Product Service

(1) EU-Type Examination Certificate

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) Type Examination Certificate Number:

TPS 23 ATEX 117594 0013 U Rev. 00

(4) Component: LED driver - Type: MU060HyAQ_MB/z and MU100HyAQ_MB/z

(5) Manufacturer: Moons' Electric (Taicang) Co., Ltd.

(6) Address: No. 18 Yingang Rd., Taicang Port Economic and Technological Development Zone, 215400 Taicang, Jiangsu Province, P.R. China

(7) This component and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) TÜV SÜD Product Service GmbH certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports with no. 70.520.23.101.04

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-18:2015 + A1:2017**

(10) The sign “U“ placed after the certificate number indicates that the certificate must not be mistaken with a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of equipment or protective system.

(11) This Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2G Ex mb IIC Gb

Certification Body, München, 12.08.2023

Ing. Kristof De Gersem, MSc. :

(13) **S c h e d u l e**

(14) **EU Type Examination Certificate no.**

TPS 23 ATEX 117594 0013 U Rev. 00

Product Service

Certificate History

Revision:	Description:	Report no.:	Issue Date:
Rev. 00	First issue.	70.520.23.101.04	12.08.2023

(15) Description of component:

The LED drivers type MU060HyAQ_MB/z and MU100HyAQ_MB/z are a range of switch-mode power supplies with constant current outputs. They are designed as Ex components according to encapsulation “mb” type of protection and intended to be used in zone 1 IIC explosive gas atmosphere. They are applied to be used with LED based luminaries.

See the user instructions for further details.

Model designation:

M U x H y A Q _ MB/z
1 2 3 4 5 6 7 8 9

1 - M: Represented as a metal enclosure;
2 - U: Represented as a wide voltage range;(100-277 Vac or 125-300Vdc)
3 - x: Can be 060 and 100 to represented rated power. (060 = 60W, 100 = 100W);
4 - H: Represented Product family code;
5 - y: Represented output current. (eg.105 means 1.05A);
6 - A: Represented as a single output;
7 - Q: Represented as constant current output mode;
8 - MB: Represented Explosion proof type;
9 - z: Can be CP,DALI,AUX, F and CV to represent different functional extension
CP = Constant output power
DALI = DALI dimming
AUX = Auxiliary supply
F = Constant output current
CV= Constant output voltage

Warning label:

No warning.

Warning label:

N/A

(13) **Schedule**

(14) **EU Type Examination Certificate no.**

TPS 23 ATEX 117594 0013 U Rev. 00

Product Service

Model difference:

The difference between MU060HyAQ_MB/z and MU100HyAQ_MB/z is the output electric rating.

Technical data:

For LED Driver Model MU060HyAQ_MB/z:

- AC Ratings: 100 to 277 Vac, 0.8A max, 50/60Hz;
- DC Ratings: 125 to 300 Vdc, 0.8A max;
- Output Ratings: 20 to 170 Vdc, 1700mA max;
- Output power: 60W max;
- Dimming Range: 0-100%;
- Auxiliary Output:12Vdc,300mA or 24Vdc,150mA

For LED Driver Model MU100HyAQ_MB/z:

- AC Ratings: 100 to 277 Vac, 1.3A max, 50/60Hz;
- DC Ratings: 125 to 300 Vdc, 1.3A max;
- Output Ratings: 20 to 190 Vdc, 2800mA max;
- Output power: 100W max;
- Dimming Range: 0-100%;
- Auxiliary Output:12Vdc,300mA or 24Vdc,150mA

Installation instruction:

See installation instructions provided by the manufacturer and part of this certification.

See also (17) Schedule of limitations.

(16) Test report(s): 70.520.23.101.04

Routine tests:

Routine tests on each piece (100%) are required by the manufacturer:

1/ Visual inspections are required according to Clause 9.1 of EN 60079-18:2015/A1:2017. No damage to the compound that could impair the type of protection shall be evident.

2/ A dielectric strength test is required according to Clause 9.2 of EN 60079-18:2015/A1:2017. A dielectric strength test between the driver input and the enclosure/earth, between the driver output and the enclosure/earth, between the driver input and output shall be carried out at $(2U_N+1000)$V r.m.s, at least min.1500V r.m.s. for at least 1 s without breakdown or arcing occurs during testing. Alternatively, 1.2 times the test voltage may be applied and maintained for at least 100 ms without breakdown or arcing occurs during testing.

(13) **Schedule**

(14) **EU Type Examination Certificate no.**

TPS 23 ATEX 117594 0013 U Rev. 00

Product Service

Document List:

File No.	Description	Rev	Date
MSCD-A7990_00-03A5	Main board SCH	A5	2022.07.07
MSCD-A7990_00-04A5	Main board PCB	A5	2022.07.07
MSCD-A7990_00-05A3	AUX power board SCH	A3	2021.04.07
MSCD-A7990_00-06A3	AUX power board PCB	A3	2021.04.07
MSCD-A7990_00-07A1	DALI dimming board SCH	A1	2022.07.07
MSCD-A7990_00-08A1	DALI dimming board PCB	A1	2022.07.07
MSCD-A7990_00-09A1	CP control board SCH	A1	2021.06.11
MSCD-A7990_00-10A1	CP control board PCB	A1	2021.04.07
MSCD-A7990_00-13A1	Assembly Drawing	A1	2022.07.07
MSCD-A7990_00-01A1	Bom List(main test model)	A1	2022.07.07
MSCD-A7990_00-28A0	BOM difference list	A0	2022.07.07
MSCD-A7990_00-14A1	Installation instructions for driver use in explosive atmospheres	A1	2022.07.07
MSCD-A7990_00-16A1	Seal Ring A	A1	2022.07.07
MSCD-A7990_00-17A1	Seal Ring B	A1	2021.06.11
3698201101699	Seal Ring C	A1	2021.04.07
MSCD-A7990_00-18A1	Name Plate	A0	2021.04.07
MSCD-A7990_00-11A1	Outline drawing A	A1	2021.04.07
MSCD-A7990_00-12A1	Outline drawing B	A1	2021.04.07
MSCD-A7990_00-26A1	Outline drawing C	A1	2021.04.07
MSCD-A7990_00-20A2	Enclosure cover A drawing	A2	2021.04.07
MSCD-A7990_00-21A2	Enclosure cover B drawing	A2	2021.04.07
MSCD-A7990_00-22A1	Enclosure cover C drawing	A1	2021.04.07
MSCD-A7990_00-23A1	Enclosure cover D drawing	A1	2023.07.11
MSCD-A7990_00-19A1	Enclosure body drawing	A1	2021.04.07
MSCD-A7990_00-24A2	Mylar sheet drawing	A2	2021.04.07
MSCD-A7990_00-25A1	Components fault analysist sheet	A1	2021.04.07
MSCD-A7990_00-27A2	Potting compound process	A2	2021.04.07
MSCD-A7990_00-02A1	EU Written Attestation of Conformity	A1	2023.04.15

A copy of the full documentation is kept confidentially at TÜV SÜD.

(13) **Schedule**

(14) **EU Type Examination Certificate no.**

TPS 23 ATEX 117594 0013 U Rev. 00

Product Service

(17) Schedule of limitations:

1. The sign “U“ placed after the certificate number indicates that the certificate must not be mistaken with a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

2. LED driver shall be installed in an enclosure that provides a degree of protection not less than IP54, tested in accordance with the requirements of EN IEC 60079-0:2018.

3. The LED driver has to be connected to an electrical power supply with a maximum prospective short-circuit current of 1500A.

4. The service temperature range (Ts) of the LED driver is -50°C ≤Ts≤+90°C. The “Ts” has to be seen a “tc” as defined in EN 61347-2-13, when the LED driver is built into the end-product this service temperature range shall be within the limits.

5. The maximum surface temperature rise of the LED driver casing, tested according to EN IEC 60079-0:2018 and EN 60079-18:2015/A1:2017 is 46.02 K under fault condition. Alternatively, the LED driver may be re-tested by the end-manufacturer in real application, adding a temperature rise (△T) to the LED driver temperature casing “tc”, between different load conditions and fault condition shown as in below table. The end-manufacturer can choose one of the 2 options.

Load conditions	30%of rated output load	40%of rated output load	50%of rated output load	60%of rated output load	70%of rated output load	80%of rated output load	90%of rated output load	100%of rated output load
△T(K)	21.02	17.59	15.37	13.60	12.80	11.16	8.72	5.30

(18) Essential health and safety requirements:

Assured by compliance with standards set out in (9).