

DESCRIPTION

PRODUCT COVERED:

USR, CNR - Type T9A; followed by N, P, S, V, C, B or F; followed by 1, 2, 2X, or 5; followed by D, E, L or H; followed by 1, 2 or 5; followed by 1, 2, **4, 6 or 7**; followed by 5 through 110; may be followed by up to two letters and/or numbers.

USR, CNR - Type T9A, followed by 4000 through 4999, may be followed by a "-" and one or two numbers, may be followed by up to four numbers and or letters.

USR - Type T9E; followed by S, or V; followed by 1 or 5; followed by D or L; followed by 1 or 2; followed by 2, 4 OR 7; followed by 5 through 110; may be followed by up to two letters and/or numbers.

USR - Type T9S, followed by S or V, followed by 1, followed by K, followed by 1, followed by 5, followed by 12, may be followed by two letters and/or numbers.

GENERAL:

These devices are open type, single pole, magnetically operated relays provided with normally open normally closed or double throw contacts. They are intended for use in industrial control equipment, vending machines, office equipment, data processing equipment, appliance applications and temperature indicating and regulating equipment where the suitability of the combination has been determined by Underwriters Laboratories Inc.

RATINGS:

Coil - 5 V dc - 110 V dc maximum, Class 155(F) insulation (OBJY2).

Ambient Temperature - 105°C maximum for relays rated 15 A or less (except Code "H" coil is 25 A), 85°C maximum for relays rated 25 A or less, 80°C maximum for relays rated over 25 A, **except 30A NC rating on code '2X' contact arrangement is only 25C.** .

85°C maximum for T9S series, rated at 35 A.

For the following ratings, spacings were judged under UL 508,
Table 34.1, Column A.

These ratings apply to silver-cad-oxide contacts (Suffix 2).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	20 A	10 A	100,000
120 V ac	LRA/FLA	98/22 A	-	100,000
120 V ac	Tungsten	8.3 A	-	6,000
120 V ac	LRA/FLA	87/14.5 A	-	30,000 (#)
120 V ac	LRA/FLA	50/16 A	-	100,000 (%)
120 V ac	LRA/FLA	30/11 A	-	200,000 (%)
120 V ac	Pilot Duty	470 VA	-	30,000
125 V ac	Ballast	20 A	20 A	6,000
125 V ac	Motor	1 Hp	1/4 Hp	1,000
125 V ac	Resistive	30 A	15 A	100,000
125 V ac	General Purpose	30 A	15 A	100,000
125 V ac	LRA/FLA	48/8 A	-	100,000
125 V ac	Pilot Duty	125 VA	125 VA	6,000
277 V ac	Carry-only at (60°C)	30 A	30 A	-

These ratings apply to silver-tin-indium-oxide contacts (Suffix 4).

Contact Arrangement -

1 Form B, Code 2X Only

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		(NO)	(NC)	
120 V ac	Tungsten	-	1000 W (8.33 A)	6,000
120 V ac	Ballast	-	15 A	6,000

1 Form A

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		(NO)	(NC)	
120 V ac	Tungsten	15A	-	6,000
125 V ac	TV	TV-8	-	25,000 (%)

(#) - Denotes rating at ambient temperature 85°C maximum.

(##) - Denotes rating at ambient temperature 105°C maximum.

(%) - Denotes coil Type "L", "E" or "D." All other ratings are Type "D" or "E" only.

Contact Arrangement:

1 Form C; (NO) ratings also apply to 1 Form A

Maximum Voltage	Load	<u>Max. Contact Ratings</u>		Number of Operations
		(NO)	(NC)	
28 V dc	RESISTIVE	20 A	10 A	100,000
120 V ac	LRA/FLA	98 A/22 A	-	100,000
120 V ac	TUNGSTEN	8.3 A	-	6,000
125 V ac	BALLAST	20 A	20 A	6,000
125 V ac	MOTOR	1 hp	1/4 hp	1,000
125 V ac	RESISTIVE	30 A	15 A	100,000
125 V ac	GENERAL PURPOSE	30 A	15 A	100,000
125 V ac	LRA/FLA	48 A/8 A	-	100,000
125 V ac	PILOT DUTY	125 VA	125 VA	6,000
120 V ac	LRA/FLA	87 A/14.5 A	-	30,000#
250 V ac	RESISTIVE	18 A	-	100,000(##)

(#) - Denotes rating at ambient temperature 85°C maximum.

(##) - Denotes rating at ambient temperature 105°C maximum.

For the following ratings, spacings were judged under UL 508, Table 34.1, Column B.

These ratings apply to silver-cad-oxide contacts (Suffix 2).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
240 V ac	Resistive	15 A	-	100,000(##%)
240 V ac	Motor	1 Hp	0.5 Hp	1,000
240 V ac	Motor	-	1 Hp	50,000
240 V ac	Ballast	6 A	3 A	6,000
240 V ac	General Purpose	10 A	10 A	100,000
240 V ac	Resistive	10 A	10 A	100,000
240 V ac	LRA/FLA	80/10 A	33/10 A	30,000
240 V ac	Pilot Duty	470 VA	275 VA	6,000
240 V ac	LRA/FLA	-	30/15 A	30,000
240 V ac	LRA/FLA	43.8/7.3 A	-	30,000 (#)
240 V ac	General Purpose	30 A	-	100,000(##%)
240 V ac	LRA/FLA	30/15 A	-	100,000(##%)
240 V ac	Resistive	18 A	-	100,000(%%)
240 V ac	Pilot Duty	470 VA	275 VA	30,000
240 V ac	Resistive	30 A	20 A	6,000
240 V ac	Resistive	-	20 A	6,000
240 V ac	Resistive	-	15 A	6,000(%)
240 V ac	Resistive	18 A	-	100,000(++)
240 V ac	Resistive	25 A	-	6,000(+++)
277 V ac	LRA/FLA	60/10 A	-	30,000
277 V ac	General Purpose	10 A	6 A	100,000
277 V ac	LRA/FLA	36/5.7 A	-	100,000
277 V ac	Resistive	10 A	6 A	100,000
277 V ac	Ballast	10 A	3 A	6,000
277 V ac	Resistive	10 A	-	100,000
277 V ac	Motor	1 Hp	-	6,000
277 V ac	Tungsten	5.46 A	-	6,000
277 V ac	Resistive	20 A	-	(+)
277 V ac	LRA/FLA	36/6 A	-	30,000(#)
277 V ac	Carry-only at 60°	30 A	30 A	-
277 V ac	Ballast	20 A	-	6,000

(#) - Denotes rating at ambient temperature 85°C maximum.

(##) - Denotes rating at ambient temperature 105°C maximum.

(%) - Denotes coil Type "L", "E" or "D." All other ratings are Type "D" or "E" only.

(%%) - Denotes coil Type "L" and enclosure Type "N" only at 105°C maximum.

(+) - Denotes carry only (poles do not switch load).

(++) - Denotes coil Type "L" only at 105°C maximum.

(+++)- Denotes coil Type "H" only at 105°C maximum.

For the following ratings, spacings were judged under UL 873,
Table 29.1, Column A.

These ratings apply to silver-cad-oxide contacts (Suffix 2).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	20 A	10 A	100,000
120 V ac	LRA/FLA	98/22 A	-	100,000
120 V ac	Tungsten	8.3 A	-	6,000
120 V ac	LRA/FLA	87/14.5 A	-	30,000 (#)
120 V ac	LRA/FLA	50/16 A	-	100,000 (%)
120 V ac	LRA/FLA	30/11 A	-	200,000 (%)
120 V ac	Pilot Duty	470 VA	-	30,000
125 V ac	Ballast	20 A	20 A	6,000
125 V ac	Motor	1 Hp	1/4 Hp	1,000
125 V ac	Resistive	30 A	15 A	100,000
125 V ac	General Purpose	30 A	15 A	100,000
125 V ac	LRA/FLA	48/8 A	-	100,000
125 V ac	Pilot Duty	125 VA	125 VA	6,000
277 V ac	Carry-only at 60°C	30 A	30 A	-
277 V ac	General Purpose	30 A	-	100,000

(#) - Denotes rating at ambient temperature 85°C maximum.

(##) - Denotes rating at ambient temperature 105°C maximum.

(%) - Denotes coil Type "L", "E" or "D." All other ratings are
Type "D" or "E" only.

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns B, C and D.

These ratings apply to silver-cad-oxide contacts (Suffix 2).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
240 V ac	Resistive	15 A	-	100,000(##%)
240 V ac	Motor	1 Hp	0.5 Hp	1,000
240 V ac	Motor	-	1 Hp	50,000
240 V ac	Ballast	6 A	3 A	6,000
240 V ac	General Purpose	10 A	10 A	100,000
240 V ac	Resistive	10 A	10 A	100,000
240 V ac	LRA/FLA	80/10 A	33/10 A	30,000
240 V ac	Pilot Duty	470 VA	275 VA	6,000
240 V ac	LRA/FLA	-	30/15 A	30,000
240 V ac	LRA/FLA	43.8/7.3 A	-	30,000 (#)
240 V ac	General Purpose	30 A	-	100,000(##%)
240 V ac	LRA/FLA	30/15 A	-	100,000(##%)
240 V ac	Resistive	18 A	-	100,000(%%)
240 V ac	Pilot Duty	470 VA	275 VA	30,000
240 V ac	Resistive	30 A	20 A	6,000
240 V ac	Resistive	-	20 A	6,000
240 V ac	Resistive	-	15 A	6,000(%)
240 V ac	Resistive	18 A	-	100,000(++)
240 V ac	Resistive	25 A	-	6,000(+++)
277 V ac	LRA/FLA	60/10 A	-	30,000
277 V ac	General Purpose	10 A	6 A	100,000
277 V ac	LRA/FLA	36/5.7 A	-	100,000
277 V ac	Resistive	10 A	6 A	100,000
277 V ac	Ballast	10 A	3 A	6,000
277 V ac	Resistive	10 A	-	100,000
277 V ac	Motor	1 Hp	-	6,000
277 V ac	Tungsten	5.46 A	-	6,000
277 V ac	Resistive	20 A	-	(+)
277 V ac	LRA/FLA	36/6 A	-	30,000(#)
277 V ac	Carry-only at 60°C	30 A	30 A	-
277 V ac	Ballast	20 A	-	6,000

(#) - Denotes rating at ambient temperature 85°C maximum.

(##) - Denotes rating at ambient temperature 105°C maximum.

(%) - Denotes coil Type "L", "E" or "D." All other ratings are Type "D" or "E" only.

(%%) - Denotes coil Type "L" and enclosure Type "N" only at 105°C maximum.

(+) - Denotes carry only (poles do not switch load).

(++) - Denotes coil Type "L" only at 105°C maximum.

(+++)- Denotes coil Type "H" only at 105°C maximum.

For the following ratings, spacings were judged under UL 508, Table 34.1, Column C.

These ratings apply to silver contacts (Suffix 1). Contact Arrangement:

1 Form C; (NO) ratings also apply to 1 Form A

Maximum Voltage	Load	Max. (NO)	Contact Rating (NC)	Number of Operations
240 V ac	RESISTIVE	10 A	5 A	100,000
240 V ac	GENERAL PURPOSE	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 873, Table 29.1, Column A.

These ratings apply to silver contacts (Suffix 1). Contact Arrangement:

1 Form C; (NO) ratings also apply to 1 Form A

Maximum Voltage	Load	Max. (NO)	Contact Rating (NC)	Number of Operations
28 V dc	RESISTIVE	10 A	5 A	100,000
125 V ac	RESISTIVE	10 A	5 A	100,000
125 V ac	GENERAL PURPOSE	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns B, C and D.

These ratings apply to silver contacts (Suffix 1). Contact Arrangement:

1 Form C; (NO) ratings also apply to 1 Form A

Maximum Voltage	Load	Max. (NO)	Contact Rating (NC)	Number of Operations
240 V ac	RESISTIVE	10 A	5 A	100,000
240 V ac	GENERAL PURPOSE	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns E and F.

These ratings apply to silver contacts (Suffix 1).
Contact Arrangement:

1 Form C; (NO) ratings also apply to 1 Form A Maximum

Voltage	Load	Max. Contact Rating		Number of Operations
		(NO)	(NC)	
28 V dc	RESISTIVE	10 A	5 A	100,000
125 V ac	RESISTIVE	10 A	5 A	100,000
125 V ac	GENERAL PURPOSE	10-A	5 A	100,000
240 V ac	RESISTIVE	10 A	5 A	100,000
240 V ac	GENERAL PURPOSE	10 A	5 A	100,000
277 V ac	Resistive	16 A	1 A	25,000++

For the following ratings, spacings were judged under UL 1950.

These ratings apply to silver contacts (Suffix 1). Contact Arrangement:

1 Form C; (NO) ratings also apply to 1 Form A

Maximum Voltage	Load	Max. Contact Rating		Number of Operations
		(NO)	(NC),	
28 V dc	RESISTIVE	10 A	5 A	100,000
125 V ac	RESISTIVE	10 A	5 A	100,000
125 V ac	GENERAL PURPOSE	10 A	5 A	100,000
240 V ac	RESISTIVE	10 A	5 A	100,000
240 V ac	GENERAL PURPOSE	10 A	5 A	100,000
277 V ac	Resistive	16 A	1 A	25,000++

+ - Denotes carry-only (poles do not switch load).

++ - Denotes rating at ambient temperature of 70°C maximum.

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns E and F.

These ratings apply to special silver-cadmium-oxide contacts (Suffix 7). Contact Arrangement:

1 Form A; (NO)

Voltage	Load	Max. Contact Rating		Number of Operations
		(NO)	(NC)	
277 V ac	RESISTIVE	25 A	-	100,000
250 V ac	RESISTIVE	21 A	-	250,000

The following ratings, spacings were judged under UL 873, Table 29.1, Column E and F.

These ratings apply to silver-cad-oxide contacts (Suffix 2).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	20 A	10 A	100,000
120 V ac	LRA/FLA	98/22 A	-	100,000
120 V ac	Tungsten	8.3 A	-	6,000
120 V ac	LRA/FLA	87/14.5 A	-	30,000 (#)
120 V ac	LRA/FLA	50/16 A	-	100,000 (%)
120 V ac	LRA/FLA	30/11 A	-	200,000 (%)
120 V ac	Pilot Duty	470 VA	-	30,000
125 V ac	Ballast	20 A	20 A	6,000
125 V ac	Motor	1 Hp	1/4 Hp	1,000
125 V ac	Resistive	30 A	15 A	100,000
125 V ac	General Purpose	30 A	15 A	100,000
125 V ac	LRA/FLA	48/8 A	-	100,000
125 V ac	Pilot Duty	125 VA	125 VA	6,000
240 V ac	Motor	2 Hp	0.5 Hp	1,000
240 V ac	Motor	-	1 Hp	50,000
240 V ac	Ballast	6 A	3 A	6,000
240 V ac	General Purpose	30 A	15 A	100,000
240 V ac	Resistive	30 A	15 A	100,000 (++++)
240 V ac	Resistive	15 A	-	100,000 (##%)
240 V ac	LRA/FLA	80/30 A	30/12 A	30,000
240 V ac	General Purpose	30 A	-	100,000 (#%)
240 V ac	LRA/FLA	30/15 A	-	100,000 (#%)
240 V ac	Pilot Duty	470 VA	275 VA	6,000
240 V ac	LRA/FLA	-	30/15 A	30,000
240 V ac	LRA/FLA	43.8/7.3 A	-	30,000 (#)
240 V ac	Resistive	18 A	-	100,000 (%%)
240 V ac	Pilot Duty	470 VA	275 VA	30,000
240 V ac	Resistive	30 A	20 A	6,000
240 V ac	Resistive	-	20 A	6,000
240 V ac	Resistive	-	15 A	6,000 (%)
240 V ac	Resistive	18 A	-	100,000 (++)
240 V ac	Resistive	25 A	-	6,000 (+++)
240 V ac	LRA/FLA	82/14 A	-	30,000 (###)
277 V ac	LRA/FLA	60/20 A	-	30,000
277 V ac	General Purpose	10 A	6 A	100,000
277 V ac	General Purpose	12 A	6 A	6,000
277 V ac	LRA/FLA	36/5.7 A	-	100,000
277 V ac	Ballast	20 A	-	6,000

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See Page 6A for footnotes.

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
277 V ac	Resistive	12 A	6 A	100,000
277 V ac	Ballast	10 A	3 A	6,000
277 V ac	Resistive	20 A	-	100,000
277 V ac	Motor	1 Hp	-	6,000
277 V ac	Tungsten	5.46 A	-	6,000
277 V ac	LRA/FLA	36/6 A	-	30,000(#)
277 V ac	Carry-only at 60°C	30 A	30 A	-
277 V ac	General Purpose	30 A	-	100,000

(#) - Denotes rating at ambient temperature 85°C maximum.

(##) - Denotes rating at ambient temperature 105°C maximum.

(###) - Denotes rating at ambient temperature 70°C maximum.

(%) - Denotes coil Type "L", "E" or "D." All other ratings are Type "D" or "E" only.

(%%) - Denotes coil Type "L" and enclosure Type "N" only at 105°C maximum.

(++) - Denotes coil Type "L" only at 105°C maximum.

(+++)- Denotes coil Type "H" only at 105°C maximum.

(++++)- This rating to also cover 20A NO/10A NC 240 VAC as marked on relay.

These ratings apply to silver-tin-indium oxide contacts (Suffix 4).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
240 V ac	LRA/FLA	80/30 A	-	30,000
240 V ac	General Purpose	30 A	-	100,000
250 V ac	Resistive	18 A	-	100,000(++)
120 V ac	Tungsten	15 A	-	6,000
277 V ac	Standard Ballast	20 A	-	6,000
125 V ac	TV	TV-8	-	25,000(%)
250 V ac	Resistive	20 A	10A	50,000
250 V ac	Resistive	25 A	-	50,000

*

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns E and F.

These ratings apply to special silver-cadmium-oxide contacts (Suffix 7). Contact Arrangement:

1 Form A; (NO)

Voltage	Load	Max. Contact Rating		Number of Operations
		(NO)	(NC)	
277 V ac	RESISTIVE	25 A	-	100,000
250 V ac	RESISTIVE	21 A	-	250,000

These ratings apply to model T9S series with silver-nickel contacts (suffix 5) only.

Contact Arrangement - 1 Form A

<u>Maximum Voltage</u>	<u>Load</u>	<u>Max. Contact Rating</u> <u>NO</u>	<u>No. of Operations</u>
277 V ac	Resistive	35 A	30,000 (#)

For the following ratings, spacings were judged under UL 1950.

These ratings apply to silver-cad-oxide contacts (Suffix 2).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	20 A	10 A	100,000
120 V ac	LRA/FLA	98/22 A	-	100,000
120 V ac	Tungsten	8.3 A	-	6,000
120 V ac	LRA/FLA	87/14.5 A	-	30,000 (#)
120 V ac	LRA/FLA	50/16 A	-	100,000 (%)
120 V ac	LRA/FLA	30/11 A	-	200,000 (%)
120 V ac	Pilot Duty	470 VA	-	30,000
125 V ac	Ballast	20 A	20 A	6,000
125 V ac	Motor	1 Hp	1/4 Hp	1,000
125 V ac	Resistive	30 A	15 A	100,000
125 V ac	General Purpose	30 A	15 A	100,000
125 V ac	LRA/FLA	48/8 A	-	100,000
125 V ac	Pilot Duty	125 VA	125 VA	6,000
240 V ac	Motor	2 Hp	0.5 Hp	1,000
240 V ac	Motor	-	1 Hp	50,000
240 V ac	Ballast	6 A	3 A	6,000
240 V ac	General Purpose	30 A	15 A	100,000
240 V ac	Resistive	30 A	15 A	100,000 (++++)
240 V ac	Resistive	15 A	-	100,000 (##%)
240 V ac	LRA/FLA	80/30 A	30/12 A	30,000
240 V ac	General Purpose	30 A	-	100,000 (##%)
240 V ac	LRA/FLA	30/15 A	-	100,000 (##%)
240 V ac	Pilot Duty	470 VA	275 VA	6,000
240 V ac	LRA/FLA	-	30/15 A	30,000
240 V ac	LRA/FLA	43.8/7.3 A	-	30,000 (#)
240 V ac	Resistive	18 A	-	100,000 (%%)
240 V ac	Pilot Duty	470 VA	275 VA	30,000
240 V ac	Resistive	30 A	20 A	6,000
240 V ac	Resistive	-	20 A	6,000
240 V ac	Resistive	-	15 A	6,000 (%)
240 V ac	Resistive	18 A	-	100,000 (++)
240 V ac	Resistive	25 A	-	6,000 (+++)
240 V ac	LRA/FLA	82/14 A	-	30,000 (###)
277 V ac	LRA/FLA	60/20 A	-	30,000
277 V ac	General Purpose	10 A	6 A	100,000
277 V ac	General Purpose	12 A	6 A	6,000
277 V ac	LRA/FLA	36/5.7 A	-	100,000
277 V ac	Ballast	20 A	-	6,000

(Continued)

See Page 7A for footnotes.

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
277 V ac	Resistive	12 A	6 A	100,000
277 V ac	Ballast	10 A	3 A	6,000
277 V ac	Resistive	20 A	-	100,000
277 V ac	Motor	1 Hp	-	6,000
277 V ac	Tungsten	5.46 A	-	6,000
277 V ac	LRA/FLA	36/6 A	-	30,000 (#)
277 V ac	Carry-only at 60°C	30 A	30 A	-
277 V ac	General Purpose	30 A	-	100,000

- (#) - Denotes rating at ambient temperature 85°C maximum.
 (##) - Denotes rating at ambient temperature 105°C maximum.
 (###) - Denotes rating at ambient temperature 70°C maximum.
 (%) - Denotes coil Type "L", "E" or "D." All other ratings are Type "D" or "E" only.
 (%%) - Denotes coil Type "L" and enclosure Type "N" only at 105°C maximum.
 (++) - Denotes coil Type "L" only at 105°C maximum.
 (+++) - Denotes coil Type "H" only at 105°C maximum.
 (++++) - This rating to also cover 20A NO/10A NC, 240VAC as marked on relay.

These ratings apply to silver-tin-indium oxide contacts (Suffix 4).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
240 V ac	LRA/FLA	80/30 A		30,000
240 V ac	General Purpose	30 A -		100,000
250 V ac	Resistive	18 A	-	100,000(++)
120 V ac	Tungsten	15 A	-	6,000
277 V ac	Standard Ballast	20 A	-	6,000
125 V ac	TV	TV-8	-	25,000(%)
250 V ac	Resistive	20 A	10A	50,000
250 V ac	Resistive	25 A	-	50,000

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These ratings apply to special silver-cadmium-oxide contacts (Suffix 7). Contact Arrangement:

1 Form A; (NO)

Voltage	Load	Max. Contact Rating		Number of Operations
		(NO)	(NC)	
277 V ac	RESISTIVE	25 A	-	100,000
250 V ac	RESISTIVE	21 A	-	250,000

These ratings apply to model T9S series with silver-nickel contacts (suffix 5) only.

Contact Arrangement - 1 Form A

<u>Maximum Voltage</u>	<u>Load</u>	<u>Max. Contact Rating</u> <u>NO</u>	<u>No. of Operations</u>
277 V ac	Resistive	35 A	30,000 (#)

These ratings apply to special Silver-Tin-Indium oxide contacts (suffix 6) only.

Contact Arrangement - 1 Form B, Code 2X only(rated 25°C ambient)

<u>Maximum Voltage</u>	<u>Load</u>	<u>Max. Contact Rating</u> <u>NC</u>	<u>No. of Operations</u>
240 V ac	Resistive	30 A	20,000

For the following ratings, spacings were judged under UL 508,
Table 34.1, Column A.

These ratings apply to silver contacts (Suffix 1).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	10 A	5 A	100,000
125 V ac	Resistive	10 A	5 A	100,000
125 V ac	General Purpose	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 508,
Table 34.1, Column C.

These ratings apply to silver contacts (Suffix 1).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
240 V ac	Resistive	10 A	5 A	100,000
240 V ac	General Purpose	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 873,
Table 29.a, Column A.

These ratings apply to silver contacts (Suffix 1).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	10 A	5 A	100,000
125 V ac	Resistive	10 A	5 A	100,000
125 V ac	General Purpose	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns B, C and D.

These ratings apply to silver contacts (Suffix 1).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
240 V ac	Resistive	10 A	5 A	100,000
240 V ac	General Purpose	10 A	5 A	100,000

For the following ratings, spacings were judged under UL 873, Table 29.1, Columns E and F.

These ratings apply to silver contacts (Suffix 1).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	10 A	5 A	100,000
125 V ac	Resistive	10 A	5 A	100,000
125 V ac	General Purpose	10 A	5 A	100,000
240 V ac	Resistive	10 A	5 A	100,000
240 V ac	General Purpose	10 A	5 A	100,000
277 V ac	Resistive	16 A	1 A	25,000++

For the following ratings, spacings were judged under UL 1950.

These ratings apply to silver contacts (Suffix 1).

Contact Arrangement -

1 Form A, 1 Form B or 1 Form C

Maximum Voltage	Load	Max. Contact Rating		No. of Operations
		NO	NC	
28 V dc	Resistive	10 A	5 A	100,000
125 V ac	Resistive	10 A	5 A	100,000
125 V ac	General Purpose	10 A	5 A	100,000
240 V ac	Resistive	10 A	5 A	100,000
240 V ac	General Purpose	10 A	5 A	100,000
277 V ac	Resistive	16 A	1 A	25,000++

++ - Denotes rating at ambient temperature of 70°C maximum.

SPECIAL RATINGS -

Electrical -

Type	Maximum Rating
T9A-4008	Same as T9AV5D22-22
T9A-S1L12	240Vac, 35A, 75C carry only *
T9A-S1L12	240Vac, 40A, 40C carry only **
T9A-4010	120/240Vac or 120/208Vac, 3-Phase Wye, 40A N.O. or N.C., 85°C, Carry Only.** 120/240Vac or 120/208Vac, 3-Phase Wye, 25A N.O./35A N.C., 105°C, Carry Only.**

* see Conditions of Acceptability #8 and 9.

** see Conditions of Acceptability #9 and 10

NOMENCLATURE:

They are designated:

$\frac{T9A}{I}$	$\frac{P}{II}$	$\frac{5}{III}$	$\frac{D}{IV}$	$\frac{1}{V}$	$\frac{2}{VI}$	$\frac{24}{VII}$	$\frac{01}{VIII}$
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I - Type Relay.

T9A - Printed circuit board/panel mount power relay.

T9E - Printed circuit board power relay.

T9S - Printed circuit board power relay.

II - Enclosure (Cover).

N - Open, no cover, no base, low profile (T9A only)

P - Enclosed, plastic dust cover (T9A only)

S - Immersion cleanable, plastic sealed model

V - Same as "S" with open vent on cover (Codes 1 and 2 only).

F - Same as "V" with larger PCB terminal holes in base (Codes 1 and 2 only) (T9A only)

C - Same as "P" with no base plate (Codes 1 and 2 only). (T9A only)

B - Same as "P" with no cover (Codes 1 and 2 only). (T9A only)

III - Contact Arrangement.

1 - SPST, NO (1 Form A)

2 - SPST, NC (1 Form B) (T9A only)

2X - SPST, NC (1 Form B) with special MCA (T9A only)

5 - SPDT (1 Form C) (**T9A & T9E only**)

*

IV - Coil Input.

- D - DC voltage (1.0 W nominal) (T9A & T9E only)
- E - Same as "D" except meets VDE pull in specification (T9A only)
- L - DC voltage (900 mW nominal) (T9A & T9E only)
- H - DC voltage (1.0 W nominal), +0 percent coil tolerance, to meet 80 percent pull-in at 25 A, 105°C ambient. (Codes 2 and 5 only). (T9A only)
- K - DC voltage (2.25 W for 1 sec max., then drop to 0.56 W max.) (T9S only)

V - Mounting and Termination.

- 1 - Printed circuit board mount, printed circuit terminals for coil and contacts.
- 2 - Printed circuit board mount, 0.250 by 0.032 in. quick connect for contacts, printed circuit terminals for coil and contacts. (T9A & T9E only)
- 5 - Panel mount via flanged cover, 0.187 by 0.020 in. quick connect terminals for coil and 0.260 by 0.032 in. quick connect terminals for contacts. (T9A only)

VI - Contact Material and Rating.

- 1 - Silver (T9A only)
- 2 - Silver-cadmium-oxide (T9A & T9E only)
- 4 - Silver-tin-oxide (T9A & T9E only)
- 5 - Silver-nickel oxide (T9S only)
- 6 - Special silver-tin-oxide (T9A only)**
- 7 - Special silver-cadmium-oxide

VII - Coil Voltage.

- 5 through 110 V dc maximum. (T9A & T9E only)
- 12 (T9S only)

VIII - Additional numbers and letters. May be followed by up to two numbers and/or letters which do not represent electrical changes except that selected external terminals may be completely cut off and the resulting hole(s) in the enclosure filled with approved sealant or eliminated by enclosure mold changes. Internal parts of the relay remain unchanged. These denote specific customers and/or requirements.

Special Nomenclature:

They are designated:

T9A	4000	-1	01
1	2	3	4

- 1 - Basic Relay (with special construction)

T9A

- 2 - 4000 through 4999

Designates special electrical and/or mechanical option(s) defined specifically for each number elsewhere in this Report.

- 3 - Additional numbers (optional)

May be followed by a "-" followed by 1 or 2 numbers designating successive versions of the original number without the "_".

- 4 - Additional numbers and/or letters (optional)

May be followed by up to four numbers and/or letters which do not represent changes in the electrical characteristics and are for manufacturer's use only.

Description of Special Construction Types:

Special Type	Similar to Type (except)	Exception(s)
T9A-4008	T9AV5D22-22	No Normally Closed Quick Connect terminal; No Normally Open or Normally Closed printed circuit board terminals.
T9A-4010	T9AV5D12-24	27Vdc Coil, Silver Nickel Contact Material. Alternate Materials for Enclosure, Base and Movable Arm. Alternate Construction for Movable Arm.

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

Use - For use in industrial control equipment, office equipment, data processing equipment and vending machines where the acceptability of the combination has been determined by Underwriters Laboratories Inc.

Spacings - Spacings of not less than 1/8 in. (3.18 mm) through air and 1/4 in. (6.35 mm) over surface of insulating material are maintained between any uninsulated live part of opposite polarity, uninsulated grounded part other than the enclosure, or exposed metal part.

These components have been judged on the basis of the required spacings in the Standard for Industrial Control Equipment, UL 508, Table 34.1, Column A, for devices controlling loads not greater than 150 V, and Column B for devices controlling loads 151 to 300 V maximum.

These components have also been judged on the basis of required spacings in the Standard for Temperature Indicating and Regulating Equipment, UL 873, Table 29.1, Column:

A - For devices rated up to 150 V.

B, C, D - 15 A up to 150 V; 10 A at 151 to 300 V.

E, F - For devices rated up to 300 V.

These components have also been judged on the basis of required spacings in the Standards for Information Technology Equipment Including Electrical Business Equipment, UL 1950, and Vending Machines, UL 751, up to 250 V.

USR - Indicates investigation to United States Standard for Industrial Control Equipment - UL 508.

CNR - Indicates investigation to Canadian Standard Association for Industrial Control Equipment - C22.2 No. 14-05.

Conditions of Acceptability -

1. The relays shall be installed in a suitable ultimate enclosure. Proper spacings shall be maintained between live parts and the enclosure and/or adjacent devices.

2. These devices shall be used within their Recognized ratings as specified above.

3. These relays are suitable for factory wiring only (terminations not suitable for field wiring).

4. Quick-connect tabs may be suitable for field wiring in the end product if in accordance with the following:

A. Tab dimensions in accordance with ILLS. 1, 2, and 3.

B. The end product is marked to indicate the use of 75°C, copper supply wire and is marked with a warning to use Listed female connectors and the specified crimping tool.

5. All plastic materials have a flame rating of 94V-0 or better.

6. When ambient temperature may exceed 85°C and input voltage available for pull-in may be less than 95 percent of nominal, it should be determined if the Operation Test should be repeated in the application.

7. Relay rating 240 V ac, 82 LRA/14 FLA, 70°C ambient pertains only to UL 873 and UL 1950 applications per spacing requirements.

8. T9AS1L12 relay rating 240Vac, 35A, 75C carry only pertains only to UL 873 and UL 1950 applications per spacing requirements.

9. T9AS1L12, and T9A-4010 relay ratings "carry only" pertain only to printed wiring board mount relays. The end use printed wiring board must be rated 150C minimum.

10. T9ASIL12, and T9A-4010 relay ratings "carry only" pertain only to UL 873 (table 32.1 columns E and F) and UL 60950 applications per spacing requirements.

11. Model T9S series has an operating coil voltage of 12 V dc applied for 1 second max. and then the voltage is reduced to 6 V dc max. for steady-state conditions.