

Certificate of Compliance

Certificate Number: LR 43865-6

Revision: LR 43865-11

Date Issued: November 28, 1995

Issued To: Otto Engineering Inc.
2 E. Main St.
Carpenterville, IL 60110
Attention: Mr. David Jacobsen

The products listed below are eligible to bear the CSA Mark.

**NOTE: The "NRTL/C" indicator may appear adjacent to the CSA Mark.*

Issued By: V.O. Roslin, P. Eng.
Toronto, ON Canada

Signature

PRODUCTS

CLASS 6241 10/90 - SWITCHES - Snap - Special Use

Special use switches, Series and ratings as follows:

Series:

B2 (Suppl.) rated 0.5A, 125V dc; 2.23A, 28V dc; 7A, 125/250V ac res.

K1 rated 10.1A, 125V ac, 1/3 hp, 250V ac, 65C, 1 p, 1 or 2 throw.

K2 rated 10.1A, 125V ac, 65C, 1 or 2 p, 1 or 2 throw.

U2-171 rated 0.5A, 30V dc; 7A, 125/250V ac res.

U2-172 rated 0.5A, 125V dc; 5A, 125/250V ac res.

*
The "NRTL/C" indicator adjacent to the CSA Mark signifies that the product has been evaluated to the applicable ANSI/UL and CSA Standards, for use in the U.S. and Canada. NRTL, i.e. Nationally Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.

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Legend:

1. (Suppl.) Supplementary Certification to include added ratings.
2. Suffixes are added to the above series designations to denote e.g. terminal style, actuator colour/style, switch action/circuit and illumination.

APPLICABLE REQUIREMENTS

CSA Std C22.2 No. 55-M1986-Special Use Switches

UL Std No. 1054-Special-Use Switches

Descriptive and Test Report

REPORT NO: LR 43865-6

Edition 1: October 20, 1993; Application No LR 43865-6 - Rexdale
Issued by M.W. Gryschuk, C.E.T.; Reviewed by V.O. Roslin, P. Eng.

Edition 2: November 28, 1995; Application No LR 43865-11 - Rexdale
Issued by V.O. Roslin, P. Eng.

Report Pages Reissued.

Figures Added: Figs 12 and 13

Certificate of Compliance has been issued.

Contents: Pages - 1 to 5
Figures - Figs 1 to 13
Attachments - 1 to 13

SUBJECT

CLASS 6241 10/90 - SWITCHES - Snap - Special Use

Special use switches, Series and ratings as follows:

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B2 (Suppl.) rated 0.5A, 125V dc; 2.23A, 28V dc; 7A, 125/250V ac res.
K1 rated 10.1A, 125V ac, 1/3 hp, 250V ac, 65C, 1 p, 1 or 2 throw.
K2 rated 10.1A, 125V ac, 65C, 1 or 2 p, 1 or 2 throw.
U2-171 rated 0.5A, 30V dc; 7A, 125/250V ac res.
U2-172 rated 0.5A, 125V dc; 5A, 125/250V ac res.

Legend:

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MARKINGS

The submittor's name/tradename/trademark (e.g. "Otto"), the CSA Mark and complete electrical rating are moulded or permanently ink-stamped on each switch. The catalogue number is either moulded or permanently ink-stamped on each switch, or appears on each containing carton. The letters "NRTL/C" may appear adjacent to the CSA Mark.

ALTERATIONS

The markings are as shown under Markings, above.

FACTORY TESTS

Not applicable.

Conditions of Certification: These switches are Certified only for supply to manufacturers for the assembly, as components, of equipment where the suitability of the combination is determined in the end use.

DESCRIPTION

Application No LR 43865-11: Adds (for Series K1 switches) 1/3 hp, 250V ac rating.

See the attached Photographs and Drawings, Figs 1 to 13.

PART A - Series B2 (Figs 1 to 5)

General: These Series B2 switches are similar to Series B2, previously Certified in Reports LR 43865-2, except for added ratings and as described below. They are also similar to the Series B5 switches Certified in previous Report LR 43865-2.

The following description represents all Series B2 switches, see Figs 1 to 5.

1. Housing: (Inner and outer - two part construction.) Moulded of materials having a min flammability classification of CSA 0.6HB, or equivalent; and a min Comparative Tracking Index of 175V, for shape and dimensions see Figs 1 to 5.
2. Actuator: Moulded of same materials as Item 1, above, approx 4.5mm long, 3mm wide and 2.3mm high.
3. Movable Contact Arm: Copper alloy gold plated, 0.1mm thick, 9.8mm long, 2.7mm wide and 1.5mm high.
4. Movable Contacts: Gold or silver with gold plating, 1.0mm thick (top with bottom), 1.8mm long and 1.4mm wide.
5. Movable Contact Arm Support: Copper alloy, silver plated, approx 0.4mm thick, 5.3mm long, 2mm wide and 3.3mm high.

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6. Upper Stationary Contact: Copper alloy, gold plated integral with outer terminal bus, approx 0.4mm thick, contact area: 2.55mm long and 2.2mm wide, overall: 2.9mm long, 2.55mm wide and 3.4mm high.

7. Lower Stationary Contact: Copper alloy gold plated integral with centre terminal bus approx 0.4mm thick, contact area: 2.55mm long and 1.5mm wide, overall: 5.1mm long, 2.55mm wide and 1.4mm high.

PART B - K Series (Figs 6 to 9, 11, 12)

General: Series K1 switches are single pole, single or double throw. Series K2 switches are identical to Series K1 switches except single or double pole, single or double throw.

The following dpdt description represents all K Series switches.

FIG 9

1. Case: Moulded plastic material, any tabulated below with dimensions, etc., as shown in Fig 8.

Generic Name	Designation	Mfr.	Flame Class (UL)	R.T.I. (UL) Mech. W/O Impact	C.T.I. (UL)
PBTP	Valox 310SEO	GE Plastics	94V-0(0.71mm)	140(0.71mm)	175-249V
PBTP	Valox 420SEO	GE Plastics	94V-0(0.71mm)	140(0.71mm)	175-249V
PBTP	Valox DR48	GE Plastics	94V-0(0.89mm)	140(0.89mm)	175-249V

2. Bottom Base: Same plastic materials as base, Item 1. Overall approx 31.5mm by 29mm by 26mm.

3. Button: Moulded plastic material, either one tabulated below. Overall approx 23mm by 20mm by 6.5mm; has integral plunger.

Generic Name	Designation	Mfr.	Flame Class (UL)	R.T.I. (UL) Mech. W/O Impact	C.T.I. (UL)
PBTP	Valox 780	GE Plastics	94V-0(0.81mm)	140(0.81mm)	175-249
PBTP	Valox 420	GE Plastics	94HB(0.71mm)	140(0.71mm)	600V+
PBTP	Valox 420SEO	GE Plastics	94V-0(0.71mm)	140(0.71mm)	175-249V

4. Plunger Tip: Moulded plastic material tabulated below. Overall approx 5.5mm by 4.5mm by 4.2mm.

Generic Name	Designation	Mfr.	Flame Class (UL)	R.T.I. (UL) Mech. W/O Impact	C.T.I. (UL)
PA66	RL-4040FR	LNP Plastics	94V-0(1.12mm)		

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5. Actuator: Same plastic material as the plunger tip, Item 4. Overall approx 18mm long, 17mm wide by 5.3mm high.
6. Movable Contacts: (Four provided) Silver cadmium oxide, silver or silver oxide, approx 0.64mm thick, 3.35mm dia.
7. Movable Contact Arm: (Two provided) Copper alloy, approx 0.1mm thick, 19.3mm long, 5.7mm wide and 4.1mm high.
8. Stationary Contacts: (Four provided) Silver cadmium oxide or silver; dimensions, etc., shown in Fig 12.
9. Stationary Contact Terminals: (Four provided) Brass; plating, dimensions, etc., as shown in Fig 12.
10. Common Terminals: (Two provided) Brass; plating, dimensions, etc., as shown in Fig 13.
11. O-Ring: (Not shown.) Vyton rubber approx 1.7mm dia material, 8.1mm od and 4.7mm id.

PART C - Series U2 (Fig 10 and 11)

General: Series U2 is similar to Series B2, described in Part A, except for the following major changes.

1. Housing: Approx 17.3mm long, 6.6mm wide and 13.3mm high.
8. Printed Circuit Board: UL 94V-2 min flame class material, approx 0.8mm thick, 16.2mm long and 0.635mm wide, see Figs 10 and 11.
9. Leads: (Three provided.) Approx 0.97mm dia thick.
10. Actuator Arm: Stainless steel approx 0.15mm thick, dimensions vary, see Figs 10 and 11.
11. Epoxy: (Not shown.) Stycast 2741 by Emerson and Cummings.

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TESTS

Application LR 43865-6: See the attached UL test results (Attachments 1 to 13) which were partially witnessed at North Brook, IL by Mike W. Gryschuk, C.E.T. on September 8, 1993.

Application LR 43865-11: The following tests were conducted by a Nationally Recognized Testing Laboratory (NRTL) with results attached to the CSA Engineering File Copy of this report only: Mould Stress Test, (horsepower) Overload Test, Endurance Test, Temperature Test, Dielectric Withstand Test.