

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Changed voltage requirements in 3.2 and added table IV. Editorial changes throughout.	10 NOV 1986	Randy Larson
B	Added horizontal marking to figure 1.	8 APR 1987	Randy Larson
C	Added wire leads and auxiliary contacts to figure 1. Added electrical requirements for auxiliary contacts and wire lead requirements to section 3. Updated vendor address.	23 AUG 1990	Randy Larson
D	Update document references, replace 6.4.	5 JUN 2000	Kendall Cottongim
E	Delete P/N and substitute PIN, editorial changes, update to latest DSCC DWG format.	19 JUN 2003	Kendall Cottongim
F	Update to latest DSCC DWG format.	3 MAR 2008	Michael Radecki
G	Update to latest DLA Land and Maritime drawing format.	9 OCT 2014	Michael Radecki

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3  
DEFENSE LOGISTICS AGENCY  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43216-5000

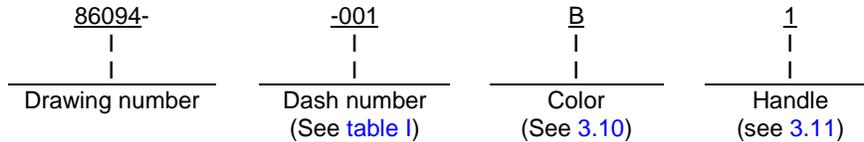
Prepared in accordance with [ASME Y14.100](#)

REV																					
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REV STATUS OF PAGES	REV	G	G	G	G	G	G	G	G	G	G										
	PAGES	1	2	3	4	5	6	7	8	9											
PMIC N/A		PREPARED BY Tony J. Westphal						DESIGN ACTIVITY DEFENSE ELECTRONIC SUPPLY CENTER DAYTON, OH 45444-5000													
Original date of drawing		CHECKED BY David Corbett						TITLE CIRCUIT BREAKERS, MAGNETIC, ILLUMINATED ROCKER TYPE, AUXILIARY CONTACTS TRIP-FREE, SERIES TRIP, SINGLE POLE (0.05 TO 20.0 AMPERES)													
27 June 1986		APPROVED BY Randy Larson																			
		SIZE A	CODE IDENT. NO. 14933					DWG NO. <b>86094</b>													
		REV G						PAGE 1 OF 9													

1. SCOPE

1.1 Scope. This drawing describes the requirements for a family of circuit breakers with illuminated handles for use in overcurrent protection.

1.2 Part or Identifying Number (PIN). The complete PIN is as follows:



2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. The section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATION

[MIL-PRF-39019](#) - Circuit Breakers, Magnetic, Low-Power, Sealed, Trip-Free, General Specification for

[MIL-PRF-55629](#) - Circuit Breakers, Magnetic, Unsealed or Panel Seal, Trip Free, General Specification for.

(Copies of these documents are available online at <http://quicksearch.dla.mil> or <https://assist.dla.mil> or from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Interface and physical dimensions. The individual item requirements shall be as specified herein and [table I](#), [table II](#), and [table III](#).

3.2 Voltage and frequency rating. For dash numbers 001 through 038, the voltage and frequency rating shall be 50 volts dc, maximum and 240 volts ac, maximum at 60 or 400 Hz. For dash numbers 039 through 044, the voltage and frequency rating shall be 32 volts dc, maximum and 120 volts ac, maximum at 60 or 400 Hz.

3.3 Current rating. See [table I](#).

3.4 Interface and physical dimension requirements. See [figure 1](#) and [table I](#).

3.5 Time delay. Time delay shall be in accordance with [tables I, II, and III](#).

3.6 Endurance. Endurance shall be in accordance with [MIL-PRF-39019](#).

<b>DEFENSE ELECTRONIC SUPPLY CENTER DAYTON, OHIO</b>	<b>SIZE A</b>	<b>CODE IDENT NO. 14933</b>	<b>DWG NO. 86094</b>
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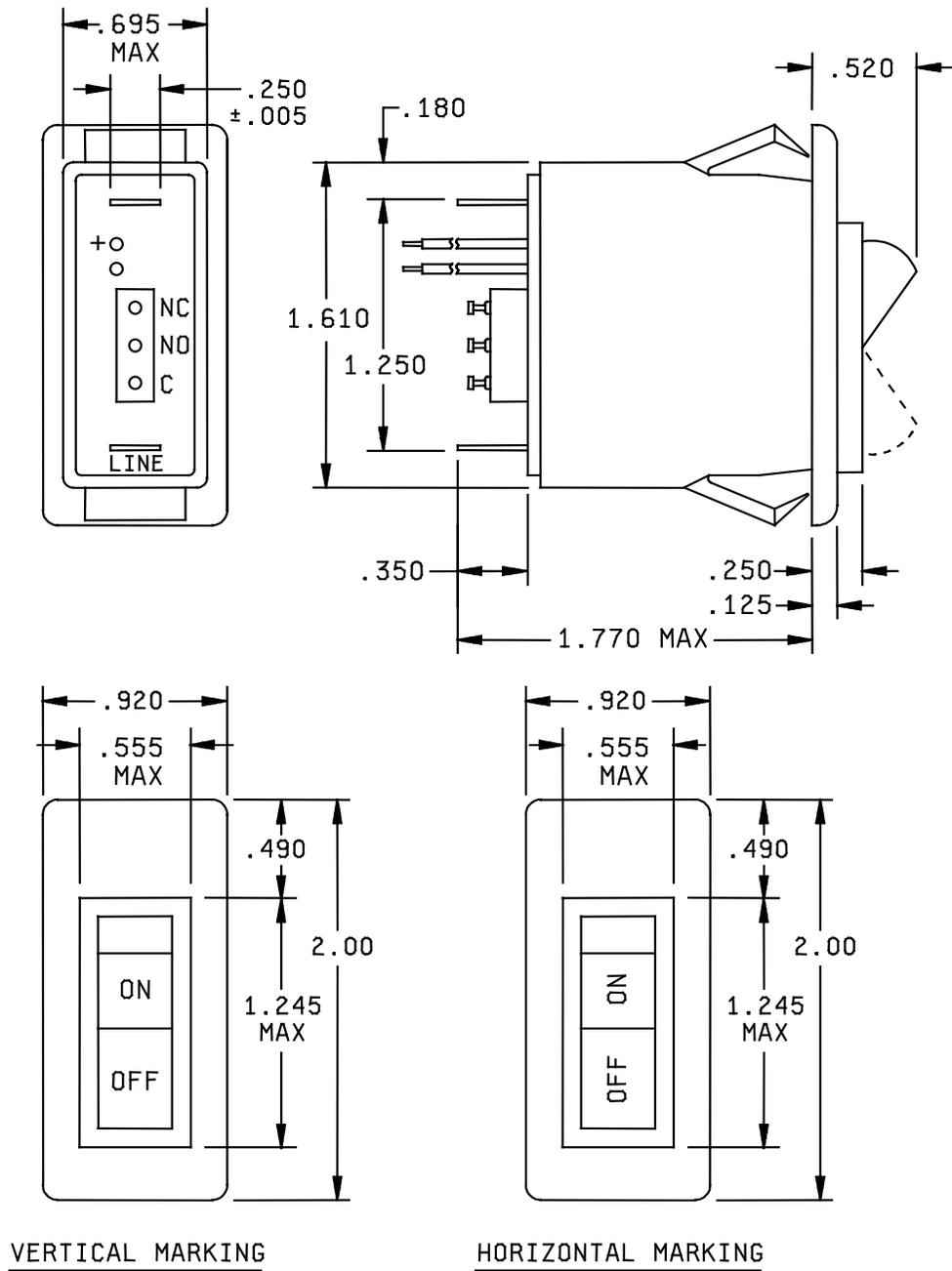
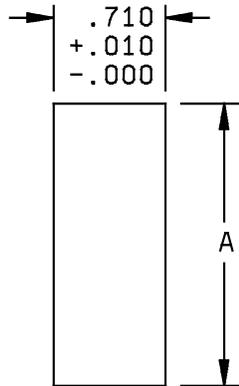


FIGURE 1. Dimensions and configuration.

<p><b>DEFENSE ELECTRONIC SUPPLY CENTER</b> <b>DAYTON, OHIO</b></p>	<p><b>SIZE</b> <b>A</b></p>	<p><b>CODE IDENT NO.</b> <b>14933</b></p>	<p><b>DWG NO.</b> <b>86094</b></p>
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PANEL CUTOUT

PANEL THICKNESS	.062	.093	.125
DIMENSION "A"	1.775	1.810	1.850

FRONT SNAP-IN MOUNT (STD)

Inches	mm	Inches	mm
.005	0.13	.695	17.65
.010	0.25	.710	18.03
.062	1.57	.920	23.37
.093	2.36	1.245	31.62
.125	3.18	1.250	31.75
.180	4.57	1.610	40.89
.250	6.35	1.770	44.96
.350	8.89	1.775	45.06
.490	12.45	1.810	45.97
.520	13.20	1.850	46.99
.555	14.10	2.00	50.8

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is  $\pm 0.030$  (0.76 mm).

FIGURE 1. Dimensions and configuration - Continued.

<b>DEFENSE ELECTRONIC SUPPLY CENTER</b> <b>DAYTON, OHIO</b>	<b>SIZE</b> <b>A</b>	<b>CODE IDENT NO.</b> <b>14933</b>	<b>DWG NO.</b> <b>86094</b>
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TABLE I. Circuit breaker dash number and applicable characteristics.

P/N 86094	Current rating (amps)	Time delay 1/	Resistance or impedance (ohms - max) 2/			P/N 86094	Current rating (amps)	Time delay 1/	Resistance or impedance (ohms - max) 2/		
			DC	60 Hz	400 Hz				DC	60 Hz	400 Hz
001	0.05	A	680.0	690.0	710.0	023	4.0	A	0.10	0.10	0.12
002	0.05	B	680.0	690.0	710.0	024	4.0	B	0.10	0.10	0.12
003	0.1	A	150.0	170.0	180.0	025	5.0	A	0.061	0.063	0.072
004	0.1	B	150.0	170.0	180.0	026	5.0	B	0.061	0.063	0.072
005	0.25	A	20.0	26.0	27.0	027	6.0	A	0.042	0.043	0.050
006	0.25	B	20.0	26.0	27.0	028	6.0	B	0.042	0.043	0.050
007	0.5	A	5.4	6.0	6.6	029	7.0	A	0.036	0.036	0.040
008	0.5	B	5.4	6.0	6.6	030	7.0	B	0.036	0.036	0.040
009	0.75	A	2.5	2.7	2.8	031	7.5	A	0.031	0.031	0.038
010	0.75	B	2.5	2.7	2.8	032	7.5	B	0.031	0.031	0.038
011	1.0	A	1.35	1.5	1.61	033	8.0	A	0.027	0.027	0.035
012	1.0	B	1.35	1.5	1.61	034	8.0	B	0.027	0.027	0.035
013	1.25	A	0.9	1.0	1.1	035	9.0	A	0.022	0.022	0.028
014	1.25	B	0.9	1.0	1.1	036	9.0	B	0.022	0.022	0.028
015	1.5	A	0.65	0.70	0.75	037	10.0	A	0.018	0.021	0.024
016	1.5	B	0.65	0.70	0.75	038	10.0	B	0.018	0.021	0.024
017	2.0	A	0.40	0.40	0.50	039	12.5	A	0.012	0.013	0.015
018	2.0	B	0.40	0.40	0.50	040	12.5	B	0.012	0.013	0.015
019	2.5	A	0.25	0.25	0.27	041	15.0	A	0.009	0.009	0.010
020	2.5	B	0.25	0.25	0.27	042	15.0	B	0.009	0.009	0.010
021	3.0	A	0.15	0.15	0.17	043	20.0	A	0.006	0.006	0.007
022	3.0	B	0.15	0.15	0.17	044	20.0	B	0.006	0.006	0.007

1/ All dash numbers include inertial delay with the time delay.

2/ The corresponding maximum wattage losses, which in no case shall exceed 3.0 watts, may be calculated as  $I^2R$  or  $I^2Z$ .

<b>DEFENSE ELECTRONIC SUPPLY CENTER DAYTON, OHIO</b>	<b>SIZE A</b>	<b>CODE IDENT NO. 14933</b>	<b>DWG NO. 86094</b>
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TABLE II. Calibration tripping times (seconds) at 25°C ±2°C.

Percent of rated current	Time delay A (fast)		Time delay B (slow)	
	Min	Max	Min	Max
100	No trip 1 hour	No trip 1 hour	No trip 1 hour	No trip 1 hour
135	0.2	7.0	3.0	60.0
200	0.055	0.95	0.5	9.0
400	Inst <u>1/</u>	0.24	Inst <u>1/</u>	1.75
600	Inst <u>1/</u>	0.13	Inst <u>1/</u>	0.6
800	Inst <u>1/</u>	0.06	Inst <u>1/</u>	0.1 <u>2/</u>
800 at 60Hz <u>3/</u>	No trip	No trip	No trip	No trip
1,400 at 400 Hz <u>4/</u>	No trip	No trip	No trip	No trip

1/ (Inst) instantaneous is defined as less than 0.015 second.

2/ This time is extended to 0.3 second for dc and 400 Hz.

3/ 800 percent peak, one 1/2 sine pulse at 60 Hz.

4/ 1,400 percent peak, one 1/2 sine pulse at 400 Hz.

TABLE III. High and low temperature tripping times (seconds).

Percent of rated current	Time delay A (fast)		Time delay B (slow)	
	-40°C ±2°C	+100°C ±2°C	-40°C ±2°C	+100°C ±2°C
	Min	Max	Min	Max
100	No trip 1 hour	No trip 1 hour	No trip 1 hour	No trip 1 hour
135	400.0	0.10	500.0	0.4
150	800.0	---	1000.0	---
200	5.0	0.015	25.0	0.04
400	0.7	Inst <u>1/</u>	10.0	Inst <u>1/</u>
500	0.5	Inst <u>1/</u>	2.0	Inst <u>1/</u>
800	0.06	Inst <u>1/</u>	0.1 <u>2/</u>	Inst <u>1/</u>
800 at 60 Hz <u>3/</u>	No trip	No trip	No trip	No trip
1,400 at 400 Hz <u>4/</u>	No trip	No trip	No trip	No trip

1/ (Inst) instantaneous is defined as less than 0.015 second.

2/ This time is extended to 0.3 second for dc and 400 Hz.

3/ 800 percent peak, one 1/2 sine pulse at 60 Hz.

4/ 1,400 percent peak, one 1/2 sine pulse at 400 Hz.

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3.7 Resistance or impedance. See [table I](#).

3.8 Interrupting capacity. Interrupting capacity shall be in accordance with [MIL-PRF-39019](#).

3.9 Dielectric withstanding voltage. Dielectric withstanding voltage shall be in accordance with [MIL-PRF-39019](#).

3.10 Color. The color of the circuit breaker shall be specified in the part number according to the following designations: B-black, W-white, G-gray.

3.11 Handle. The handle of the circuit breaker shall be specified in the part number according to the following designations: 1-white (neon illuminated, vertical marking), 2-white (red LED illuminated, vertical marking), 3-black (red LED illuminated, vertical marking), 4-white (neon illuminated, horizontal marking), 5-white (red LED illuminated, horizontal marking), 6-black (red LED illuminated, horizontal marking).

3.12 Vibration. Vibration shall be in accordance with [MIL-PRF-55629](#).

3.13 Shock. Shock shall be in accordance with [MIL-PRF-55629](#).

3.14 Insulation resistance. Insulation resistance shall be in accordance with [MIL-PRF-39019](#).

3.15 Auxiliary contacts. Auxiliary contacts shall be 5 amperes maximum at 250 volts ac or 28 volts dc.

3.16 Wire leads. The wire leads, used for handle illumination, shall be stranded No. 28 AWG wires with a minimum length of 2.5 inches and a maximum diameter over the insulation of 0.065 inch.

3.17 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.18 Manufacturer eligibility. To be eligible for listing as an approved source of supply, a manufacturer shall be listed on the [MIL-PRF-55629](#) Qualified Product List for at least on part, or perform the Group A inspection specified herein on a sample of parts agreed upon by the manufacturer and DLA Land and Maritime-VA.

3.19 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to be listed as a suggested source of supply.

3.15 Marking. Marking shall be as specified in [MIL-PRF-55629](#), except the DLA Land and Maritime drawing part number in accordance with [1.2](#) herein shall be used instead of the military part number.

3.16 Workmanship. Circuit breakers shall be uniform in quality and free from any defects that will affect life, serviceability, or appearance.

#### 4. VERIFICATION

4.1 Conformance inspection.

4.1.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspections of [MIL-PRF-55629](#).

4.1.2 Certification. The acquiring activity, at its discretion, may accept a certificate of compliance with group A requirements in lieu of performing group A tests (see 6.2c).

4.1.3 Inspection of packaging. Inspection of packaging shall be in accordance with [MIL-PRF-55629](#).

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## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system commnad. Packaging data retrieval is available from the managing Military Departments or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. Devices conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for OEM application.

6.2 Ordering data. The acquisition document should specify the following:

- a. Complete PIN (see 1.2).
- b. Requirements for delivery of one copy of the conformance inspection data with each shipment of parts by the manufacturer.
- c. Whether the manufacturer performs the group A tests or provides certification of compliance with group A requirements.
- d. Requirements for notification of change of product to the contracting activity, if applicable.
- e. Requirements for packaging and packing.

6.3 Application information for illuminated handle.

6.3.1 Neon bulb. A neon bulb is provided when specified for 120 volts ac and 250 volts ac operation (see 1.2 and 3.11). For operation at 120 volts ac, a 33,000-ohm, 1/2-watt external resistor is required. At 250 volts ac, a 100,000-ohm, 1-watt external resistor is required.

6.3.2 Red LED. A LED with 750 feet lumens at 20 mA is provided in the center of the handle when specified (see 1.2 and 3.11). Maximum power dissipation at 25°C is 180 mW. Continuous forward current is 40 mA. Forward voltage, typical, is 1.6 volt at 20 mA. Reverse current, typical, is 100 nA at 3.0 volts. An external resistor; 1/2 watt minimum, will be required to limit current to these values. This external resistor will not be supplied by the circuit breaker manufacturer and should be selected in accordance with table IV.

TABLE IV. External resistor.

Resistance value	Operating voltage (dc)
270	4.0 to 7.9
820	8.0 to 15.9
1,500	16.0 to 23.9
2,700	24.0 to 32.0

6.4 Users of record. Coordination of this document for future revisions is coordinated only with the approved source(s) of supply and the users of record of this document. Requests to be added as a recorded user of this drawing may be achieved online at [CircuitProtect@dla.mil](mailto:CircuitProtect@dla.mil) or if in writing to: DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0548 or DSN 850-0548.

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6.5 Approved source(s) of supply. Approved source(s) of supply are listed herein. Additional sources will be added as they become available. Assistance in the use of this drawing may be obtained online at [CircuitProtect@dla.mil](mailto:CircuitProtect@dla.mil), or by contacting DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614)-692-0548 or DSN 850-0548.

DLA Land and Maritime drawing PIN 86094 1/	Vendor similar designation or type number	Vendor name and address
	Vendor CAGE 81541	
001	203-86094-001XX	Sensata Technologies, Incorporated 529 Pleasant Street Attleboro, MA 02703-2421 Phone number: (508)-236-3800 Facsimile number: (508) 236-1598 E-mail: <a href="mailto:cmbinfopp@sensata.com">cmbinfopp@sensata.com</a> Uniform Resource Locator (URL): <a href="http://www.airpax.net/">http://www.airpax.net/</a>
002	203-86094-002XX	
003	203-86094-003XX	
004	203-86094-004XX	
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006	203-86094-006XX	
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042	203-86094-042XX	
043	203-86094-043XX	
044	203-86094-044XX	

1/ Parts must be purchased to this DLA Land and Maritime PIN to assure that all performance requirements and tests are met.

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