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REPORT

on

COMPONENT - SWITCHES, SPECIAL USE

Crouzet Automatismes S.A.  
Valence, France

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## DESCRIPTION

## PRODUCT COVERED:

USR/CNR - Special-Use Switches, Component.

Obsolete Product: U83132.5 and U83133.5 (Retained for reference only).

Cat No	Electrical Rating	Temp. °C	Pol/Thr	PP	Endu r	SPCOA
*U83101+, U83101.4+, U83101.7+	10 A 125/250 V ac 0.5 HP 125 V ac 0.75 HP 250 V ac	65	1/1 or 1/2	-	6K	A3
*U83103+, U83104+, U83104.4+	10 A 125/250 V ac 0.5 HP 125 V ac 0.75 HP 250 V ac	65	1/1 or 1/2	-	6K	A3
*U83104.7+, U83105+, U83106+	10 A 125/250 V ac 0.5 HP 125 V ac 0.75 HP 250 V ac	65	1/1 or 1/2	-	6K	A3
*U83106.4+, U83106.7+, U83109++	10 A 125/250 V ac 0.5 HP 125 V ac 0.75 HP 250 V ac	65	1/1 or 1/2	-	6K	A3
*U83109.4++, U83109.7++, U83111++, U112++	10 A 125/250 V ac 0.5 HP 125 V ac 0.75 HP 250 V ac	65	1/1 or 1/2	-	6K	A3
*U83132, U83133, 83134, U83134, WW/O S, or 000 through 999	5 A, 125/250 V ac	65	1/1 or 1/2	-	6K	-
*U83132, U83133, 83134, U83134, f/b AU or AU.S, WW/O C	0.8 A, 250 V ac	65	1/1 or 1/2	-	6K	-
*U83132.5, U83133.5, 83134.5, U83134.5, f/b AU or AU.S, WW/O C	0.8 A, 250 V ac	65	1/1 or 1/2	-	6K	-
*U83200.xxx Series, where x denotes numbers/letters.	2 A, 125/250 V ac	90	1/1 or 1/2	-	6K	-

(Table continued)

Cat No	Electrical Rating	Temp. 0C	Pol/Thr	PP	Endur
*83500, 501, 502, 505, 507 through 511, 513, 515, 516, 518, 519, 520, 522, 526 or 527, all f/b 0, 3, 6 or 9	5 A, 125/250 V ac	65	M/M	-	6K
*83528 f/b 0, 3 or 6	5 A, 125/250 Vac	65	M/M	,	6K
*83528 f/b 0, 3 or 6, WW/O AU or AU.S	0.8 A, 250 V ac	65	M/M	,	6K
*83529, .531 through 535, 539 through 549, 552, 553 or 554, all f/b 0, 3, 6 or 9	5 A, 125/250 Vac	65	M/M	,	6K

+ - With or without added Suffix 97, 98, 98N, 99, 504 or 505, followed by Suffix C, I or R, followed by W1, W2, W3, W5, W6X or X, followed by added suffix letters.

++ - With or without Suffixes 0 to 9, and/or Suffix C, I or R, followed by Suffix W1, W2, W3, W5, W6X or X, followed by added suffix letters.

#### EXPLANATION OF PRODUCT COVERED TABLE:

##### Abbreviations if used:

- f/b - followed by
- ww/o - with or without
- Res. - Resistive load. 98-100 percent power factor.
- POL/THR - No. of Poles/No. of Throws. "M" stands for Multi-Pole or Multi-Throw, e.g. 2/M indicates 2 Pole, Multi-Throw.
- PP - "PP" stands for Per Pole. PP in this column indicates that each pole is capable of switching the rated current.
- ENDUR - Endurance Rating
- SPCOA - Special Conditions of Acceptability; the applicable special COAs are indicated in this column in number form. The corresponding COAs are given in the following pages.

## GENERAL:

The devices covered by this Report are SPST and SPDT special-use switches.

Catalog numbers with prefix Letter U replace catalog numbers without prefix Letter U. All references below are to the catalog numbers without the prefix Letter U.

\* Cat. Nos. 83500 Series are stacks of one, two, three or four basic switches. The basic switches are covered in this Report.

## ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - The switches covered by this Report are for use only in complete equipment where the suitability of the combination is determined by Underwriters Laboratories Inc.

USR indicates product complies with the Standard for Special-Use Switches, UL 1054, Edition Sixth.

CNR indicates product complies with the Canadian Standard for Special-Use Switches, CSA 22.2 No 55, Edition 2003.

## STANDARD CONDITIONS OF ACCEPTABILITY

General - The following five Conditions of Acceptability apply to all switches covered by this Report.

1. The switch terminals have been investigated for use only with copper wire or copper alloy, quick-connect terminals.
2. A standard sized quick-connect tab (per Table 7.1 of UL 1054) is to be mated with the appropriate standard size quick-connect connector. The tab is provided with a detent that shall be properly matched to the conductor.
3. The spacing between any terminals and a flat mounting surface has been judged in accordance with UL 1054 (Special Use Switches). However, the spacing requirements between the connection when installed on the terminal and the mounting surface shall comply with the end-use Standard spacings.

4. For switches with integral leads, the temperature rating of the leads is 60°C minimum unless the leads are surface marked with a higher rating.

5. The switch has been subjected to a minimum 6000 c endurance test.

#### SPECIAL CONDITIONS OF ACCEPTABILITY

General - One or more of the following Conditions of Acceptability apply as indicated in the Product Covered table on Page 1 of this Report under the SPCOA (Special COA's) column.

1. The nonstandard quick-connect tabs (i.e., other than noted in Table 7.1 of UL 1054) have been investigated with a specific nonstandard connector attached to wires of a specified size.

2. These are lighted switches employing a lamp. The lamp life should be evaluated when required by the end-use product Standard.

3. The switch has openings in the housing adjacent to arcing parts. The end-use application may involve environments (such as excessive dust or adjacent combustible material) that would exclude an opening in the switch housing.

4. These are diaphragm activated water level switches. Samples of the diaphragm have been subjected to aging tests for use at a specific temperature (shown within parenthesis in °C) and have also been examined for tensile strength and elongation after exposure to detergent. However, if the switch is mounted below the level of water which indirectly actuates it and the switch has an integral metal case, the metal case is to be considered a live part.

5. These are speed control switches. The investigation was limited to the switching function of the switch. In the final application it should be determined that the speed control circuit can be used with a particular appliance without resulting in a hazardous condition such as overheating of a motor or the switch in other than the full speed position. Open and shorted components of the speed control circuit shall be evaluated for compliance with the end-use Standard.

6. The switch employs screw-type pressure wire connectors or push-in terminals. These have been evaluated for use with solid and/or solder dipped stranded conductors of a specified size (shown within parenthesis in AWG).

7. These switches employ an integral potentiometer. The investigation was limited to the switching function of the switch. The insulating materials and spacings of the integral potentiometer should be investigated for compliance with the end-use product Standard.

8. The switch employs auxiliary contacts located externally of the main switch contact chamber. The auxiliary contacts were not tested as part of this investigation. The suitability of the auxiliary contacts must be determined in accordance with the end product Standard.

\* A3. Cat.Nos. 83112.028 and 83112.029 that represent the family 83101, 83103, 83104, 83105, 83106, 83109, 83111 and 83112 had been evaluated for dc control circuit rating R150 (0.22A - 125 VDC) in accordance with the standard for Industrial Control Equipment (UL 508).

## NOMENCLATURE BREAKDOWN

*83xx	0	X	X	X
I	II	III	IV	V

## I - Basic Switch Designation

Sub sub miniature micro-switch

## II - Electrical Rating / Button Over Travel / Function

Type	Electrical Rating	Button Over Travel (mm)	Function
0	2A 125/250 Vac	2	Change-over switch (inversor)
2	2A 125/250 Vac	2	Breaker (rupture)
4	2A 125/250 Vac	2	Contactator
6	2A 125/250 Vac	1.5	Change-over switch / Breaker / Contactator

## III - Commutation Levers

- flat lever or not;
- roller or not;
- lenght

## IV - Plastic enclosure Pins

- flat lever or not;
- with or without;
- 2 pins in the front;
- 2 pins at the rear;
- 4 pins;
- lenght of pins;
- fixation accessory

## V - Terminals types

Terminal type	Designation
X1	Standard straight
X1L	standard straight Long
X2	Rear side
X3	Front side
CMS2	Surface mounted Rear side
CMS3	Surface mounted Front side
W2	Wire connection with hole
W2ST	Wire connection without hole