


(1) EU-Type-Examination Certificate

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**



- (3) **Certificate Number** TÜV CY 22 ATEX 0206620 X
- (4) for the equipment: Monochrome LED Illuminator
Type: LL W **
- (5) of the manufacturer: **Officine Orobiche S.r.l.**
- (6) Address: Via Giorgio Paglia, 22 - 24050 Zanica (BG) - Italy
- Order number: 0206620
- Date of issue: 2022-03-23

- (7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EU-Type-Examination Certificate and the documents therein referred to.
- (8) TÜV CYPRUS Ltd, notified body No. 2261 in accordance with Article 17 of the Council Directive of 2014/34/EU of February 26, 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 22 0206620.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- | | | |
|---------------------|------------------|------------------|
| EN IEC 60079-0:2018 | EN 60079-1:2014 | EN 60079-11:2012 |
| EN 60079-25:2010 | EN 60079-28:2015 | EN 60079-31:2014 |
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EU-Type-Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment which are not covered by this certificate.
- (12) The marking of the equipment or protective system must include the following:

LED Illuminator	Power Supply Unit
 II 2G Ex ia op is IIC T4 Gb	II 2G Ex db [ia Ga] IIC T6 Gb
II 2D Ex ia op is IIC T135 °C Db	II 2D Ex tb [ia Da] IIC T85°C Db

TÜV CYPRUS Ltd (TUV NORD Group),

The head of the notified body,

D. Demosthenous



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(13) SCHEDULE

(14) EU-Type-Examination Certificate No. TÜV CY 22 ATEX 0206620 X

(15) Description of equipment

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 main function is not considered as luminaire.

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 module 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).

If cable length is less than 3 meters (Model LL W BE), cable glands used are "barrier" type, ATEX certified.

The PSU consists of a certified explosion proof enclosure, marked II 2GD Ex db IIC Gb - Ex tb IIIC Db, containing an AC/DC power supply and one (1) 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 INERIS 16ATEX0024X.

The associated apparatus is manufactured by "G.M. International srl", Type "PSD1001" active barriers, certificate DMT 01ATEXE042X. The barrier has 4 I.S. independent channels. Each channel supplies one LED module that mounts 3 or 6 LEDs connected in series.

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

The equipment as indicated above complies with requirements of EN 60079-25 for Intrinsically safe electrical systems.

Installation shall comply with EN 60079-14 for Electrical installations design, selection and erection.

The Power Supply Unit and its components are part of this assessment and are separately ATEX certified equipments.

Type key:

LL W XI	LED illuminator without Power supply unit, provided with 1 m long power cable
LL W BE	LED illuminator and Power supply unit, fixed on the backside of the LED illuminator cabinet
LL W RE	LED illuminator and Power supply unit, which is placed in a remote location from the LED illuminator itself

Technical data:

Power Supply Unit: Rated Voltage $U_m = 240 \text{ VAC}$

LED Illuminator Electrical Parameters (each module): I.S. Barrier Electrical Parameters (each channel):

$U_i = 24\text{V}$	$U_o = 23.6\text{V}$
$I_i = 90\text{mA}$	$I_o = 88.2\text{mA}$
$C_i = 100\text{nF}$	$C_o = 130\text{nF}$
$L_i = \text{negligible}$	$L_o = 4.5\text{mH}$
$P_i = 540\text{mW}$	$P_o = 519\text{mW}$

Cable

$C_c = 200\text{pF/m}$
 $L_c = 1\mu\text{H/m}$

Insulation > 500VAC

Cable Type B

Allowable ambient temperature range:

LED Illuminator:

$T_{\text{amb}} -50^\circ\text{C} / +70^\circ\text{C}$ for models LL W XI and LL W RE

$T_{\text{amb}} -20^\circ\text{C} / +40^\circ\text{C}$ for model LL W BE

Power Supply Unit: $T_{\text{amb}} -20^\circ\text{C} / +40^\circ\text{C}$

Warning Markings:

Warning: See Installation Instruction Document

(16) Test documents are listed in the test report No. 22 0206620

(17) Special conditions for safe use

For model types LL W BE and LL W RE :

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

For Model Type LL W XI :

- 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 EN IEC 60079-0.

(18) Essential Health and Safety Requirements

This certificate covers the Essential Health and Safety Requirements related to the Directive 2014/34/EU.