



# 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](http://www.iecex.com)

### Ex COMPONENT CERTIFICATE

Certificate No.: **IECEX UL 23.0062U** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2023-10-16

Applicant: **SIA MIPEX**  
Valkas Iela 2b  
Daugavpils 5417  
Latvia

Ex Component: Optical Gas Sensors, Models MIPEX-02-X-I-1.1X, MIPEX-02-X-II-1.1X, MIPEX-02-X-I-2.1X, MIPEX-02-X-II-2.1X, MIPEX-02-X-I-3.1X, MIPEX-02-X-II-3.1X, MIPEX-03-X-XX-1.X, MIPEX-03-X-XX-2.X, MIPEX-03-X-XX- 3.X, MIPEX-02-3-I-D.1 A, MIPEX-02-3-II-D.1 A

*This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).*

Type of Protection: **Intrinsic Safety "ia"**

Marking: Ex ia I Ma / Ex ia IIC Ga

Approved for issue on behalf of the IECEx  
Certification Body:

**Katy A. Holdredge**

Position:

**Senior Staff Engineer**

Signature:  
(for printed version)

Date:  
(for printed version)

2023-10-16

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3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**UL Solutions (US)**  
333 Pfingsten Road  
Northbrook IL 60062-2096  
United States of America





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Valkas Iela 2b  
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Manufacturing  
locations: **SIA MIPEX**  
Valkas Iela 2b  
Daugavpils 5417  
Latvia

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 component 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 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

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 component listed has successfully met the examination and test requirements as recorded in:

Test Report:

[US/UL/ExTR23.0074/00](#)

Quality Assessment Report:

[DK/ULD/QAR23.0001/00](#)



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## Ex Component(s) covered by this certificate is described below:

The MIPEX series of optical sensors consist of nine models, the MIPEX-02-X-I-1.1X, MIPEX-02-X-II-1.1X, MIPEX-02-X-I-2.1X, MIPEX-02-X-II-2.1X, MIPEX-02-X-I-3.1X, MIPEX-02-X-II-3.1X, MIPEX-03-X-XX-2.X, MIPEX-03-X-XX-1.X and MIPEX-03-X-XX-3.X. The equipment is supplied with the following power supply and monitoring system combined parameters:

Ui = 5.0V, Ii = 450mA, Pi = 0.25W, Ci = 38.8µF, Li = 0 (for the MIPEX 02 series)

Ui = 5.0V, Ii = 200mA, Pi = 0.13W, Ci = 26µF, Li = 0 (for the MIPEX 03 series)

The MIPEX-02 models use the same circuit and components. The PCB for each model is encapsulated within the enclosure on the IR LED side of the PCB Viksint Grade A, TU 38.103508-81 which has an operating temperature range of -60°C to +200°C is used. On the connection pin side of the PCB, either Viksint Grade A, TU 38.103508-81 or GIRLEN 3 compound which has an operating temperature range of -60°C to +125°C may be used, only the connection pins, the IR LED and IR receiver module are not fully encapsulated.

The MIPEX-02-X-I-1.1X, MIPEX-02-X-II-1.1X and MIPEX-03-X-XX-1.X models are housed in cylindrical stainless steel enclosures with a label wrapped around the outside, an optional gauze disk can be applied to the entry.

The MIPEX-02-X-I-2.1X, MIPEX-02-X-II-2.1X and MIPEX-03-X-XX-2.X models are housed in cylindrical stainless steel enclosures with additional entries machined around the side. A smaller label wrapped is around the outside and an optional gauze disk and strip set can be applied to the entries.

The MIPEX-02-X-I-3.1X, MIPEX-02-X-II-3.1X and MIPEX-03-X-XX-3.X models are housed in cylindrical plastic enclosures with a label wrapped around the outside, an optional gauze disk can be applied to the entry.

**Please see Annex for additional information.**

## SCHEDULE OF LIMITATIONS:

1. The MIPEX-02-X-X-3.1X and MIPEX-03-X-XX-3.X models of the equipment are housed within a plastic enclosure. The enclosure is considered to be source of electrostatic discharge which could become source of ignition and therefore requires the following to be placed on the certificate and the following guidance included within the manual: POTENTIAL ELECTROSTATIC CHARGING HAZARD – CLEAN ONLY WITH A DAMP CLOTH. The external part of the sensor can be sources of risk of electrostatic discharge. Take it into account during installation and operation of the sensor in end-user equipment.
2. The MIPEX-02-X-X-1.1X, MIPEX-02-X-X-2.1X, MIPEX-03-X-XX-1.X and MIPEX-03-X-XX-2.X models of the equipment did not meet the requirements of Clause 7.5 of IEC 60079-0. The equipment was tested and found to have a 17.4pF capacitance.
3. All models are suitable for equipment with temperature classes T1 – T5 at maximum ambient temperature of 60°C.

## Annex:

[Annex to IECEx UL 23.0062U Issue 0.pdf](#)



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## TYPE DESIGNATION

Nomenclature for MIPEX -02 Sensors:

|          |    |     |    |    |    |
|----------|----|-----|----|----|----|
| MIPEX-02 | -B | -C  | -D | .1 | Z  |
| I        | II | III | IV | V  | VI |

- I MIPEX Model Number
- II Target gas
  - 1 - CH<sub>4</sub> (methane)
  - 2 - C<sub>3</sub>H<sub>8</sub> (propane, CmHn – hydrocarbons)
  - 3 – CO<sub>2</sub> (carbon dioxide)
  - 4 – CH<sub>4</sub>/CH<sub>4</sub>+C<sub>2</sub>H<sub>6</sub> (methane, methane + ethane)
- III Electrical equipment group according to ATEX directive 2014/34/EU: I or II
- IV Housing type:
  - 1 - stainless steel
  - 2 - stainless steel, with additional side diffusion holes intended for decreasing response time T90.
  - 3 - plastic
- V Interface:
  - 1 - UART, 4 pins
- VI Pins length:
  - A – 4.6mm

Nomenclature for MIPEX -03 Sensors:

|          |    |     |    |    |
|----------|----|-----|----|----|
| MIPEX-03 | -B | -C  | -D | .E |
| I        | II | III | IV | V  |

- I MIPEX Model Number
- II Target gas
  - 1 - CH<sub>4</sub> (methane)
  - 2 - C<sub>3</sub>H<sub>8</sub> (propane), CmHn – (hydrocarbons)
  - 4 – CH<sub>4</sub>/CH<sub>4</sub>+C<sub>2</sub>H<sub>6</sub> (methane, methane + ethane)
- III RX-code:
  - R – calibration gas and range
  - X – temperature class and variability
- IV Housing type:
  - 1 – sensor housing made of stainless steel, with diffusion holes in its reflecting

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cover (type "1")  
2 – sensor housing made of stainless steel, with diffusion holes in its reflecting cover and with additional side diffusion holes (type "2")  
3 – sensor housing made of plastic LEXAN™, with diffusion holes in its reflecting cover (type "3")

V Interface:  
2 – analog output, 3 pins  
3 – UART and analog output, 5 pins

## PARAMETERS RELATING TO THE SAFETY

U<sub>i</sub> = 5.0V, I<sub>i</sub> = 450mA, P<sub>i</sub> = 0.25W, C<sub>i</sub> = 38.8μF, L<sub>i</sub> = 0 (for the MIPEX 02 series)  
U<sub>i</sub> = 5.0V, I<sub>i</sub> = 200mA, P<sub>i</sub> = 0.13W, C<sub>i</sub> = 26μF, L<sub>i</sub> = 0 (for the MIPEX 03 series)

## MARKING

Marking has to be readable and indelible; it has to include the following indications:

### -02 Sensor:

**RoHS COMPLIANT** **Ex ia I Ma / Ex ia IIC Ga** **IECEX UL 23.0062U**  
**UL 23 ATEX 3072U**  
C I, Div 1, Gr A, B, C, D; C I, Zone 0, AEx ia IIC Ga; Ex ia IIC Ga

Valkas 2b, Daugavpils,  
Latvia, LV-5417

**MIPEX-02-2-II-1.1A(71)**

Mfg date: 09.2023 SN: 0201133085

### -03 Sensor:

**RoHS COMPLIANT** **Ex ia I Ma / Ex ia IIC Ga** **IECEX UL 23.0062U**  
**UL 23 ATEX 3072U**  
C I, Div 1, Gr A, B, C, D; C I, Zone 0, AEx ia IIC Ga; Ex ia IIC Ga

Valkas 2b, Daugavpils,  
Latvia, LV-5417

**MIPEX-03-1-12-1.1**

Mfg date: 09.2023 SN: 0301011631