ENGINEERING DATA SHEET

SERIES AJ

CONTACTOR
1PST-DM, 400 AMP

APPLICATION NOTES:
101
102
103G
007

Balanced-Force Design hermetically sealed power contactor

Contact arrangement	**SPST-N.O.**
Meets the requirements of	**MIL-PRF-6106**
Qualified to	**M6106/33**

PRINCIPLE TECHNICAL CHARACTERISTICS

Contacts rated at	**28 Vdc**
Weight	**1.75lbs max**

Auxiliary contact models available.

CAUTION: **The use of any coil voltage less than the rated coil voltage will compromise the operation of the contactor. Special units for low coil voltage applications are available. Consult factory.**

CONTACT ELECTRICAL CHARACTERISTICS

Contact rating - Amp per pole [1]	Main 28 Vdc	Auxiliary-DB/DM (Circuit No.4) 28 Vdc or 155V/400 Hz	Auxiliary-SP (All circuits except No.4)
Resistive	400	5	
Inductive [2]	150	5	5
Motor [6]	250	-	3
Lamp	-	1	-
Special motor load [7]	-	-	1
Overload	2400	-	-
Rupture	3000	-	-
			-

Esterline Power Systems

Featuring LEACH© power and control solutions
www.esterline.com

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Data sheets are for initial product selection and comparison. Contact Esterline Power Systems prior to choosing a component.

COIL CHARACTERISTICS (Vdc) SERIES AJ

CODE	A Vdc	B Vdc	C Vdc	N,NA [5] Vdc
Nominal operating voltage	28	12	6	28
Maximum operating voltage	29	14.5	7.3	29
Maximum pickup voltage				
- Nominal at 71° C	18	9	4.5	18
- High temp test	19	9.8	5	19
- Cont. current test	21	10.5	5.3	21
Hold voltage	9	5.5	3.5	9
Drop-out voltage minimum	1.5	0.8	0.4	1.5
Coil resistance Ohms ±10% at +25° C	60	15	4	60

GENERAL CHARACTERISTICS

Temperature range	-55°C to +71°C
Minimum operating cycles (life) at rated load	50,000 [7]
Minimum operating cycles (life) at 25% rated load	100,000
Dielectric strength at sea level	
- All circuits to ground and circuit to circuit	1500 Vrms
- Across open contacts and coil to ground and auxiliary contacts	1250 Vrms
Dielectric strength at altitude 50,000 ft	
- Main contacts	700 Vrms
- Coil and auxiliary contacts	500 Vrms
Insulation resistance: (At 500 Vdc)	100 M Ω min
Sinusoidal vibration	10 G / 75 to 500 Hz 5 G / 500 to 2000 Hz
Shock	25 G
Maximum contact opening time under vibration and shock	10 µs
Operate time at nominal voltage	35 ms max
Release time at nominal voltage	15 ms max
Contact bounce at nominal voltage	4 ms max

NOTES

[1] Standard Intermediate current test applicable.
[2] Inductive load life: 20,000 cycles.
3. Applicable military specification: MIL-R-6106.
4. Special models available upon request, please contact factory.
[5] "N", "NA" coils have back EMF suppression to 42 volts maximum.
[6] Off time for motor load test shall be 6 seconds maximum.
[7] Must meet 20,000 cycles of special motor load test (engine start): see table 1, page 3.
[8] Relay will not operate, nor will it be damaged by the application of reverse polarity.

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                                                    Options
                                                AJ  -  X   0   X
Basic series designation_____________________|     |   |   |
1-Terminal length/type (main and aux)_____________|   |   |
2-Circuits (No. 1,2,3,4,5,6,7,8,9,10)_____________|   |
3-Coil Voltage see coil characteristics (A,B,C,N, and NA)_____|
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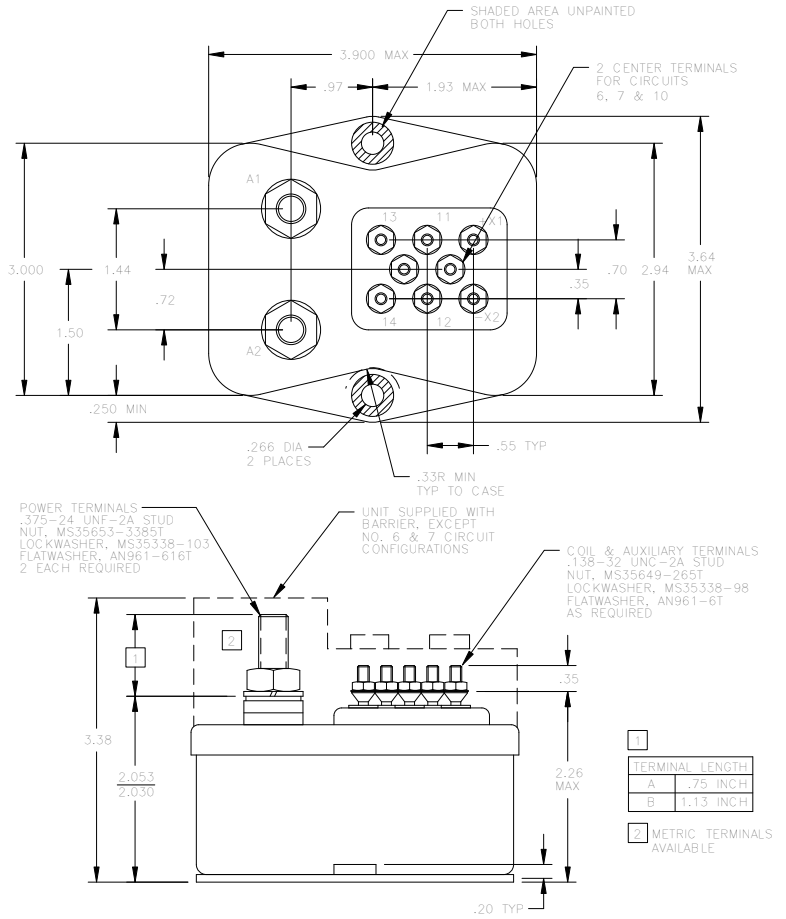
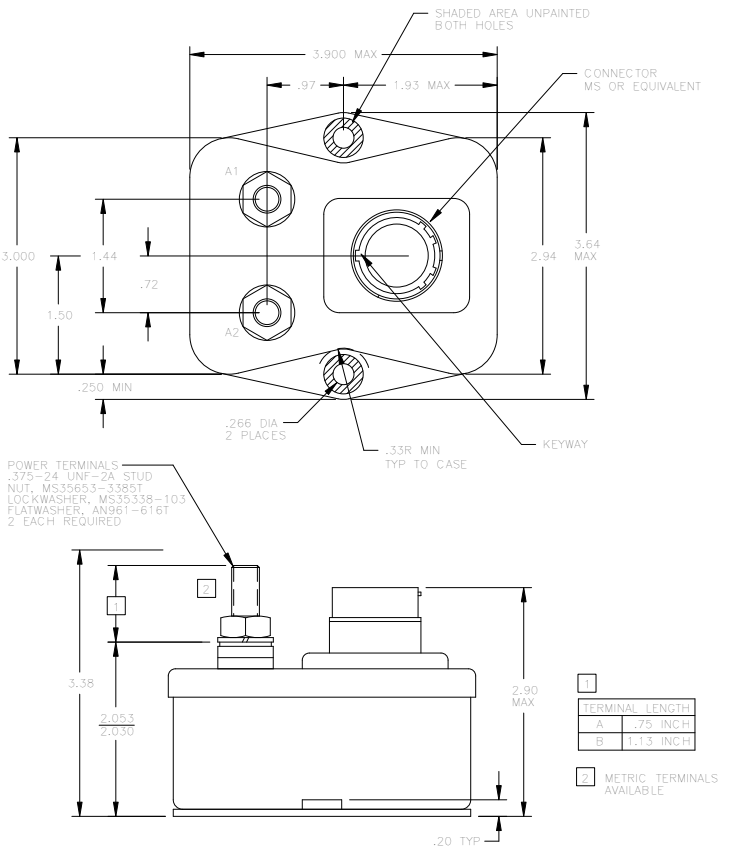
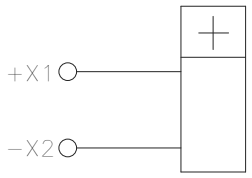
LEACH PART NUMBER	MIL-R6106/33 DASH NUMBER	COIL SUPPRESSION (BACK EMF)	CIRCUIT DIAGRAM	COIL DIAGRAM	COVER HEIGHT DIMENSIONS	TERMINAL LENGTHS
AJ-A4A-153	040	-	4	1	-	0.75
AJ-A4NA-154	041	Applicable	4	3	-	0.75
AJ-A4NA-155	042	Applicable	4	3	3.38	0.75
AJ-A4A-156	043	-	4	1	3.38	0.75
AJ-B8NA-157	044	Applicable	8	3	3.38	1.13
AJ-B8A-158	045	-	8	1	3.38	1.13
AJ-A2NA-159	046	Applicable	2	3	3.38	0.75
AJ-A3NA-160	047	Applicable	3	3	3.38	0.75
AJ-A2A-161	048	-	2	1	3.38	0.75
AJ-A3A-162	049	-	3	1	3.38	0.75
AJ-A8NA-163	050	Applicable	8	3	3.38	0.75
AJ-A8A-164	051	-	8	1	3.38	0.75
AJ-B9NA-165	052	Applicable	9	3	3.38	1.13
AJ-B9A-166	053	-	9	1	3.38	1.13
AJ-A9NA-167	054	Applicable	9	3	3.38	0.75
AJ-A9A-168	055	-	9	1	3.38	0.75
AJ-B7NA-169	056	Applicable	7	3	-	1.13
AJ-B7A-170	057	-	7	1	-	1.13
AJ-A7NA-171	058	Applicable	7	3	-	0.75
AJ-A7A-172	059	-	7	1	-	0.75
AJ-B8N-173	060	Applicable	8	2	3.38	1.13
AJ-B9N-174	061	Applicable	9	2	3.38	1.13
AJ-B7N-175	062	Applicable	7	2	-	1.13
AJ-A4N-176	063	Applicable	4	2	N/A	0.75
AJ-A4N-177	064	Applicable	4	2	3.38	0.75
AJ-B4A-178	065	-	4	1	3.38	1.13
AJ-B4NA-179	066	Applicable	4	3	3.38	1.13
AJ-B4N-180	067	Applicable	4	2	3.38	1.13
AJ-A8N-181	068	Applicable	8	2	3.38	0.75
AJ-A2N-182	069	Applicable	2	2	3.38	0.75
AJ-B2A-183	070	-	2	1	3.38	1.13
AJ-B2NA-184	071	Applicable	2	3	3.38	1.13
AJ-B2N-185	072	Applicable	2	2	3.38	1.13
AJ-A3N-186	073	Applicable	3	2	3.38	0.75
AJ-B3A-187	074	-	3	1	3.38	1.13
AJ-B3NA-188	075	Applicable	3	3	3.38	1.13
AJ-B3N-189	076	Applicable	3	2	3.38	1.13
AJ-A9N-190	077	Applicable	9	2	3.38	0.75
AJ-A7N-191	078	Applicable	7	2	-	0.75



Connector Version on Both Series A & Series AJ

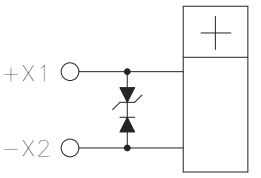


COIL DIAGRAMS



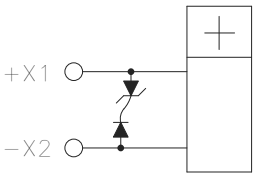
STANDARD COIL
"A", "B", "C"

1



SUPPRESSED COIL
"N"
28 VDC

2



SUPPRESSED COIL
"NA"
28 VDC
FUSABLE LINK, RELAY WILL CONTINUE TO OPERATE SHOULD COIL SUPPRESSION BE IN A FAILURE MODE

3

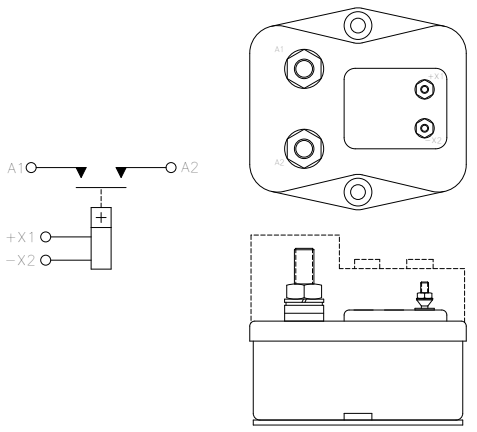
TABLE 1-SPECIAL MOTOR LOAD [1] [2]

ELAPSED TIME SECONDS	STARTER CURRENT AMPERES
0 (INITIAL)	1200
1	1000
2	1000
3	900
4	800
5	700
6	600
7 TO 60	400

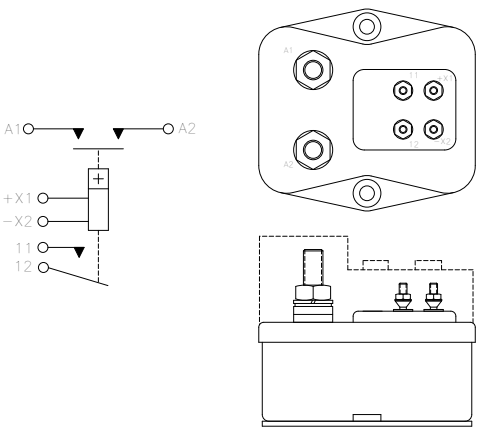
[1] MUST BE ABLE TO MEET TABLE 1 REQUIREMENTS FOR THREE CYCLES WITH ONLY 10 SECONDS OFF BETWEEN CYCLES. AT THE END OF THREE CYCLES, OFF TIME WILL BE 5 MINUTES, MINIMUM.

[2] THE START CYCLE MAY BE ABORTED ANY TIME DURING THIS PERIOD.

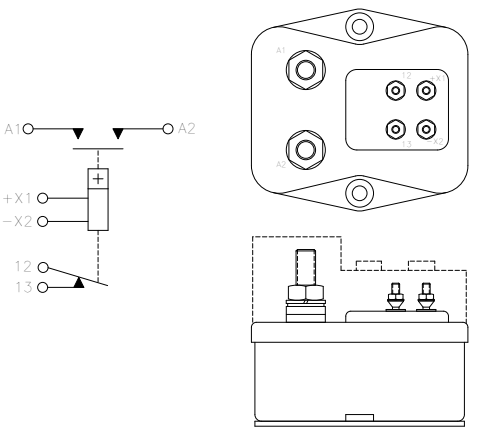
CIRCUIT DIAGRAM NO 1



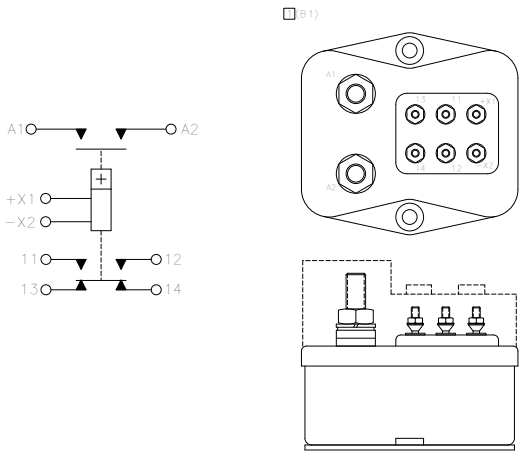
CIRCUIT DIAGRAM NO 2 □(A1)



CIRCUIT DIAGRAM NO 3 □(A2)



CIRCUIT DIAGRAM NO 4 □(B1)



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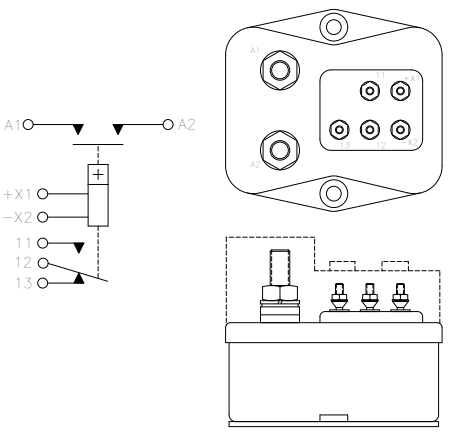

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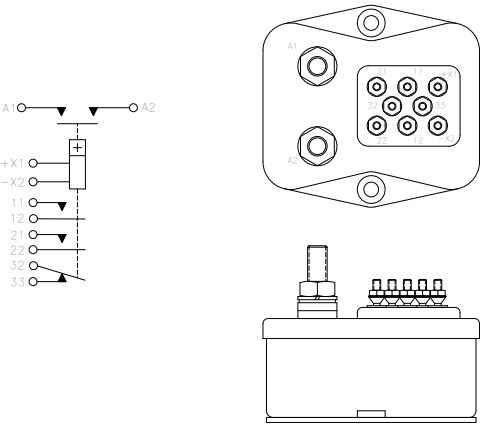
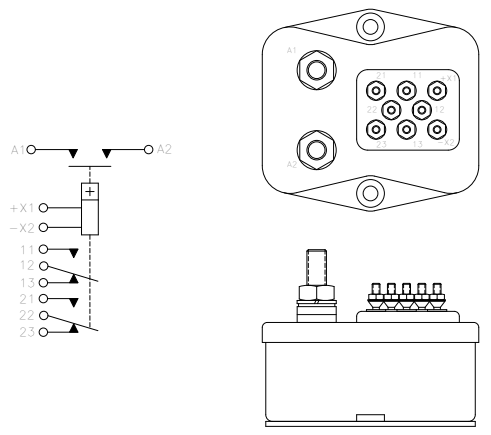
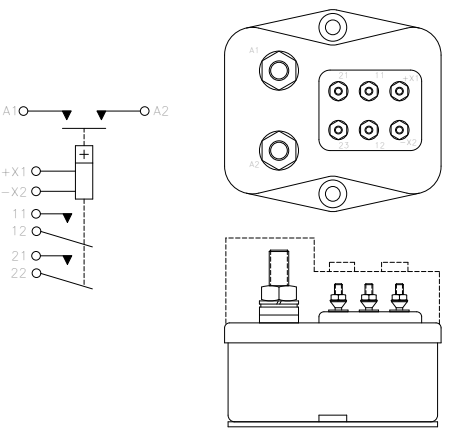


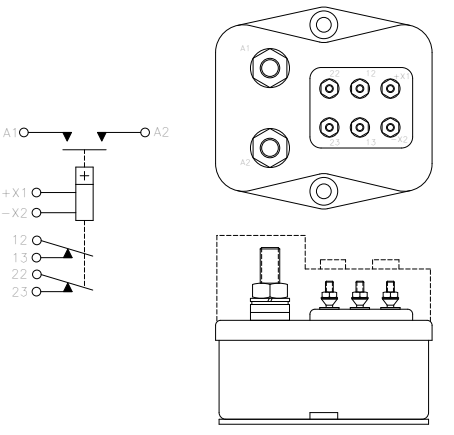
CIRCUIT DIAGRAM NO 7 □(C1)



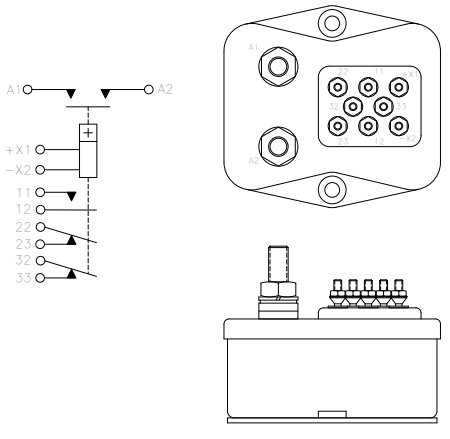
CIRCUIT DIAGRAM NO 8 □(B2)



CIRCUIT DIAGRAM NO 9 □(B3)



CIRCUIT DIAGRAM NO 10



[1] MIL−R−6106/33 CIRCUIT DESIGNATORS

NOTE: Although all configuration and / or terminal type options are available, some combinations may require a setup charge and be subject to minimum order size.