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[1]

EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU – Annex III**

[3] Certificate Number: **EPT 23 ATEX 5063 X** **issue 0**

[4] Equipment: **Floodlights and suspensions**
TIGUA-EX (Z1) series

[5] Manufacturer: **Palazzoli S.p.A.**

[6] Address: Via F. Palazzoli, 31 - 25128 Brescia - Italy

[7] This equipment and its accepted variations are specified in the annex to this Certificate.

[8] Eurofins Product Testing Italy S.r.l., Notified Body n. 0477 in accordance with Article 21 of the Directive 2014/34/EU of the European Parliament and of the Council of 26th February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II of the Directive. The examination and test results are recorded in the confidential Report N°EPT.23.REL.03/2213050

[9] Compliance with the essential health and safety requirements is assured through the verification of them and by compliance with the following harmonized standards:

EN IEC 60079-0:2018, EN IEC 60079-7:2015+A1:2018, EN 60079-18:2015+A1:2017, EN 60079-31:2014

[10] If the sign "X" is placed after the Certificate number, it indicates that the equipment is subject to the special conditions for safe use specified in the annex to this Certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, the exam and the tests of the specified equipment.
Further requirements of the Directive 2014/34/EU apply to the manufacture and supply of this equipment. These requirements are not object of this Certificate.

[12] The equipment shall include the sign Ex and the following string:

II 2 G Ex eb mb IIC T6...T4 Gb
II 2 D Ex tb IIIC T75°C, T85°C, T95°C Db

-40°C ≤ Ta ≤ +60°C
Extended ambient temperature range

The relationships between number of LEDs (and related current values), ambient temperature ranges and temperature limits are reported in the equipment description.

Place and date of issue:
(DD-MM-YYYY)

Torino, 24-02-2023

Dionisio Bucchieri
Directive Responsible

Paolo Trisoglio
Managing Director

Eurofins Product Testing Italy S.r.l. eurofins Notified Body N. 0477

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PRD N° 119B
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CP-ATEX-MOD-26-00

This Certificate has 6 pages and it is reproducible only in its entirely. Conditions of validity are reported below.

[13]
[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 23 ATEX 5063 X issue 0

[15] **Equipment description**

The TIGUA-EX (Z1) floodlights and suspensions luminaires series consists of LED luminaires designed to be used in presence of potentially explosive atmospheres requiring equipment with EPL Gb and/or Db having gas group IIC and dust group IIIC respectively.
The main enclosure body is made of aluminium alloy while the diffuser is made of tempered glass.
The aluminium enclosure is provided with a sided lid intended to have access to the termination compartment for the field wiring (consisting of already certified increased safety terminals); the same compartment includes also the factory wiring (belonging to Ex eb type of protection) and the LED driver (already certified as Ex component according to "Ex m" type of protection).
The light sources consist of LED encapsulated PCB modules assessed according to the type of protection Ex mb; these modules are provided with integral factory wiring connected to the LED driver through a dedicated terminal block.

An integral breathing valve made of anodized aluminium is also present on the sided lid and, on the same surface, a plain hole used to install an already certified cable gland M20 with locknut is present.
A silicone gasket is included between the diffuser and the body; clamps provide additional mechanical retaining of the glass as well as compression of the diffuser on the body of the equipment.

The luminaire is intended for stationary installation; with the related accessories it is possible to provide the following mounting configurations:
- Suspension
- Ceiling mounting
- Wall mounting with orientation

This luminaire series covers several power ratings depending on the total number of LED modules involved; different optics (symmetric and asymmetric non-convergent lens with various opening angles) and colour temperatures are also available as detailed in the code designation.

The equipment has an extended ambient temperature range of -40°C ÷ +60°C and a degree of protection IP66 according the standard EN 60529 and EN IEC 60079-0.

Code designation

Each product is identified on the label by a model code as explained by the coding scheme reported below:

Table 01

CODING LEGEND

Type code: **TIGUA-EX** a-**Z1**-bbb-cc-dd-ee-ff-ggg-hhh-iiii-nnn

a-Z1	Version	F-Z1 =	Floodlight (suitable for Ex Zones 1-2-21-22)
		S-Z1 =	Suspension (suitable for Ex Zones 1-2-21-22)
bbb	Diffuser material	TGL =	Transparent Glass
cc	Number of LED	12 =	12 LED = 1 LED module
		24 =	24 LED = 2 LED modules
dd	Dimming type	00 =	No dimming (ON-OFF)
		DA =	DALI

[13]
[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 23 ATEX 5063 X issue 0

ee	Colour rendering index (CRI)	80 =	$R_a \geq 80$ (standard value)
		ee =	Other values ≠ 80
ff	Colour temperature	40 =	4000 K (standard value)
		ff=	Other values between 2700 K (ii = 27) to 6500 K (ii = 65)
ggg	LED driving current	ggg =	From 325 mA to 500 mA with step of 25 mA
hhh	Optic Type	S81 =	Wide Beam Symmetrical distribution (81°)
		A50 =	Wide Beam Asymmetric distribution (50°)
		hhh =	Other type of non-convergent optic
iiii	Type of cable gland	PL20 =	M20 Plastic for non-armoured cables
		BR20 =	M20 Nickel-plated brass for non-armoured cables
		AR20 =	M20 Nickel-plated brass for armoured cables
nnn	Custom characteristics	000 =	Standard version
		nnn =	Code to handle special versions such as: pre-mounted power supply cable, different external colour or other minor characteristics that do not affect the type of protection.

Temperature limitation chart and rated nominal voltage:
The relationships between number of LEDs (and related current values), ambient temperature ranges and temperature limits are reported in the table below:

Table 02

No. LED	Driver input voltage range	LED Driver output current	Tamb range	Temperature class	Maximum surface temperature
12	110-277 Vac (50/60 Hz) or 110-250 Vdc	325 mA	- 40 °C ≤ Tamb ≤ +50°C	T6	T75°C
			- 40 °C ≤ Tamb ≤ +60°C	T5	T85°C
		350 … 500 mA	- 40 °C ≤ Tamb ≤ +45°C	T5	T85°C
			- 40 °C ≤ Tamb ≤ +55°C	T4	T95°C
24	160-277 Vac (50/60 Hz) or 160-250 Vdc	325 mA	- 40 °C ≤ Tamb ≤ +35°C	T6	T75°C
			- 40 °C ≤ Tamb ≤ +45°C	T5	T85°C
		350 … 500 mA	- 40 °C ≤ Tamb ≤ +30°C	T5	T85°C
			- 40 °C ≤ Tamb ≤ +40°C	T4	T85°C

The above mentioned temperature limits apply to all installation methods except for the ceiling mounting where the following limitations on the upper ambient temperature shall be considered:
- 24 LEDs version at any Driver current, max Tamb = 30 °C (T5, T85°C);
- 12 LEDs version at Driver current > 325 mA, max Tamb = 40 °C (T5, T85°C);
- 12 LEDs version at Driver current = 325 mA, max Tamb = 45 °C (T6, T75°C).

Warning label

- Do not open when energized
- Wait 10 minutes before opening
- Potential electrostatic charging hazard, see instructions

[13]
[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 23 ATEX 5063 X issue 0

Routine tests

• According to Clause 7.1 of EN IEC 60079-7:2015+A1:2018 each equipment shall be submitted to the dielectric strength test after completing the factory wiring. The test shall be applied between the following connections:

Potentials involved in the test	*AC method*		*DC Method*	
	Voltage	*Minimum test duration*	*Voltage*	*Minimum test duration*
Phase, neutral and DALI connections (when involved) ⇔ Earth	1865 V r.m.s.	100 ms	2611 V d.c.	100 ms
Positive and negative DC side downstream the LED driver ⇔ Earth	2064 V r.m.s.	100 ms	2890 V d.c.	100 ms

The test shall be deemed to have passed if no breakdown or arcing occurs during testing with the application of the test voltages according to the test method defined by Clause 6.1 of the standard EN IEC 60079-7:2015+A1:2018.

• According to Clause 9.1 of EN 60079-18:2015+A1:2017 each encapsulated LED module shall be submitted to the visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion (separation of any adhered parts) or softening.

Note: The encapsulated LED Driver is not subjected to this routine test since already required by the Ex Component certificate.

• According to Clause 9.2 of EN 60079-18:2015+A1:2017 each encapsulated LED module shall be submitted to the dielectric strength test. The test shall be conducted as detailed below:

Potentials/parts involved in the test	*AC method & test duration ≥ 1 s*	*DC Method & test duration ≥ 1 s*	*AC method & test duration ≥ 100 ms*	*DC Method & test duration ≥ 100 ms*
	Test Voltage	*Test Voltage*	*Test Voltage*	*Test Voltage*
Positive and negative LED module integral wiring ⇔ Encapsulation outer surface including the polycarbonate lens	1720 V r.m.s.	2120 V d.c.	2064 V r.m.s.	2544 V d.c.
Positive and negative LED module integral wiring ⇔ Metal core of the LED module				

[13]
[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 23 ATEX 5063 X issue 0

The test voltage shall be increased steadily within a period of not less than 10 s until it reaches the prescribed value, and it shall then be maintained for the duration mentioned in the table above.

The test shall be deemed to have passed if no breakdown or arcing occurs as defined by Clause 8.2.4.2 of the standard EN 60079-18:2015+A1:20177.

Note: Primary and secondary sides of the encapsulated LED Driver are not subjected to this routine test since already required by the Ex Component certificate.

[16] **Assessment Report n° EPT.23.REL.03/2213050**

This EU-Type Examination Certificate is released after the positive result of the conformity assessment of the Council Directive 2014/34/EU and to harmonized technical standards listed in this certificate performed by the Notified Body Eurofins Product Testing Italy S.r.l., and reported in the Assessment Report above cited.

[17] **Special condition for a safe use**

- Potential electrostatic charging hazard, see instructions.

- In case of installation with the light emission upwards, do not adjust the inclination of the luminaire beyond the horizontal line; refer to the safety instruction for further details.

- The equipment needs to be installed in areas having low risk of impact caused by foreign objects.

[18] **Essential Health and Safety Requirements**

Assured by compliance with harmonized standards.

[19] **Descriptive documents**

The equipment object of this Certificate are described by the following documents that are scheduled documents and therefore they cannot be modified without the explicit authorization of the Notified Body.

Type of document	Document identification	Rev.	Date
Technical note	428	0	31-01-2023
Assembly and detail drawings	Annex 03 TF Doc. N. 428	0	31-01-2023
Marking details	Annex 04 TF Doc. N. 428	0	10-01-2023
Safety, use and maintenance instructions	C024838	0	10-01-2023

[13]
[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 23 ATEX 5063 X issue 0

[20] **Terms and conditions**

The product liability rests with the Manufacturer, his representative or, in the absence of a representative, with the importer, in accordance with the General Product Safety Directive 2001/95/EC.

The following conditions may render this certificate invalid:

- changes in the design or construction of the product;
- changes or amendments to the Directive;
- changes or amendments in the standards which form the basis for documenting compliance with the essential requirements of the 2014/34/EU Directive.

[21] **History**

Issue	Description	Date
0	First Emission.	24-02-2023