



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 21.0070X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 4	Issue 3 (2025-06-17)
Date of Issue:	2026-07-24		Issue 2 (2023-07-05)
			Issue 1 (2022-11-29)
			Issue 0 (2022-03-04)
Applicant:	CORTEM S.p.A Via Aquileia 10 34070 Villesse Gorizia Italy		
Equipment:	Increased safety luminaires series FlowEx-ME & FlowEx-MN		
Optional accessory:			
Type of Protection:	Flameproof "db", Increased safety "eb", Encapsulated "mb", Dust Enclosure "tb", Restricted Breathing "nR"		
Marking:	<u>FLOWEX-ME</u>	<u>FLOWEX-MN</u>	
	Ex db eb mb IIC T.. Gb	Ex nR IIC T... Gc	
	Ex tb IIIC T... °C Db	Ex tb IIIC T... °C Db	
	IP66	IP66	
	Ta = -** °C to +** °C	Ta = -** °C to +** °C	
	Refer to Certificate Annex for Ambient Temperature, Temperature Class and Maximum Surface Temperatures.		

Approved for issue on behalf of the IECEx
Certification Body:

S. Trafford

Position:

Certification Officer

Signature:
(for printed version)

Date:
(for printed version)

2026-07-24

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United Kingdom





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Manufacturer: **CORTEM S.p.A**
Via Aquileia 10
34070 Villesse
Gorizia
Italy

Manufacturing
locations: **CORTEM S.p.A**
Via Aquileia 10
34070 Villesse
Gorizia
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 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-15:2017 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:5.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-31:2022 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
Edition:3.0

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/ExTR21.0112/00
GB/CML/ExTR25.0107/00

GB/CML/ExTR22.0262/00
GB/CML/ExTR26.0140/00

GB/CML/ExTR23.0166/00

Quality Assessment Report:

IT/CES/QAR06.0002/20



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The FLOWEX are LED lighting fixtures that are configured for use in both Gas and Dust environments, dependant on the method of explosion protection. There are 2 versions:

<u>Version</u>	<u>Gas</u>	<u>Dust</u>
FlowEX-ME	Gb and Gc	Db and Dc
FlowEX-MN	Gc	Db and Dc

The lighting fixture is available in 3 sizes (060, 080 and 100) depending on the nominal input power. The enclosure is constructed using either an aluminium alloy or stainless-steel body and cover that includes a tempered glass window.

Refer to Certificate Annex for full Product Description and Conditions of Manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Certificate Annex.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1

This variation introduces the following modification:

1. Introduction of an alternative PCB material.

Issue 2

This variation introduces the following modifications:

1. To assess flameproof Ex-components.
2. To update equipment marking.
3. To update product description.

Issue 3

This variation introduces the following modifications:

1. To introduce emergency models FlowEX-M*-*****-E (Non-Maintained emergency luminaire) and FlowEX-M*-*****-N (Maintained emergency luminaire).
2. To introduce alternative LED Drivers.
3. To introduce a new terminal block type TBEx...V.
4. To update to the latest version of the standard IEC 60079-31:2022 Ed. 3.

Issue 4

This variation introduces the following modifications:

1. To introduce alternative LED Drivers type LExD-...C for luminaires.
2. To introduce an alternative emergency housing to the existing EWAE type for the size 100.

Annex:

[Certificate Annex IECEX CML 21.0070X Issue 4.pdf](#)

Annexe to: IECEx CML 21.0070X, Issue 4
Apparatus: Increased safety luminaires series FlowEx-ME & FlowEx-MN
Applicant: Cortem S.p.A.



Description

The FLOWEX are LED lighting fixtures that are configured for use in both Gas and Dust environments, dependant on the method of explosion protection. There are 2 versions:

Version		Gas	Dust
FlowEX-	ME	Gb and Gc	Db and Dc
FlowEX-	MN	Gc	Db and Dc

The lighting fixture is available in 3 sizes (060, 080 and 100) depending on the nominal input power. The enclosure is constructed using either an aluminium alloy or stainless-steel body and cover that includes a tempered glass window.

The version FlowEX-ME, , protected by the types of protection "Ex db eb mb/Ex tb ", contains a certified constant current LED driver, an encapsulated LED Printed Circuit Board (PCB) and certified terminals that provide connection facilities for the electrical input and feedthrough power connections.

The version FlowEX-MN, protected by the types of protection "Ex nR/Ex tb/Ex tc ", contains a constant current LED driver, a LED Printed Circuit Board (PCB) and terminals that provide connection facilities for the electrical input and feedthrough power connections.

The lighting fixture could be provided with an additional housing including a battery pack to work as emergency lighting fixtures : lighting fixture version FlowEX-M*-*****-E is intended to work only in emergency mode (without LED drivers) while the lighting fixture version FlowEX-M*-*****-N could work both in normal and emergency mode.

The standard emergency enclosure consists of a housing protected in "Ex eb" or "Ex tb" (for EPL Gb or Db) or by restricted breathing "nR" (for EPL Gc), fixed directly onto the body of the luminaire. This enclosure contains:

- An encapsulated emergency module "Ex mb" type EIM-30C (for the Gb/tb version) or a non-encapsulated type INVERTER/LED/./C (for the Gc/tb version).
- A battery pack with a capacity ranging from 1.8Ah to 4Ah.
- When required, an encapsulated rectifier diode module "Ex mb" (only for EPL Gb).
- An indicator light covered by a separate Ex Component certificate to show the battery charge status.

As alternative to the standard emergency enclosure for EPL Gb and Db, the previously mentioned electronic components can be integrated into an enclosure type EWAE protected in "Ex db" / "Ex tb" for the models FLOWEX of Size 100 (from 120W to 220W). In this configuration, the enclosure will be fixed to the body of the luminaire via a pole mounting accessory and a bushing type H-0128. The wiring for the luminaire's power supply will be made at the "Ex eb" / "Ex tb" mounting accessory housing located on top of the enclosure, which includes "Ex eb" certified terminals.

The enclosure has an environmental ingress protection level of IP 66.



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Ratings

Type	Nominal Wattage	Nominal Voltage(*)			Frequency
		Driver series EBM (**)	Driver series MU.../DALI	Driver series LExD	
060030	30 W	100-277Vac, 142-431Vdc	100-277Vac	120-277 Vac 150-420 Vdc	0-50-60 Hz
060040	40 W		125-300 Vdc		
060050	50 W		/		
060060	60 W				
080070	70 W	100-277Vac, 142-431Vdc	100-277Vac 125-300 Vdc	120-277 Vac 150-420 Vdc	
080080	80 W				
080090	90 W				
080100	100 W				
100120	120 W	100-277Vac, 142-431Vdc	100-277Vac 125-300 Vdc	120-277 Vac 150-420 Vdc	
100140	140 W				
100160	160 W		/		
100180	180 W				
100200	200 W				
100220	220 W				

(*)The maximum voltage and ambient temperature ranges is limited dependant on the type of Ex Components fitted by the manufacturer in accordance with the following table:

(**) : or for industrial LED drivers (applicable only for models FlowEX-MN)

Manufacturer	Type	Certification	Rated Voltage	Service Temperature
Cabur SRL	BPL4	CESI 03 ATEX 164U	320 Vac	-40°C and +110 °C
		IECEX CES 11.0008U		
Cabur SRL	TPL4	CESI 03 ATEX 164U	400 Vac	-40°C and +110 °C
		IECEX CES 11.0008U		
CORTEM S.p.A.	TBEx	IECEX FIDI 23.0003U	320 Vac	-60°C and +110 °C
		FIDI 23 ATEX 0053U		
Phoenix Contact	UT2,5	KEMA 04 ATEX 2048U	690 V	-60°C and +110 °C
		IECEX KEM 06.0027U		
	G5/3	PTB 06 ATEX 1034U	352 V	-50 °C to +105 °C
		IECEX PTB 06.0043U		
		IECEX TPS 21.0008U		-50°C to +90°C



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MOONS' Electric	LED Driver, MU025 and MU035	TPS 23 ATEX 117594 0012 U	100-277 Vac / 125-300 Vdc	
MOONS' Electric	LED Driver, MU060 and MU100	IECEX TPS 21.0011U TPS 23 ATEX 117594 0013 U	100-277 Vac / 125-300 Vdc	-50°C to +90°C
MOONS' Electric	LED Driver, MU...H...AQ_M B/...	IECEX TPS 24.0037U TPS 24 ATEX 117594 0045 U	100-277 Vac / 125-300 Vdc	-50°C to +90°C
CORTEM S.p.A.	LED indicator	IECEX CES 11.0030U CESI 00 ATEX 060U	12-240 Vac/dc	-40°C to +80°C
CORTEM S.p.A.	EBM-50C EBM-100C EBM-240C	IECEX CML 21.0130U CML 21ATEX51156U	100-277 Vac / 142-431 Vdc	: -60 °C to 85 °C; or, /A: -50 °C to 85 °C; or, /B: -60 °C to 85 °C; or, /C: -40 °C to 85 °C.
CORTEM S.p.A.	LExD-...	IECEX CML 25.0095U CML 25ATEX5390U	100 or 120-277 Vac / 150-420 Vdc	-60°C to +107°C for the Type LExD-50C -60°C to +108°C for the Type LExD-100C -60°C to +90°C for the Type LExD-150C -60°C to +93°C for the Type LExD-240C

Temperature Class and Maximum Surface Temperature

For standard operation models (non-emergency models):

			Temperature Class (EPL Gb and Gc)				Maximum Surface Temperature °C (EPL Db)			
Ambient Temperature			40 °C	50 °C	55 °C	60 °C	40 °C	50 °C	55 °C	60 °C
Light Fixture										
Type	Size	Power (W)								
FLOWEX-...	060	030 to 060	T6	T5	T5	T5	73 °C	83 °C	88 °C	93 °C
	080	070 to 100	T5	T4	T4	T4	86 °C	96 °C	101 °C	106 °C
	100	120 to 160	T6	T5	T5	T(*)	74 °C	84 °C	89 °C	94 °C
		180 to 220	T5	T5	T4	T4	85 °C	95 °C	100 °C	105 °C

(*) T4 when fitted with the driver LExD-150C, T5 when fitted with other type of drivers.



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For emergency models:

Ambient Temperature Light Fixture	Temperature Class (EPL Gb and Gc)					Maximum Surface Temperature °C (EPL Db)			
	40°C	50°C	52°C	55°C	58 °C	40 °C	50 °C	55 °C	58 °C
FLOWEX-...080100N	T5	T4	T4	T4	T4	86 °C	96 °C	101 °C	104 °C
FLOWEX-...100220N fitted with standard emergency housing	T5	T5	T4	N/A	N/A	85 °C	95 °C	100 °C	N/A
FLOWEX-...100200N fitted with standard emergency housing	T5	T5	T4	N/A	N/A	85 °C	95 °C	100 °C	N/A
Other emergency models	Temperature Classes, Surface Temperatures and ambient temperatures of non-emergency models shall be applied.								

Component approved parts

Part Type	Manufacturer	Model/Type	Certificate No.	Ex Marking String	Standard(s) and date(s)/edition(s)
LED Driver	CORTEM S.p.A.	EBM	IECEX CML 21.0130U	Ex mb IIC Gb	IEC 60079-0:2017 IEC 60079-18:2017
	CORTEM S.p.A.	LExD-...	IECEX CML 25.0095U	Ex mb IIC Gb	IEC 60079-0:2017 IEC 60079-18:2017
	MOONS' Electric	MU035.../DALI	IECEX TPS 21.0008U	Ex mb IIC Gb	IEC 60079-0:2017 IEC 60079-18:2017
	MOONS' Electric	MU100.../DALI	IECEX TPS 21.0011U	Ex mb IIC Gb	IEC 60079-0:2017 IEC 60079-18:2017
	MOONS' Electric	MU163.../DALI	IECEX TPS 24.0037U	Ex mb IIC Gb	IEC 60079-0:2017 IEC 60079-18:2017
Terminals	Cabur SRL	BPL4, TPL4	IECEX CES 11.0008U	Ex eb IIC Gb	IEC 60079-0:2011 IEC 60079-7:2015
	PHOENIX	UT2,5 , UT4	IECEX KEM 06.0027U	Ex eb IIC Gb	IEC 60079-0:2017 IEC 60079-7:2017
	PHOENIX	G5/3	IECEX PTB 06.0043U	Ex eb IIC Gb	IEC 60079-0:2017 IEC 60079-7:2017
	CORTEM S.p.A.	TBEx-...V	IECEX FIDI 23.0003U	Ex eb IIC Gb	IEC 60079-0:2017 IEC 60079-7:2017
LED Indicator	CORTEM S.p.A	M-0612 and M-0487	IECEX CES 11.0030U	Ex db IIC Gb Ex db eb IIC Gb Ex tb IIIC Db	IEC 60079-0:2011 IEC 60079-1:2014 IEC 60079-7:2015 IEC 60079-31:2013



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Part Type	Manufacturer	Model/Type	Certificate No.	Ex Marking String	Standard(s) and date(s)/edition(s)
Proximity Switch	CORTEM S.p.A	M-0530 and M-0531	IECEX CES 11.0031U	Ex d e IIC Gb	IEC 60079-0:2007 IEC 60079-1:2007 IEC 60079-7:2006
	CROUZET	Type: 831391	IECEX LCIE 13.0035U	Ex db IIC Gb	IEC 60079-0:2017 IEC 60079-1:2014
	Helon Explosion-proof Electric Co., LTD	HL0101-..., HL0101-A... and HL0102-..	IECEX CNEX 17.0015U	Ex db eb IIC Gb	IEC 60079-0:2017 IEC 60079-1:2014 IEC 60079-7:2017

Ex Equipment approved parts

Part Type	Manufacturer	Model/Type	Certificate No.	Ex Marking String
Breather/drain Plugs	Cortem S.p.A	ECDE...	IECEX CML 16.0124X	Ex eb IIC Gb Ex tb IIIC Db

Nomenclature

FlowEX - - - - - -

(1) (2) (3) (4) (5) (6)

Where

(1) = FlowEX Light Fixture

(2) = Version of Lamp

ME = Cat 2, Zone 1 21 : Ex- db eb mb / Ex tb

MN = Cat 3, Zone 2 / 21 : Ex nR / Ex tb

(3) = Size

060 = Ø 240 mm x 89 mm (30 W to 60 W)

080 = Ø 300 mm x 92 mm (70 W to 100 W)

100 = Ø 400 mm x 100 mm (120 W to 220 W)

(4) = Power

xxx = e.g. 030 = 30 W (Range 030 W to 220 W)

(5) Ambient Temperature Range

= Standard models, for minimum ambient temperature -60°C

/C = Standard models, for minimum ambient temperature -40°C

-N = Models with battery back-up (normal + emergency mode), Tamb min = -20°C

-E = Models with battery back-up (only emergency mode), Tamb min=-20°C

(6) = Other (no effect on certification)



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Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.
- ii. The manufacturer shall ensure that all Ex-Components are installed in accordance with their Schedule of Limitations and manufacturer's instructions, including but not limited to, the creepage and clearance requirements of IEC 60079-7 and wiring size and termination method and that the equipment markings are within the service temperature range and ratings of all the Ex-Components.
- iii. The Manufacturer shall provide copies of certificates and instructions for all certified components installed in the FlowEx Series.
- iv. The manufacturer shall ensure that the LED Driver maximum output current is restricted to the limits specified in the manufacturer's documentation for the nominal power and fixture type.
- v. In accordance with IEC 60079-18 Clause 9.2 and IEC 60079-7 Clause 7.1, the routine dielectric strength test on the luminaires series FlowEx with EPL Gb with applied voltage shall be performed at a voltage of at least 1560 V between each circuit and earthed metal parts for at least 1 min. There shall be no breakdown or flashover observed as a result of the test.
- vi. A routine visual inspection of the encapsulated parts is required, as per Clause 9.1 of EN/IEC 60079 18. There shall be no visible damage or deformation to the encapsulant.
- vii. The manufacturer shall ensure that when an EBM-xxC type LED Driver is fitted:
 - Thermal fuses fitted as part of the Driver's encapsulated circuit that are required by the certification must be placed in accordance with Technical Note A4-7653 to satisfy the requirements of the completed equipment T-class.
 - the permanently attached output cables are provided with suitable safeguards to ensure that they are suitably protected against cable pull during installation and maintenance.
- viii. The manufacturer shall ensure that each LED PCB has a minimum dielectric layer thickness of at least 0.1 mm.
- ix. A visual inspection of the surface of the enclosure is required, where the ECD-* Breather/Drain plugs shall be installed, to ensure that it is in good condition. When the ECD-* Breather/Drain Plugs are intended for use as a drain, they must be installed at the bottom of the enclosure
- x. For the models with emergency housing type EWAE :
Each unit of the emergency housing shall be subjected to a routine overpressure test in accordance with the requirements of EN/IEC 60079-1:2014 clause 16. The test shall be conducted at a pressure of at least 13 bar for at least 60 seconds. There shall be no permanent damage or deformation that would invalidate the type of protection observed as a result of the test.
- xi. For models FlowEX-MN-**-marked with Ex nR (EPL Gc):
Each unit shall be subjected to a routine dielectric strength test in accordance with the requirements of IEC 60079-15:2017, Clause 6.2. The test shall be conducted at a voltage of at least 1560 V for at least 1 min. There shall be no breakdown or flashover observed as a result of the test.



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- xii. For luminaires marked with Ex nR (EPL Gc):
The routine test according to clause 12.2.2.1.1 of IEC 60079-15:2017 shall be conducted as indicated in below together with alternative methods:
- Under constant temperature conditions, internal pressure of 0.3kPa or (3 mbar) below atmospheric pressure shall not change to half the initial value in 90 seconds.
- Alternative methods:
- a. Internal pressure of 3kPa or (30 mbar) below atmospheric pressure, shall not change to at most 2.7 kPa or (2.7 mbar) in 14 seconds.
 - b. Internal pressure of 0.3kPa or (3 mbar) below atmospheric pressure, shall not change to at most 0.27 kPa or (0.27 mbar) in 14 seconds.

Specific Conditions of Use

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

- i. The equipment uses an external part that is constructed from non-metallic materials, and as such care is to be taken to prevent an electro-static charging hazard. See instruction manual for details.
- ii. Use suitably certified cable glands with an IP Protection of IP 66 and an applicable method explosion protection applicable with the equipment markings:
The temperature at the entry point may reach up to 95 °C. Suitably rated cable and cable glands must be used as per Safety, maintenance, and mounting instructions.
- iii. The equipment shall be installed in a location that satisfies the requirement for a Low Risk of Mechanical Danger.
- iv. For inspection and replacement of seals and gaskets – consult the manufacturer.
- v. The optional proximity switch HL0101-..., HL0101-A... and HL0102-.. modules are not intended to be repaired in any way.
- vi. Luminaires incorporating MU035xx or MU100xx or MU163xx or LExD-50C or LExD-100C or LExD-240C drivers shall only be connected to an electrical power supply with a maximum prospective short-circuit current of 1500A.
- vii. For details of restrictive breathing enclosure (nR) routine tests – see manufacturer's instructions.

Components used which are covered by Ex Certificates issued to older editions of Standards

Certificate number	Standards (incl Ed)	Assessment result
IECEX CES 11.0031U	IEC 60079-0:2007 Ed 5 IEC 60079-1:2007 Ed 6 IEC 60079-7:2006 Ed 4	No applicable technical differences
IECEX CES 11.0030U	IEC 60079-0:2011 Ed 6 IEC 60079-1:2014 Ed 7 IEC 60079-7:2015 Ed 5 IEC 60079-31:2013 Ed 2	No applicable technical differences



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