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REPORT

On

LOW VOLTAGE DECORATIVE LIGHTING PRODUCTS
LOW VOLTAGE DECORATIVE LIGHTING PRODUCTS CERTIFIED FOR CANADA

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ZHEJIANG, CHINA

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DESCRIPTION

PRODUCT COVERED:

USL/CNL - Low voltage decorative lighting strings, Models QD series, for indoor and outdoor use. See Nomenclature and Table 1 for model number designation.

ELECTRICAL RATINGS:

120 V, 60 Hz. See Table 1 for additional ratings.

NOMENCLATURE:

Model **QD 1 -20 C**
 a b c

Where:

a =	May be one or three alphanumerical digit/letter for representative of power supply unit, see Table 1 for details.
b =	Total lamp numbers, from 20 to 2000.
c =	"C" for lighting strings employed with control unit; blank for lighting strings employed without control unit.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD ENGINEER'S USE):

These products are for use with a maximum input voltage rating of 120 V, 60 Hz, and are for temporary use, which is a period of installation and use not exceeding 90 days.

These products consist of a Listed (EPBU/7) Class 2 power units **or Component, Seasonal-Use LED Driver (DGXU2/8)** with non-replaceable type of LED string segment.

USL - Products designated USL have been investigated using US requirements as noted in the Test Record.

CNL - Products designed CNL have been investigated using Canadian requirements as noted in the Test Record.

VERIFICATION OF CANADIAN CERTIFIED COMPONENTS:

The descriptions of certain components in this report contain the notation "CN". "CN" indicates that the component has been evaluated to Canadian requirements. Whenever "CN" appears in the component description, the UL Representative shall confirm that the component has a CSA Certification Mark, a Canadian UL Listing Mark, a Canadian UL Recognition Mark, or an equivalent identifier, if the Listed product described in this report bears the C-UL Mark.

USL MARKING:

The height of lettering of the required markings shall be as follows:

- a) Uppercase letters shall not be less than 1/12 in (2.1 mm) in height.
- b) Lowercase letters shall not be less than 1/16 in (1.6 mm) in height.
- c) The words "CAUTION" and "WARNING" shall be in letters not less than 3/16 in (4.8 mm) in height.

The required markings shall be legible and shall comply with the following:

The marking shall be indelibly stamped or printed black on a white PGIS2 that complies with UL 588 or UL 817 flag-type tag with adhesive back.

Cord Tag Markings - Markings located on a tag as described below may continue on the second side of the tag, such that when the first side is read completely, the tag is to be turned over to read the remainder of the marking. At the end of the markings on the first side of the tag, the tag shall be marked: "See other side." Before the remainder of the required markings on the second side of the tag, the tag shall be marked: "Continued from other side." The word "CAUTION" may appear only once at the beginning of the marking, followed by a numbered list.

The markings specified below shall be located on a tag attached to the product within 6 inches (152.4 mm) of the exit of the power supply.

See Ill. 1, Cord Tag #S01 for the wording and layout of the Cord Tag. The Cord Tag shall be filled in appropriately according to the notes in Ill. 1.

USL PACKAGING MARKINGS:

Each individual carton or container in which a product is packaged shall be marked, where readily visible without opening the package with the following or the equivalent:

"For Indoor and Outdoor Use", "Indoor and Outdoor Use" or "Indoor and Outdoor" when the product is intended for indoor and outdoor use.

The location of the Markings shall comply with one of the following:

- a) When packaged in a carton, the Marking shall appear on the outside front cover.
- b) When packaged in a bag, the Marking shall appear on two opposing sides of the bag. If the bag is opaque the letters shall be printed on a high contrast background. If the bag is transparent, the letters shall be printed in black on a white opaque background.
- c) When packaged in a bag attached to a piece of cardboard, the Marking shall appear on both sides of the cardboard.
- d) When packaged in a transparent polymeric covering attached to cardboard, the Marking shall appear on the front of the package, on the cardboard.

The height of lettering of the above required Markings shall be as follows:

- a) Upper case letters shall not be less than 1/12 inch (2.1 mm) in height.
- b) Lower case letters shall not be less than 1/16 inch (1.6 mm) in height.

The required Markings shall be legible and the letters shall be on a high contrast background except when packaged in a transparent bag, in which case, the letters shall be printed in black on a white opaque background.

The required Marking shall be durable, legible, and permanent. A Marking shall be considered permanent if it is indelibly stamped or printed on the packaging or on a pressure sensitive adhesive-backed label.

USL INSTRUCTION MANUAL:

The height of the lettering in the text and illustrations of the instructions specified below shall be as follows:

- a) Upper case letter shall not be less than 1/12 inch (2.1 mm) in height.
- b) Lower case letters shall not be less than 1/16 inch (1.6 mm) in height.
- c) The phrases "IMPORTANT SAFETY INSTRUCTIONS," "READ AND FOLLOW ALL SAFETY INSTRUCTIONS" and "SAVE THESE INSTRUCTIONS" shall be in letters not less than 3/16 inch (4.8 mm) in height.

The items may be numbered. The phrases "READ AND FOLLOW ALL SAFETY INSTRUCTIONS" and "SAVE THESE INSTRUCTIONS" shall be first and last, respectively, in a list of items. Other important safety instruction items considered appropriate by the manufacturer may be inserted.

The following instructions shall be provided on a stuffer sheet, on the outside surface of the carton of the product or in an instruction manual of the product:

See Ill. 2 for the wording and layout of the Instruction Manual. The Instruction Manual shall have the Model number of the product or products, which it covers.

CNL MARKINGS:

The height of lettering of the required markings shall be as follows:

- a) a minimum height of 2.1 mm (0.0827 in) for letters that are upper case;
- b) a minimum height of 1.6 mm (0.062 in) for letters that are lower case;
- c) a minimum height of 4.8 mm (0.189 in) for all letters of any signal words which include "WARNING" and "CAUTION".

All markings required shall be legible, permanent and easy to read. Permanent markings are considered to be one or more of the followings:

- a) stamped onto the housing, attachment plug blade, or unit;
- b) molded into the parts of the unit; and
- c) on an adhesive-backed label complying with the requirements of CSA C22.2 No. 0.15. The label shall be permanently stamped or printed and be suitable for the type of surface, temperature, and environment such as indoor or outdoor.

A flag style tag shall be used if the markings are to be adhered to any product wiring. The back of the tag shall contain adhesive and placed over the wires so that the tag wraps around the wire and extends past the wire like a flag.

CNL MARKINGS: (CONT'D)

When a flag style tag is used, markings shall be placed on the tag such that the tag does not have to be flipped to read each sentence, but only flipped once to read the complete markings on the other side of the tag. In such case, the first side of the tag shall be marked at the end of the first set of markings with "See other side" and the start of the second side of the tag shall be marked "Continued from other side".

See Ill. 1, Cord Tag #CS01 for the wording and layout of the Cord Tag. The Cord Tag shall be filled in appropriately according to the notes in Ill. 1.

CNL SAFETY INSTRUCTIONS:

The lettering of the instructions, including the text in illustrations specified, shall comply with the following minimum letter height requirements:

- a) a minimum height of 2.1 mm (1/12 in) for letters that are upper case;
- b) a minimum height of 1.6 mm (1/16 in) for letters that are lower case; and
- c) A minimum height of 4.8 mm (3/16 in) for the following phrases or words:
 - i) "IMPORTANT SAFETY INSTRUCTIONS";
 - ii) "READ AND FOLLOW ALL SAFETY INSTRUCTIONS";
 - iii) "SAVE THESE INSTRUCTIONS";
 - iv) "WARNING"; and
 - v) "CAUTION".

CNL IMPORTANT SAFETY INSTRUCTIONS:

The items may be numbered. The phrases "READ AND FOLLOW ALL SAFETY INSTRUCTIONS" and "SAVE THESE INSTRUCTIONS" shall be first and last, respectively, in a list of items. Other important safety instruction items considered appropriate by the manufacturer may be inserted.

The following instruction manual shall be printed on the outside surface of the retail packaging, or on a separate sheet of paper. For several products packaged as one retail sell unit, only one set of instructions is required:

See Ill. 3 for the wording and layout of Instruction Manual. The Instruction Manual shall have the Model number of the product or products, which it covers.

CNL RETAIL PACKAGING:

The retail packaging shall be marked with the following or equivalent as appropriate:

- a) "For indoor and outdoor use".

The marking shall and be on a high colour contrast background unless located on a poly bag.

The retail packaging markings shall be placed:

- a) on the front panel when in a retail box or container;
- b) on opposite sides of the bag when packaged only in a bag;
- c) on both sides of the header card when packaged in a bag attached to a header card; or
- d) on the front of the card for a blister card or other packaging that is a transparent or translucent material holding the product to a card.

The retail packaging marking shall not be required for products without packaging rated for outdoor use.

TABLE 1

Model No.	No. of Total Lamps	Cat. No. of Class 2 Power Supply	Total Input Ratings	
			Current, A	Power, W
QD1-XC	20-500	JT-DC300V0120-C	0.2	24
QD2-XC	20-800	JT-DC300V0200-C	0.2	24
QD3-XC	20-1200	JT-DC300V0280-D	0.3	36
QD4-XC	20-2000	JT-DC300V0400-F	0.5	60
QDA-XC	20-500	GP-SW290DC0125-IP44 (US)	0.22	26.4
QDB-XC	20-800	GP-SW290DC0209-IP44 (US)	0.22	26.4
QDC-XC	20-1200	GP-SW290DC0290-IP44 (US) A	0.22	26.4
QDD-XD	20-2000	GP-SW290DC0413-IP44 (US) B	0.3	36
QD12A-XC	20-500	JT-DC120V0300-C	0.2	24
QD12B-XC	20-800	JT-DC120V0500-C	0.2	24
QD12C-XC	20-1200	JT-DC120V0600-D	0.3	36
QD12D-XC	20-2000	JT-DC120V0700-D	0.3	36

Note: "X" indicates total lamp numbers. See NOMENCLATURE for details.

LOW-VOLTAGE DECORATIVE LIGHTING STRING
USL/CNL MODEL QD1-20C
FOR INDOOR AND OUTDOOR USE

FIG. 1
ILLS. 4-7

General - The general design, shape, and arrangement shall be as illustrated except where variations are specifically described. Fig. 1 depicts the overall view of Model QD1-20C. Also represents Models listed in Table 1.

Class 2 Power Supply - Listed (EPBU/7), manufactured by Changzhou Jutai Electronic Co., Ltd. (E200916), Cat. Nos. JT series, for indoor and outdoor use. See Table 2 for details. Secured to flexible cord via a male connector and a locking nut that comply with Downward Burning Rate Test.

Alternate - Seasonal-Use LED Driver, R/C (DGXU2/8), manufactured by Ningbo Golden Power Electronic Co., Ltd. (E496677), Cat. No. GP-SW290DC series, See Table 3 for details. Secured to flexible cord via a male connector and a locking nut that comply with Downward Burning Rate Test.

Flexible Cord - (For USL models) Parallel cord, Min. 26 AWG, insulation thickness minimum 0.4 mm, complies with VW-1 flame test. Connects Class 2 Power Supply and String Segment.

Alternate - (For CNL models) Listed (ZMJE), Type ATXW, 2-conductor parallel cord, Min. 26 AWG, rated 50°C, VW-1. Connects Class 2 Power Supply and String Segment.

Controller - Optional. One provided, located before string segment. Control box overall measured 70 OD by 30 mm, 66.9 OD by 37.7 mm, or 58.1 by 41.9 by 20 mm. See Ills. 4 thru. 7 for PWB details.

String Segment - Non-replaceable type. Consists of below items and all parts comply with Downward Burning Rate Test:

Heat Shrinkable Tubing - Enclosed the electrical connection of LED leads and wires.

Barrier - Provided for each tubing to maintain the lamp lead spacing.

LED - Diameter may vary. Each rated 3 V, 20 mA. May be provided in various colors.

Wires - (For USL models) Extruded of PVC, Min. 27 AWG, insulation thickness minimum 0.4 mm, complies with VW-1 flame test.

Alternate - (For CNL models) Listed (ZMJE), Type ATXW, single conductor, Min. 26 AWG, rated 50°C, VW-1.

Alternate - Non-replaceable type. Consists of below items and all parts comply with Downward Burning Rate Test, see Fig. 2 for overall view:

Heat Shrinkable Tubing - Enclosed the electrical connection of Flexible Cord and Wires and enclosed the end of Wires.

LED - Consists of LED chip and epoxy. Each chip rated 3 V, 20 mA.

Wires - (For USL models) Parallel cord, Min. 26 AWG, insulation thickness minimum 0.4 mm, complies with VW-1 flame test.

Alternate - (For CNL models) Listed (ZMJE), Type ATXW, parallel cord, Min. 26 AWG, rated 50°C, VW-1.

Cord Tag - PGIS2, Marking and Labeling System, limited use to UL 588, any type is acceptable provided it is suitable for outdoor use. The tag shall be a flag-type tag with an adhesive back. The tag is to be wrapped once tightly around and adhered to the wire. The ends of the tag are to adhere to each other and project as a flag. Markings are printed in black on a white background.

Table 2

Cat. No. of Power Supply	Rated Input Current, A	Rated Output Voltage, V	Rated output Current, A
JT-DC300V0120-C	0.2	30	0.12
JT-DC300V0200-C	0.2	30	0.2
JT-DC300V0280-D	0.3	30	0.28
JT-DC300V0400-F	0.5	30	0.4
JT-DC120V0300-C	0.2	12	0.3
JT-DC120V0500-C	0.2	12	0.5
JT-DC120V0600-D	0.3	12	0.6
JT-DC120V0700-D	0.3	12	0.7

Table 3

Cat. No. of Power Supply	Rated Input Current, A	Rated Output Voltage, V	Rated output Current, A
GP-SW290DC0125-IP44 (US)	0.22	30	0.12
GP-SW290DC0209-IP44 (US)	0.22	29	0.209
GP-SW290DC0290-IP44 (US) A	0.22	29	0.29
GP-SW290DC0413-IP44 (US) B	0.3	29	0.4