameproof enclosure shall be subjected to the routine overpressure test of IEC 60079-1:2014, Clause 16.1 at a pressure of at least 19.34 bar (1.5 x reference pressure of 12.89 bar). There shall be no permanent deformation or damage to the enclosure.

vi. The PPI solenoid P479-057 shall undergo a routine visual inspection in accordance with IEC 60079-18:2014 Clause 9.1. There shall be no cracks in the compound, exposure of parts, flaking, shrinkage, swelling, decomposition, failure of adhesion or softening.

vii. The PPI solenoid P479-057 shall undergo a routine dielectric strength test between the electrical connections and the metallic enclosure, in accordance with IEC 60079-18:2014, Clause 9.2. A test voltage of 500Vrms or 700Vdc shall be applied for at least 1 second. Alternatively, a test voltage of 600Vrms or 840Vdc shall be applied for at least 100 ms. There shall be no breakdown or flashover.

Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

i. The purge controller has the ability to vary the purge time depending on the flow rate of air through the outlet unit. If this facility is used, the equipment to be purged shall be approved with this facility taken into account.

ii. The installer/user shall ensure that the purge controller is installed in accordance with the equipment certificate that covers the combination of the pressurised enclosure and purge controller.

iii. The values of the safety parameters shall be set in accordance with the equipment certificate that covers the combination of the pressurised enclosure and purge controller.

Components covered by Ex Certificates issued to older editions of Standards

All Components are covered by Ex Certificates to the current standards.