



Certificate of Compliance

Certificate: 70048646

Master Contract: 170351

Project: 70048646

Date Issued: 2015-10-02

Issued to: **Bel Fuse Inc.**
206 Van Vorst St
Jersey City, New Jersey 07302
USA
Attention: Editha S. Vergara

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



*Juan-Carlos
Olivera*
Issued by: Juan-Carlos Olivera,
MSc.

PRODUCTS

CLASS – 5311 11 - POWER SUPPLIES - Component Type (CSA 60950-1-07-2nd Ed)

CLASS – 5311 91 - POWER SUPPLIES - Component Type (UL 60950-1-2nd Ed) - Certified to U.S. Stds

For details related to rating, size, configuration, etc. reference should be made to the CSA Certification Record or the descriptive report.

Component type power supplies intended for use with Information Technology and Business Equipment, where the suitability of the combination is to be determined by CSA Group.

Switch Mode Power Supply, Model Series EX*****-**; input rated 100-350V dc, max. 8A, output max. 550W, and Model Series LX*****-**; input rated 93-240V dc, or 93-240V ac, 14-440 Hz, max. 8A, output max. 550W.

Explanation of model designations:

1. First * may be “N”, “R”, “P”, or “S” to denote construction variations (e.g. “P” could be reduced DC input range).
2. Second * may be “1” or “2” to denote number of main outputs.
3. Third to fifth * may be 0-9 to denote the nominal output voltages and variations (difference from standard value (24V, 36V, 48V), e.g. output voltage 23V, 37V, 49V).
4. Sixth * may be “0”, “5”, “6”, or “7” to denote the operating ambient temperature range.



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5. Seventh * may be any character, number or blank to denote construction variations or options (e.g. K = different input/output connectors).

Output Ratings as follows:

X-family with one output			
Standard Type	Nominal Voltage (V)	Specification Type	Nominal Voltage (V)
1301	12	1302...1399	> 9.16...13.75
1601	24	1602...1699	> 13.75...27.5
1701	36	1702...1739	> 27.5...41.2
1801	48	1802...1839	> 41.2...54.95
1140	12	1902...1939	> 54.95
1240	24	1141...1199	12...< 24
1540	36	1241...1299	24...< 36
1740	48	1541...1599	36...< 48
1840	72	1741...1799	48...< 72
1940	110	1841...1899	72...< 110
		1941...1999	> = 110 < 150

X-family with two outputs					
Standard Type	Nominal Voltage Uo2 (V)	Nominal Voltage Uo2 (V)	Specification Type	Nominal Voltage Uo1 (V)	Nominal Voltage Uo2 (V)
2320	12	12	2321...2399	> 9.16...13.75	¹⁾
2660	24	24	2661...2699	> 13.75...27.5	¹⁾
2770	36	36	2771...2799	> 27.5...41.2	¹⁾
2880	48	48	2881...2899	> 41.2...54.95	¹⁾
			2901...2991	> 54.95	¹⁾

¹⁾ The output Uo2 is not determined for the designation.

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No 60950-1-07,
+Am.1:2011 +Am.2:2014
UL 60950-1-2014

- Information Technology Equipment - Safety - Part 1: General Requirements
- Information Technology Equipment - Safety - Part 1: General Requirements

CONDITIONS OF ACCEPTABILITY

When installed in the end use product, consideration shall be given to the following:

1. The power supply shall be installed in compliance with the enclosure, mounting, spacing, casualty and segregation requirements of the ultimate application.
2. Consideration should be given in the installation, that units with a rated output power of more than 240 W have energy hazardous level (>240VA).



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3. The output(s) for X family considered to be SELV up to a rated voltage of 57.5 V dc and hazardous secondary above 60 V dc to 150 V dc.
4. The need for conducting a leakage current test is to be determined as part of the end product evaluation. If product is marked for use above 75 Hz, a warning label for high leakage current shall be place near the input terminals.
5. This power supply has been evaluated for use in a pollution degree 3 environment for AC-inputs and pollution degree 2 for DC-inputs. The maximum working voltage present for AC inputs is 296 V and for DC inputs is 470 V.
6. The power supply shall be properly bonded in the main protective earthing termination in the end product and a suitable electrical and fire enclosure shall be provided.
7. When optional second fuse is located in neutral conductor the following marking should be considered: "Caution: Neutral Fusing".
8. For supply over 250Vdc the power supply must be provided with an external DC-Fuse.
9. Below is an Output Power/Ambient Temperature Operation Guide. Consideration should be given to the temperature on the reference point on the case (T MP). This point should not exceed the value in the table below for a given power rating and ambient temperature (Ta). The Temperature of the Reference Point on the Case (T MP) is an indicator of the internal component temperatures. If the temperature of the Reference Point is *identical or exceeds the guide limits in the end-use application, *temperatures of the critical components should be measured. The temperature at the Reference Point (T MP) is in correlation with the maximum transformer temperature on the multilayer board (T ML). The transformer, built in a multilayer PCB, is rated 130°C. Tests were conducted in 50°C, 60°C and 70°C ambient. Linear interpolation is permitted between two different ambient temperatures.

*X-Family					
Ta		50°C	60°C	70°C	Rated output power
T MP (max)		78°C	84°C	90°C	550 W max

Temperature Reference-Point Guide for the X-Family

Measurement 1: (550 W max)

LXN/50°C	Uin	Pout [W]	T MP [°C]	T ML [°C]	T MP' [°C]
E	92 V dc	550	78.2	119.5	78.7
F	87 V ac	493	76.2	116.7	79.5
A1	108.6 V ac	553	75.7	17.5	78.3

Average T MP' = 78

Measurement 2: (550 W max)

LXN/60°C	Uin	Pout [W]	T MP [°C]	T ML [°C]	T MP' [°C]
A	142.7 V ac	551	81.7	118.5	83.2
B	85.3 V ac	442	83	118	85
G1	91.8 V dc	491	84.5	118.7	85.8
F1	115.3 V dc	551	83.8	118.4	85.4



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Average T MP' = 84°C

Measurement 3: (550 W max)

LXN/70°C	U _{in}	P _{out} [W]	T MP [°C]	T ML [°C]	T MP' [°C]
B1	198 V ac	550	88.4	119.2	89.2
C1	86.6 V ac	400	89.1	119.1	90
D1	93 V dc	443	89.8	118.6	91.2
E1	171 V dc	551	89	119.5	89.5

Average T MP' = 90°C



Supplement to Certificate of Compliance

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*The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.*

Product Certification History

Project	Date	Description
70048646	2015-10-02	Switch Mode Component Power Supply, Model Series EX*****_**, Series LX*****_**. (C/US) (transferred from 173688 - 2247053 and upgraded to include Am1 and Am2).