



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 FIDI 22.0001X** Page 1 of 4 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2022-07-04

Applicant: **Officine Orobiche S.r.l.**
Via Giorgio Paglia, 22
I - 24050, Zanica (BG)
Italy

Equipment: **LED Monochrome Illuminator with Power Supply Unit; Type: LL W XI; LL W BE or LL W RE**

Optional accessory:

Type of Protection: **Intrinsic safety 'ia'; flameproof enclosure 'db'; inherently safe optical radiation 'op is'; protection by enclosure 'tb'**

Marking: **LED Illuminator**
Ex ia op is IIC T4 Gb
Ex ia op is IIIC T135°C Db

Power supply
Ex db [ia Ga] IIC T6 Gb
Ex tb [ia Da] IIIC T85°C Db

Approved for issue on behalf of the IECEx
Certification Body:

Marino Kelava

Position:

Certification Signatory

Signature:
(for printed version)

Date:
(for printed version)

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.
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Certificate issued by:

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Croatia



Fiditas
explosion safety solutions



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Manufacturer: **Officine Orobiche S.r.l.**
Via Giorgio Paglia, 22
I - 24050, Zanica (BG)
Italy

Manufacturing locations: **Officine Orobiche S.r.l.**
Via Giorgio Paglia, 22
I - 24050, Zanica (BG)
Italy

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 60079-25:2020-06](#) Explosive atmospheres - Part 25: Intrinsically safe electrical systems
Edition:3.0

[IEC 60079-28:2015](#) Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
Edition:2

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

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 Report:

[HR/FIDI/ExTR21.0017/00](#)

Quality Assessment Report:

[IT/CES/QAR16.0002/07](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Officine Orobiche LL W ** LED illuminator is a special monochrome LED lamp for transparent glass level gauge. This glass level gauge works on the principle of communicating pipes. The illuminator for transparent glass level gauge allows an improved level reading in environments featuring limited luminosity. The LED illuminator is mounted on the rear side of the level gauge body.

The equipment is composed by the LED Illuminator enclosure and an optional Power Supply Unit (PSU). Connection between the LED Illuminator and the power supply is made using a multipolar cable.

Model LL W XI consists of the LED illuminator without Power supply unit, provided with 1 m long power cable.

Model LL W BE is composed by the LED illuminator and the Power supply unit, fixed on the backside of the LED illuminator cabinet.

Model LL W RE is composed by the LED illuminator and the Power supply unit, which is placed in a remote location from the LED illuminator itself.

The LED Illuminator enclosure contains monochrome white LED bars. LED bars are modular, up to a maximum of 4 modules with 3 or 6 LED on each bar can be installed inside the illuminator enclosure. LEDs in each module are connected in series. The enclosure body is made with an aluminium extrusion; the front side is protected with a two layers security glass sealed over the entire length, the ends are closed with two SS316 covers sealed with a shaped gasket made of silicone.

The connection between the LED Illuminator and the power supply is provided by multipolar cables with n. 8 wires of 0.34 mm². Each cable can supply up to 4 LED modules. In relation to enclosure position, back side or remote, connection cable length will be < 3 m (backside mounted model LL W BE) or from 5 m to 100 m (remote location model LL W RE).

The PSU consists of an IECEx certified explosion-proof enclosure, marked Ex db IIC Gb - Ex tb IIIC Db, containing a AC/DC power supply and a certified intrinsically safe 'ia' EPL Ga associated apparatus. The PSU enclosure is manufactured by "Officine Meccaniche M.A.M. srl", model type "GUB-1A S", Certificate IECEx INE 11.0018X.

The associated apparatus is manufactured by "G.M. International srl", Type "PSD1001" active barrier, Certificate IECEx BVS 07.0027X. This barrier has 4 I.S. independent channels. Each channel supplies one LED module that mounts 3 or 6 LEDs connected in series.

SPECIFIC CONDITIONS OF USE: YES as shown below:

For model types LL W BE and LL W RE

1. Flameproof joints of power supply unit GUB enclosures have different values from those specified in the tables of IEC 60079-1 standard, contact manufacturer for any repair.

For Model Type LL W XI

2. Electrical connections of intrinsically safe inputs at the wire terminals of the permanently connected cable must be connected to associated apparatuses in a suitable enclosure made in one of type of Ex protection listed in IEC 60079-0.



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Equipment (continued):

Technical data

Models: LL W BE and LL W RE
Power Supply Unit: Rated Voltage $U_m = 240$ VAC

Model: LL W XI
Powered by an associated apparatus, 24 VDC intrinsically safe power supply

For all models: LL W XI, LL W BE, LL W RE

Each LED module inside the illuminator has up to 6 LEDs connected in series and shall be connected to an independent channel of the associated apparatus.

Electrical Parameters of LED Module are:

$U_i = 24$ V
 $I_i = 90$ mA
 $C_i = 100$ nF
 I_i negligible
 $P_i = 540$ mW

Each illuminator has a maximum of 4 LEDs modules inside.

G.M. International srl Type "PSD1001" Associated apparatus:
Power Supply I.S. Single Channel Output Barrier Electrical Parameters:

$U_o = 23.6$ V
 $I_o = 88.2$ mA
 $C_o = 130$ nF
 $L_o = 4.5$ mH
 $P_o = 519$ mW

Cable parameters:

$C_c = 200$ pF/m
 $L_c = 1$ μ H/m
Insulation > 500VAC
Cable Type B

Ambient temperature range:

- LED Illuminator: -50°C up to +70°C for models LL W XI and LL W RE
- LED Illuminator: -20°C up to +40°C for model LL W BE
- Power Supply Unit: -20°C up to +40°C for all models: LL W XI, LL W BE, LL W RE

Degree of ingress protection: IP66 (LED Illuminator according to IEC 60529)