

CERTIFICATE OF COMPLIANCE

Certificate Number 20190830-E508406
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Issued to: LEEDARSON LIGHTING CO., LTD.
XINGDA RD
XINGTAI INDUSTRIAL ZONE
CHANGTAI COUNTY
ZHANGZHOU
FUJIAN 363900 CHINA

**This certificate confirms that
representative samples of**

DIMMERS, GENERAL-USE SWITCH
CNL Dimmer Controls
Cat. Nos. LZW31-SN, LZW31

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1472 & CSA C22.2 No. 184.1-15 - SOLID-STATE
DIMMING CONTROLS

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Bruce Mahrenholz, Director North American Certification Program
UL LLC

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Project 4789037719

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REPORT

On

SOLID-STATE DIMMING CONTROLS

LEEDARSON LIGHTING CO LTD
ZHANGZHOU, FUJIAN, 36390, CHINA

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DESCRIPTION:

PRODUCT COVERED:

USL, CNL Dimmer Controls, Cat. Nos. LZW31-SN, LZW31.

GENERAL:

Models LZW31-SN, LZW31 are rocker operated dimmer Controls with one air gap switch. All of Models are Type IV control.

These devices are intended for installation in series with the ungrounded side of the supply circuit in an outlet box or on an outlet-box cover in connection with a wiring system recognized by the National Electrical Code.

USL, CNL indicates investigation in accordance with the Bi-national Standard for Solid State Dimming Controls, UL1472 and C22.2 No. 184.1

RATINGS:

The basic catalog numbers may be identified as follows:

Cat. No.	Voltage/ Frequency	Type	Incandescent (Tungsten- Filament)	LED/ Electronic self-ballasted	CFL
LZW31-SN, LZW31	120 Vac/ 60 Hz	Single /3-Way	400 W	2.5 A or 300 W	1.25 A or 150 W

Multi-gang Installation De-rating:

Cat. No.	Device Rating	Single-Gang Rating	Double-Gang Rating	Triple-Gang Rating
LZW31-SN, LZW31	120 V ac, 60 Hz, 400 W Tungsten 2.5 A or 300 W LED/ Electronic self-ballasted 1.25 A or 150 W CFL	120 V ac, 60 Hz, 400 W Tungsten 2.5 A or 300 W LED/ Electronic self- ballasted 1.25 A or 150 W CFL	120 V ac, 60 Hz, 300 W, 300 W Tungsten 2.5 A or 300 W LED/ Electronic self- ballasted 1.25 A or 150 W CFL	120 V ac, 60 Hz, 200 W, 200 W, 200 W Tungsten 2.5 A or 300 W LED/ Electronic self-ballasted 1.25 A or 150 W CFL

CONSTRUCTION DETAILS:

Refer to the following photographs and descriptive indices for construction details.

Corrosion Protection - All ferrous metal parts are protected against corrosion by plating, painting, galvanizing or equivalent.

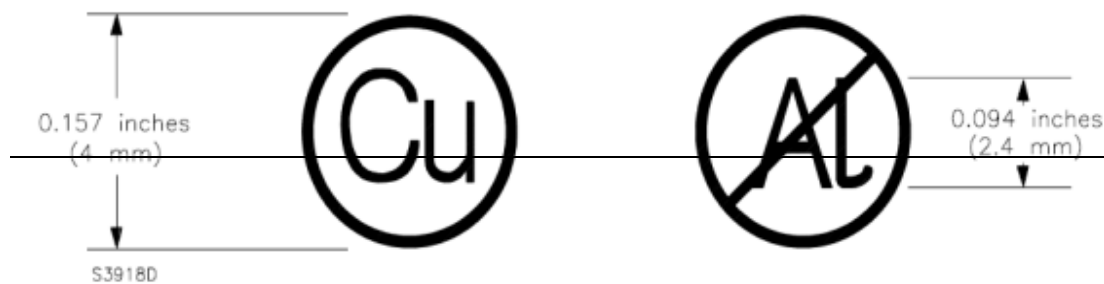
Spacings - Minimum of 3/64 in (1.2 mm) for devices rated 300 V or less, minimum of 1/8 in (3.2 mm) for devices rated 301 - 600 V, provided through air and over surface between live parts of opposite polarity. And minimum of 1/8 in (3.2 mm) through air and over surface between live parts and exposed dead-metal parts for devices rated 600 V or less.

MARKINGS:

General - Markings on the device shall be molded, die-stamped, paint-stenciled, stamped or etched metal that is permanently secured. Markings that contain the word "CAUTION" shall be provided in both English and French. The signal word "CAUTION" shall be more prominent than any other required marking on the dimmer.

- 1.) Listee's name or trademark - On the device in a location where readily visible after installation without a cover plate in place, but not on removable plaster ears or heat sink fins.
- 2.) Electrical ratings in location where readily visible after installation without a cover plate in place, but not on removable plaster ears or heat sink fins. Ratings marking shall include Voltage, Frequency, and either Wattage or Volt Amperes as appropriate.
- 3.) Catalog designation - On the device, the smallest unit container or on an information sheet in the smallest unit container.
- 4.) Date Code - The manufacturer date code shall appear on the device indicating the date or dating period of manufacture not exceeding three months. See Section General for details.
- 5.) The statement, "For Control of Permanently Installed Incandescent Lamp Fixtures Only" or the equivalent - On the device in a location that is not readily removable. This marking applies to devices rated for incandescent loads only.
- 6.) The statement, "For Control of Permanently Installed Electronic self-ballasted Lamp Fixtures Only" or the equivalent - On the device in a location that is not readily removable. This marking applies to devices rated for Electronic self-ballasted Lamp only.

- 7.) Multi-Unit Ganged Installation information (De-rating values) as tabulated under Construction details - On the device, packaging or instruction sheet provided with the dimmer.
- 8.) The statement "CAUTION - To Reduce The Risk of Overheating and Possible Damage to Other Equipment, Do Not Install to Control a Receptacle, a Motor-Operated Appliance or a Fluorescent Lighting Fixture or a Transformer Supplied Appliance" On the device, on the smallest unit container, or in the instruction sheet packaged with each device. This marking applies to devices rated for incandescent loads and Electronic self-ballasted Lamp only.
- 9.) The statement, "For supply connector, use wires rated for at least 75C" - On the device at the point of connection to field wiring.
- 10.) The statement, "Use Copper Wire Only", "Cu wire only", or a marking containing both the symbols as follows:



INSTALLATION INSTRUCTIONS:

Installation instructions shall be provided with each unit. See ILL. 22 and 23 for LZW31-SN and LZW31 respectively details.

MODEL DIFFERENCE:

Cat. No. LZW31 is similar to Cat. No. LZW31-SN except without Power Measurement PWB, see Fig.5 for details.

Index to Figures and Illustrations:

Cat. No.	Description	ILL.	FIG.
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LZW31	Overall views		1-3, 5, 6
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CAT. NO. LZW31-SN REPRESENTING LZW31

FIGS. 1-4, 6

General - The general design shape and arrangement shall be as shown unless otherwise specified. (Unit of all illustration is mm)

1. Rear Enclosure - Consists of two parts, R/C (QMFZ2), PC, molded of PC-DK(f1) manufactured by XIAMEN TIANYU PLASTIC INDUSTRY CO LTD, (E309739), rated V-0, 125°C. Measured min thickness 1.0 mm. Secured to the yoke by four screws. Refer to ILL. 1 and 2 for further dimensional details.
2. Yoke - Aluminum. Measured min. thickness 1.9 mm. Refer to ILL. 3 for further dimensional details.
3. Switch Frame - R/C (QMFZ2), PC, molded of 945(GG) manufactured by Sabic Japan L L C, (E207780), rated V-0, 120°C. Measured min thickness 1.0 mm. Secured to the yoke by physical fit. Refer to ILL. 4 for further dimensional details.
4. Push Key - R/C (QMFZ2), PC, molded of 945(GG) manufactured by Sabic Japan L L C, (E207780), rated V-0, 120°C. Measured min thickness 1.0 mm. Secured to the switch frame by physical fit. Refer to ILL. 5 for further dimensional details.
5. Air Gap Switch - Consists of the following:
 - a. Actuator - R/C (QMFZ2), PC, molded of 945(GG) manufactured by Sabic Japan L L C, (E207780), rated V-0, 120°C. Measured min thickness 1.0 mm. Secured to the switch frame by physical fit. Refer to ILL. 6 for further dimensional details.
 - b. Stationary Contact - Silver-plated copper alloy, provided with two silver oxide stationary contacts surfaces 3.4 mm dia by 0.2 mm thick, staked to Stationary contact arm. Refer to ILL. 7 for further dimensional details.
 - c. Moveable Contact - Silver-plated copper alloy, provided with two silver oxide stationary contacts surfaces 3.4 mm dia by 0.2 mm thick, staked to Moveable contact arm. Refer to ILL. 7 for further dimensional details.
 - d. Stationary Contact Arm - Two provided. Copper alloy, 0.6 mm thick, soldered to PWB. Refer to ILL. 8 for further dimensional details.
 - e. Moveable Contact Arm - One provided. Copper alloy, 0.6 mm thick, soldered to PWB. Refer to ILL. 9 for further dimensional details.
6. MOSFET (Q5, Q6) - Type IRFB4332PbF, manufactured by Infineon, rated 60 A, 250 V, secured to yoke by a plastic screw, type SRHR-3055 manufactured by Heilind Aisa Pacific (HK) Ltd and soldered to printed wiring board. Also provided R/C(QMFZ2) rubber insulation between Triacs and Yoke, rated min. 105°C, minimum overall 23.0mm by 27.2 mm by 0.9 mm thick.

7. Power PWB - R/C (ZPMV2), rated min V-2, 105°C. See ILL. 10 for trace layout and component placement respectively.
8. Power Measurement PWB - R/C (ZPMV2), rated min V-2, 105°C. See ILL. 11 for trace layout and component placement respectively.
9. Antenna Holder - R/C (QMFZ2), PC, molded of 945(GG) manufactured by Sabic Japan L L C, (E207780), rated V-0, 120°C. Measured min thickness 1.0 mm. Secured to the yoke by physical fit. Refer to ILL. 12 for further dimensional details.
10. Pressure Terminals - Copper alloy, four provided, measured 0.8 mm thick, soldered to power PWB. Provided four No. 8 UNC 32 screws combination with terminal plates. Screw head with black, white, black, red color plating for Line, Natural, Load, Traveler Terminal respectively. Engages minimum two full threads in terminal plate. See ILLS. 13, 14, 15 for terminal, screw and terminal plate dimensions details respectively.
11. Grounding Terminal - Consisted of one steel No. 8 UNC 32 screw combination with one terminal plate integral with yoke. Screw head with green color plating. Engages minimum two full threads in terminal plate. See ILLS. 16 and 15 for screw and terminal plate dimensions details respectively.
12. Light Guide - R/C (QMFZ2), R/C (QMFZ2), PC, molded of PC-DV manufactured by XIAMEN TIANYU PLASTIC INDUSTRY CO LTD, (E309739). Secured to the Switch frame by physical fit. See ILL. 17 for further dimensional details.
13. Matched key - R/C (QMFZ2), PC, molded of 945(GG) manufactured by Sabic Japan L L C, (E207780), rated V-0, 120°C. Secured to the switch frame by physical fit. Refer to ILL. 18 for further dimensional details
14. Relay (K1) - R/C (NRNT2/8), Model AZ943-1CH-5DE, AMERICAN ZETTLER INC (E44211), rated 125 V ac, 12 A.
15. Fuse (F1) - R/C (JDYX/7), Model TSP, SHANGHAI FULLNESS ELECTRICAL CO LTD (E485357), Rated 250 V ac, 10 A.
Alternate - Listed (JDYX/7), rated 250 V ac, 10 A.
16. Fusing Resistor (FR1) - R/C (FEPW2/8), R/C (FEPW2/8), Model RXF-0.5W, SHENZHEN GREAT ELECTRONICS CO LTD (E301541), Rated 1/2 W, 30 ohms.
17. X Capacitors (CX1, CX2) - R/C (FOWX2/8), class X2, each rated 275 V ac min., 0.1 µf maximum, 105 °C minimum.
18. X Capacitor (CX3) - R/C (FOWX2/8), class X2, rated 275 V ac min., 150 nf maximum, 105 °C minimum. Pins of capacitor wrapped around by R/C (YDPU2) Sleeveings, rated min. 105°C.

19. Varistor (RV1) - R/C (VZCA2/8), SFI ELECTRONICS TECHNOLOGY INC (E334409), Type SFI0806SV241-201A, rated 150 Vac.
20. Electrolyte Capacitors:

CD1 - Rated 250 V, 3.3 μ F, min. 105°C.
CD2 - Rated 25 V, 220 μ F, min. 105°C.
21. Diodes -

D1, D3, D6: SMD type, Rated 1000 V, 1 A.
D2, D5, D7, D9: SMD type, Rated 600 V, 1 A.
22. Choke (L5) - Rated min. 20 μ H, 22 turns of 0.9 mm diameter copper wire wound around a ferrite core. Overall 10.0 mm OD by 18.0 mm high. See ILL. 19 for additional details.