

File E71572
Project 04NK16744

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REPORT

on

COMPONENT - SUPPLEMENTARY PROTECTORS

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DESCRIPTION

PRODUCT COVERED:

USR, CNR - Component - Supplementary Protectors, Type T9, may be followed by a letter or a digit, followed by a dash, followed by 2, 3, 6, 7 or 8 followed by 1 or 4, followed by 1,6,7,8 or 9 followed by P, Q, R, S or C, followed by a dash, followed by suffixes 3 through 16, may be followed by "A" (see Note in type nomenclature below). May also be followed by a dash and suffix numbers up to 3 letters or digits. May also be followed by a dash and suffix numbers up to 5 letters or digits.

These devices are single-pole, thermal trip, manual reset, overcurrent protectors. These devices are intended for general industrial use and household and commercial appliances. They are not provided with manual means of opening the circuit.

RATINGS:

* Trip Rating - 135 percent of marked ampere rating for the 5-16 amp **devices**, 145 percent of the marked ampere rating for the 4 amp device **and 150 percent of the marked ampere rating for the 3 amp device.**

Type	UG	FW	Maximum, V	Freq., Hz	Maximum A	No. of Poles	TC	OL	SC
OC	A,B,C,D	0	240 ac	50/60	4-16	1	1	0	2 kA @ 240 V, C1
OC	A,B,C,D	0	240 ac	50/60	3	1	2	0	2 kA @ 240 V, C1
OC	A,B,C,D	0	32 dc	-	>12-16	1	1	0	2 kA @ 32 V, C1
OC	A,B,C,D	0	48 dc	-	4-12	1	1	0	2 kA @ 48 V, C1
OC	A,B,C,D	0	48 dc	-	3	1	2	0	2 kA @ 48 V, C1

NOMENCLATURE BREAKDOWN:

$\frac{T9}{a} \quad \frac{1}{b} \quad - \quad \frac{6}{c} \quad \frac{1}{d} \quad \frac{1}{e} \quad \frac{P}{f} \quad - \quad \frac{10}{g} \quad - \quad \frac{480}{h} \quad - \quad \frac{TZZ31}{i}$

- a. Single pole thermal overload protection.
- b. Additional type description code (optional): may be a letter or digit
- c. Mounting Style
 2: Threaded-neck type with plastic nut
 3: Threaded-neck type with metal nut
 6: Snap in type.
 7: Snap-in rear type
 8: on PCB through plates (max. 15A)
- d. Actuation type
 1: Reset type (**R Type**), black front
 4: Reset type (R Type), white front.
- e. Terminal type
 1: 6.3 by 0.8 mm quick connect terminals.
 6: Vertical PCB mounting (max. 12A)
 7: Vertical PCB mounting short (max. 12A)
 8: Horizontal PCB mounting
 9: Solder terminals
- f. f. Front marking
P: Rated current marked on front (on type T9-6xxx only)
Q: Rated current marked on front (on type T9-6xxx only)
R: Rated current marked on front (on type T9-6xxx only)
S: Rated current marked on front (on type T9-6xxx only)
C: Rated current not marked on front
- g. Rated current (in amperes): 3-16
 (Note: On Product Label, the number that describes rated current is followed by "A".)
- h. Special marking, label or package (optional): suffix numbers up to 3 letters or digits.
- i. Accessories (optional)
 TZZ31: Protection cover with plastic nut
 TZZ41: Protection cover with metal nut
 These protection covers are for types T9x-2xxx or T9x-3xxxx only.

File E71572

Vol. 1

Sec. 8
and Report

Page 1A

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Replacement page, this page replaces page 1A

ENGINEERING CONSIDERTIONS (NOT FOR INSPECTOR USE):

Use - For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

* USR - Indicates investigation to the **US requirements as noted in the Test Record.**

* CNR - Indicates investigation to the **Canadian requirements as noted in the Test Record.**

Conditions of Acceptability -

1. These devices should be used within the Recognized ratings specified above.

2. These devices are intended for mounting in an overall enclosure of adequate strength and thickness, and with the acceptable spacings provided in accordance with the end product application.

3. The terminals of these devices are factory wiring only.

4. These devices are designed to trip within the trip curve characteristic provided by the manufacturer. See Fig. 2 for 4-16 A ratings. See Fig. 6 for 3 A rating.

5. These devices are not suitable for branch circuit protection.

6. The temperature test was conducted by mounting a sample of the protector in a thermally insulated enclosure measuring 22 by 32 by 70 mm overall. Applications of these protectors in smaller enclosures shall be determined suitable in the end-use application. A maximum temperature rise of 47°C was recorded on the case of the device.

7. No endurance tests were conducted because this is not a manual "ON" "OFF" device.

8. These devices have been short-circuit tested with a nonrenewable cartridge fuse in series with the protector. The series fuse was rated 20A, Class J, for 4-16 A ratings. The series fuse was rated 16A, Class J, for 3 A rating.

9. Dielectric strength tests in accordance with CSA C22.2 No. 235-04, Par. 6.8.4.4 were not conducted after the short circuit tests since the protectors were in a tripped state or the contacts welded. The welded contacts state is denoted by the letter "P" in the data sheets. Used short circuit fuse has stopped current flow in the circuit.

- * 10. The Operating Temperature Range, Storage Temperature and the Derating Factor for Model T9 as indicated in the table below have not been evaluated to UL 1077. The suitability of these devices to perform at these temperature ratings shall be determined in the end-use application.

Operational / storage temperature and other temperature ratings

Operational temperature range:	3 A	-5°C ... +60°C
	4 A	-30°C ... +50°C
	5 A to 16 A	-30°C ... +60°C
Storage temperature	3 A to 16 A	-35°C ... +70°C

Up- / derating factor

CBE tripping behaviour is dependent on temperature			
Ambient temperature (°C)	factor		
	3 A	4 A	5 A to 16 A
- 30	n/a	0.7	0.8
- 5	0.85	0.85	0.85
+ 23	1	1	1
+ 50	1.15	1.2	1.1
+ 60	1.2	n/a	1.2

- * 11. These protectors have been designated trip-free, cycling.