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REPORT

ON

COMPONENT - MAGNETIC MOTOR CONTROLLERS

Dongguan Sanyou Electrical Appliances Co., Ltd.
Guangdong, China

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DESCRIPTION

PRODUCT COVERED:

USR, CNR. Across the line magnetic motor controllers, intended for use in industrial control applications, Cat. No. SL followed by C or I, may be followed by Blank, -S or -SH, followed by -1, followed by 3 to 110, followed by D, may be followed by Blank, M or B, may be followed by Blank or J, may be followed by Blank or K, may be followed by Blank or 1, **followed by blank and P**, may be followed by Blank, B or F, followed by blank, may be followed by any special code not used previously in this nomenclature.

USR, CNR Component Relay, intended for non-industrial use, Cat. No. SL followed by A, followed by Blank, -S or -SH, followed by -1, followed by 3 to 110, followed by D, followed by Blank, M or B, followed by Blank or J, followed by Blank or K, followed by Blank or 1, followed by Blank, B or F, may be followed by any special code not used previously in this nomenclature.

USR, CNR Component Relay, intended for non-industrial use, Cat. No. SL followed by A, followed by Blank, -S or -SH, followed by -1, followed by 6 to 48, followed by D, followed by Blank, M or B, followed by Blank or J, followed by Blank or K, followed by Blank or 1, followed by Blank, B or F, followed by -H or -S, may be followed by any special code not used previously in this nomenclature.

GENERAL:

These devices are single pole, single-throw, normally open (SPST-NO), 1 Form A; single pole, single-throw, normally close (SPST-NC), 1 Form B; or single pole, double-throw change over, normally open and normally close (SPST-CO), 1 Form C. These devices are intended for use in industrial control equipment. Models SLA series are intended for use in Information Technology Equipment.

Contact ratings - All Models with standard contact gap.

Contact Form: Type 1A

30 A, 240 V ac resistive, 100,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

30 A, 120 V ac resistive, 100,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

15 A, 240 V ac
1-1/2 HP 240 V ac
3/4 HP 120 V ac
TV-8, 120 V ac

30 A, 240 V ac, general use, 100,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

30 A, 120 V ac, general use, 100,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

250 Vac, 2 hp, 90,000 cycles, 40°C
120 Vac / 240 Vac, FLA 16A, LRA 96 A, 90,000 cycles, 40°C

40 A, 277 V ac, resistive, 6,000 cycles, 40°C.
Pilot Duty: 470 VA, 240 V ac, 100,000 cycles,
70°C for B or F coils, only. 40°C for A coils.

Electronic Ballast: 10 A, 277 V ac/120 V ac.

1-1/2 HP, 240 V ac, 30,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

3/4 HP, 120 V ac, 30,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

For contact material AgSnO₂ only:

120 Vac, 1 hp, 30,000 cycles, 70°C for B or F coils only.

240 Vac, 2 hp, 30,000 cycles, 70°C for B or F coils only.

120 Vac, FLA 16A, LRA 96 A, 30,000 cycles, 70°C for B or F coils only.

240 Vac, FLA 12A, LRA 72 A, 30,000 cycles, 70°C for B or F coils only.

Pilot Duty: B300, 120 Vac / 240 Vac, 30,000 cycles, 70°C for B or F coils
only.

16 A, 120 Vac/250 Vac/277 Vac, Resistive & General use, 30,000 cycles, 70°C
for B or F coils only.

125/250/277Vac, 30A, General use & Resistive, 100,000 cycles, 105°C for B or F
coils only.

**Standard Ballast: 20 A, 277 V ac/120 V ac, 6,000 cycles, 40°C. (for SLA series
with material AgSnO₂ only)**

Contact Form: Type 1C

NO

10, 240 V ac
20 A, 240 V ac Resistive
1-1/2 HP 240 V ac
3/4 HP 125 V ac
TV-8, 120 V ac

20 A, 240 V ac, resistive,
100,000 cycles, 85°C, for
B or F coils, only.
40°C for A coils.

20 A, 240 V ac, general use,
100,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

30 A, 240/120 V ac, resistive,
30,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

30 A, 240/120 V ac, general use,
30,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

1-1/2 HP, 240 V ac, 30,000 cycles,
85°C for B or F coils, only.
40°C for A coils.

3/4 HP, 120 V ac, 30,000 cycles,
85°C for B or F coils, only.
40°C for A coils.

**Standard Ballast: 20 A,
277 V ac/120 V ac, 6,000 cycles, 40°C.
(for SLA series with material AgSnO2 only)**

NC

10A, 240 V ac
1/2 HP 240 V ac
1/4 HP 125 V ac
TV-3, 120 V ac

10 A, 240 V ac, resistive,
100,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

10 A, 240 V ac, general use,
100,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

20 A, 240/120 V ac, resistive,
6,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

20 A, 240/120 V ac, general use,
6,000 cycles, 85°C for
B or F coils, only.
40°C for A coils.

1/2 HP, 240 V ac, 30,000 cycles,
85°C for B or F coils, only.
40°C for A coils.

1/4 HP, 120 V ac, 30,000 cycles,
85°C for B or F coils, only.
40°C for A coils.

Contact Form: Type 1C

NO

NC

Pilot Duty:

470 VA, 240 V ac, 100K cycles 275 VA, 240 V ac, 100K cycles

70°C for B or F coils, only.

70°C for B or F coils, only.

40°C for A coils.

40°C for A coils.

Electronic Ballast:

10 A, 277 V ac

5 A, 277 V ac

10 A, 120 V ac

5 A, 120 V ac

16.7 A, 240 Vac, 90K cycles

16.7 A, 240 Vac, 6K cycles

105°C, Resistive & general use

105°C, Resistive & general use

(For Contact material AgCdO only)

Contact Form Type 1B

10 A, 240 V ac, resistive, 30,000 cycles,
85°C for B or F coils, only. 40°C for A coils.20 A, 120 V ac, resistive, 6,000 cycles,
85°C for B or F coils, only. 40°C for A coils.10 A, 240 V ac, general use, 100,000 cycles,
85°C for B or F coils, only. 40°C for A coils.30 A, 120 V ac, general use, 6,000 cycles,
85°C for B or F coils, only. 40°C for A coils.20 A, 240 V ac, general use, 6,000 cycles,
85°C for B or F coils, only. 40°C for A coils.Pilot Duty: 275 VA, 240 V ac, 100,000 cycles,
70°C for B or F coils, only. 40°C for A coils.

5 A, 277 V ac/120 V ac, Electronic Ballast.

1/2 HP, 240 V ac, 30,000 cycles,
85°C for B or F coils, only. 40°C for A coils.*1/4 HP, 120 V ac, 30,000 cycles,
85°C for B or F coils, only. 40°C for A coils.30 A, 250 Vac, resistive & general use, 20K cycles, 85°C (For contact material
AgSnO2 only)**Contact ratings for Model SLA with increased contact gap (-H or -S).**

Contact Form Type 1A (Normally open)

Model SLA-S:

30 A, 250 V ac resistive and general use, 50,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

Model SLA-H:

20 A, 250 V ac resistive and general use, 100,000 cycles,
85°C for B or F coils, only. 40°C for A coils.

Coil voltage:

Models SLA with increased contact gaps "-H" or "-S":
6, 9, 12, 15, 18, **22**, 24, 48 Vdc.

All other Models:

3, 5, 6, 9, 12, 15, 18, **22**, 24, 48, or 110 V dc

Ambient Temperature:

Maximum +40°C for relays with Class A Insulation System, see nomenclature.

Maximum +85°C or as indicated in electrical ratings above, for relays with Class B and F Insulation Systems. Electrical Ratings without associated temperature ratings indicated above are maximum 40°C for all coils.

Nomenclature

SL (A, C or I)	S	1	12	D	M	J	K	1	-	F	-	H	-	XX
I	II	III	IV	V	VI	VII	VIII	IX	X			XI	-	XII

I. Series designation

SLA, SLC or SLI.

II. Protective construction

Blank: Open type (for SLA only)

S: Sealed type

SH: Sealed type washable

III. Number of Poles

1: 1 pole

IV. Coil Voltage

Any Coil Voltage between 3 - 110 V dc

V. Coil Sensitivity

D: Standard coil sensitivity (0.9W) Also see XI below.

VI. Contact form

Blank: 1 form C

M: 1 form A

B: 1 form B

VII. Terminal type

Blank: Standard type

J: Without No. 6 terminal (for SLA only)

VIII. Terminal Position

Blank: COM terminal and NO/NC terminal on the same side

K: COM terminal and NO/NC terminal on opposite side (For SLI and SLC only)

Note: SLI series are using unprotected quick connect type cover.
SLC series are using protected quick connect type cover.

IX. Contact Material

Blank: AgSnO₂

1: AgCdO

X. COM flat quick-connect terminals

Blank: Yoke and flat quick-connect terminal is one part;

P: Yoke rivet flat quick-connect terminal (for Series SLI and SLC with suffix -K (Code VIII), suffix -Blank or -M (Code VI) only)

XI. Insulation System

B: Class 130(B)

F: Class 155(F)

Blank: Standard Type, Class 105(A) (for models rated 40°C only)

XII. Contact Gap

Blank: Standard contact gap. Represents all models unless marked as indicated below.

-H: Model SLA only, 1.5 mm contact gap with 1.1 Watt coil.

-S: Model SLA only, 1.5 mm contact gap with 1.6 Watt coil.

XIII. Special Code

Additional numbers or letters not used previously in this nomenclature. Does not affect construction or ratings.

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE USE):

Use - For use only in (or with) complete equipment where the acceptability of the combination has been determined by Underwriters Laboratories Inc.

Conditions of Acceptability

1. Model SLA is intended to be mounted in information technology equipment. Spacings have been evaluated to UL 60950-1, Standard for Information Technology Equipment, 1st Edition, dated April 1, 2003, revisions through and including October 31st, 2007, Tables 2H for through-air and 2L for over-surface basic insulation for Material Group III, Pollution Degree 3, Overvoltage not be subjected to transients exceeding, Overvoltage Category II according to IEC 60664-1. which is 2.0 mm through-air and 4.4 mm over-surface. Spacings between contacts have not been evaluated, and shall be evaluated in the end product.
2. These devices shall be mounted in an appropriate enclosure.
3. The spacings from exposed live-metal parts to the enclosure walls shall be in accordance with the requirements for the overall equipment.
4. The terminals of these relays are not suitable for field wiring.
5. The endurance test for motor rating of 250 Vac, 2 hp was conducted under the test condition of 0.5 s on/0.5 s off for the first 1,000 cycles and 1 s on/9 s off for the remnant 89,000 cycles. The suitability shall be determined for end use application.
6. The endurance test for motor rating of 240 Vac, 2 hp and 120 Vac, 1 hp, 70°C (Contact Form: Type 1A) was conducted under the test condition of 0.5 s on/0.5 s off for the first 1,000 cycles and 1 s on/5 s off for the remnant 29,000 cycles. The suitability shall be determined for end use application.
5. Series SLA employing contact material AgSnO₂ with the following contact ratings were conducted with dielectric voltage 4000Vac between Contact Terminal and Coil Terminal, and with dielectric voltage 1500Vac between Movable Contact Terminal and Stationary Contact Terminal.

120 Vac, 1 hp, 30,000 cycles, 70°C for B or F coils only.
240 Vac, 2 hp, 30,000 cycles, 70°C for B or F coils only.
120 Vac, FLA 16A, LRA 96 A, 30,000 cycles, 70°C for B or F coils only.
240 Vac, FLA 12A, LRA 72 A, 30,000 cycles, 70°C for B or F coils only.
Pilot Duty: B300, 120 Vac / 240 Vac, 30,000 cycles, 70°C for B or F coils only.
16 A, 120/250/277 Vac, Resistive & General use, 30,000 cycles, 70°C for B or F coils only.
Standard Ballast: 20 A, 277 V ac/120 V ac, 6,000 cycles, N.O., 40°C.