

E410 AND ES410 MILITARY SPECIFIED

Qualified to MIL-PRF-83536

FEATURES

- Balanced force design provides the benefit of consistently high contact pressure, reduced bounce, and less arching leading to extended contact life
- Welded hermetically sealed, non-corrosive enclosure
- Wide choice of mounting and terminal styles

APPLICATIONS

- Rail
- Aerospace
- Ground vehicle
- Built to MIL-PRF-83536 for severe condition applications

GENERAL CHARACTERISTICS

- Number of Poles: 4 Form C (4PDT)
- Dimensions: 1.025" x 1.025" x 1.010"
(26.0 x 26.0 x 25.7) mm
- Weight
Mounting Code 09: 0.20 lbs (90.6 g)
All Others: 0.17 lbs (77 g)

SWITCHING CHARACTERISTICS

- Operate Time @ +25°C
All Others: 15 ms. Max
- Release Time @ +25°C
Mounting Code 09: 20 ms. Max
All Others: 15 ms. Max
- Bounce Time: 1 ms. Max
- Mechanical Life: Up to 400,000 Cycles



ENVIRONMENTAL CHARACTERISTICS

- Temperature Range: -70°C to +125°C
- Vibration (Sinusoidal)
Mounting Code 03: 20 g 57-3,000 Hz
All Others: 30 g 10-3,000 Hz
- Shock (any axis)
Mounting Code 03: 100 g, 6 ms.
All Others: 200 g, 6 ms.
- Seal: Hermetic (1×10^{-8} atm cm^3/s)

ELECTRICAL CHARACTERISTICS

- Contact Voltage Drop (at rated resistive load)
Initial: 150 mV Max
After Guaranteed Life: 175 mV Max
- Dielectric Strength @ Sea Level

Mounting Code 09	Coil to Case	All Other Points
Initial @ 60 Hz:	1,050 V _{rms}	1,500 V _{rms}
After Life Test @ 60 Hz:	1,050 V _{rms}	1,250 V _{rms}
All Others		
Initial @ 60 Hz:	1,000 V _{rms}	1,250 V _{rms}
After Life Test @ 60 Hz:	1,000 V _{rms}	1,000 V _{rms}

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ELECTRICAL CHARACTERISTICS (CONTINUED)

- Insulation Resistance

Initial: 100 M Ω Min, @ 500 Vdc

After Life Tests (Mounting Code 09):

100 M Ω Min, @ 500 Vdc

After Life Tests (All Others):

50 M Ω Min, @ 500 Vdc

Max Leakage Current (Mounting Code 09):

100 μ A RMS

- Back EMF (Transient Voltage, ES410 Only): -42 Vdc Max

CONTACT RATING (AMPS)

Type of Load (High Level)	Cycles x 10 ³	28 Vdc	115 Vac 400 Hz 1 Phase	115 Vac 50/60 Hz 1 Phase	115/200 Vac 400 Hz 3 Phase	115/200 Vac 50/60 Hz 3 Phase
Resistive	100	10	10	2.5	10	2.5
Inductive	20	8	8	N/A	8	N/A
Inductive	10	N/A	N/A	2.5	N/A	2.5
Motor	100	4	4	2	4	2
Lamp	100	2	2	1	N/A	N/A

Note: 115 Vac 50/60 Hz life reduced to 10,000 cycles for all load types

MILITARY PART NUMBERING

SPECIFICATION DESIGNATOR

SPECIFICATION SHEET NUMBER	
15	E410
16	ES410

DASH NUMBER	
See Charts	

FAILURE RATE LEVEL	
FR level (percent per 10,000 cycles)	
L	3.0
M – DC Only	1.0

Part Number					
M83536	/	15	-	022	L

QPL PART NUMBERING

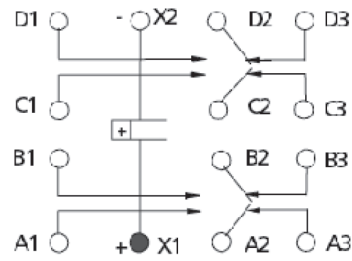
BASIC SERIES
COIL CODE
MOUNTING CODE
TERMINAL CODE
FR LEVEL

Part Number				
E410	04	02	BG	L

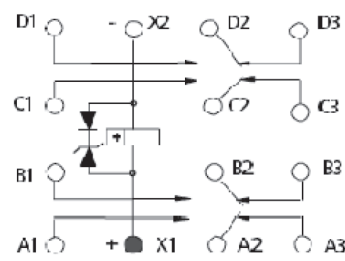
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CIRCUIT DIAGRAM



E410



ES410 w/ Internal
Voltage Suppression

DASH NUMBERS - SPECIFICATION SHEET NUMBER 15: E410

Dash Number	Coil Code	Mount	Terminals	Coil Voltage	Max Pickup Voltage @ +25°C	Max Pickup Voltage @ +125°C	Max Hold Voltage @ +125°C	Min Dropout Voltage @ -70°C	Coil Resistance (Ω, Min @ +25°C)
009	02	01	ET	12	6.5	9	4.5	0.5	63
010	02	01	AT	12	6.5	9	4.5	0.5	63
011	02	01	BG	12	6.5	9	4.5	0.5	63
012	02	02	ET	12	6.5	9	4.5	0.5	63
013	02	02	AT	12	6.5	9	4.5	0.5	63
014	02	02	BG	12	6.5	9	4.5	0.5	63
015	02	03	ET	12	6.5	9	4.5	0.5	63
016	02	03	AT	12	6.5	9	4.5	0.5	63
017	04	01	ET	28	14	19.5	7	1.5	260
018	04	01	AT	28	14	19.5	7	1.5	260
019	04	01	BG	28	14	19.5	7	1.5	260
020	04	02	ET	28	14	19.5	7	1.5	260
021	04	02	AT	28	14	19.5	7	1.5	260
022	04	02	BG	28	14	19.5	7	1.5	260
023	04	03	ET	28	14	19.5	7	1.5	260
024	04	03	AT	28	14	19.5	7	1.5	260

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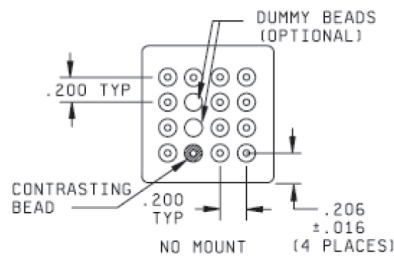
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DASH NUMBERS – SPECIFICATION SHEET NUMBER 16: ES410

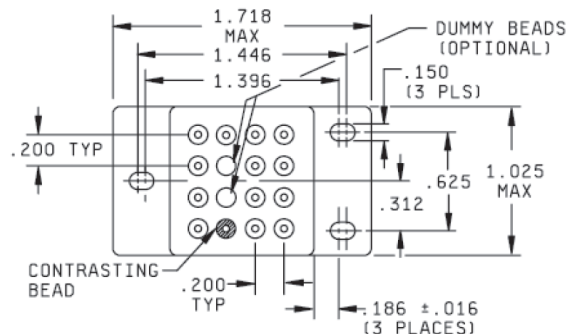
Dash Number	Coil Code	Mount	Terminals	Coil Voltage	Max Pickup Voltage @ +25°C	Max Pickup Voltage @ +125°C	Max Hold Voltage @ +125°C	Min Dropout Voltage @ -70°C	Coil Resistance (Ω, Min @ +25°C)
009	02	01	ET	12	6.5	9	4.5	0.5	63
010	02	01	AT	12	6.5	9	4.5	0.5	63
011	02	01	BG	12	6.5	9	4.5	0.5	63
012	02	02	ET	12	6.5	9	4.5	0.5	63
013	02	02	AT	12	6.5	9	4.5	0.5	63
014	02	02	BG	12	6.5	9	4.5	0.5	63
015	02	03	ET	12	6.5	9	4.5	0.5	63
016	02	03	AT	12	6.5	9	4.5	0.5	63
017	04	01	ET	28	14	19.5	7	1.5	260
018	04	01	AT	28	14	19.5	7	1.5	260
019	04	01	BG	28	14	19.5	7	1.5	260
020	04	02	ET	28	14	19.5	7	1.5	260
021	04	02	AT	28	14	19.5	7	1.5	260
022	04	02	BG	28	14	19.5	7	1.5	260
023	04	03	ET	28	14	19.5	7	1.5	260
024	04	03	AT	28	14	19.5	7	1.5	260
025	00	09	GG	28	14	18.7	7	1.5	260
034*	28	02	BG	28	14	19.5	7	1.5	260

*This relay is supplied without internal Arc Barriers and is not rated for AC loads

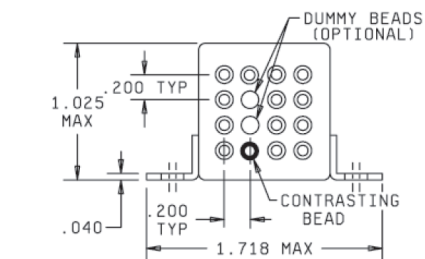
Qualified to MIL-PRF-83536



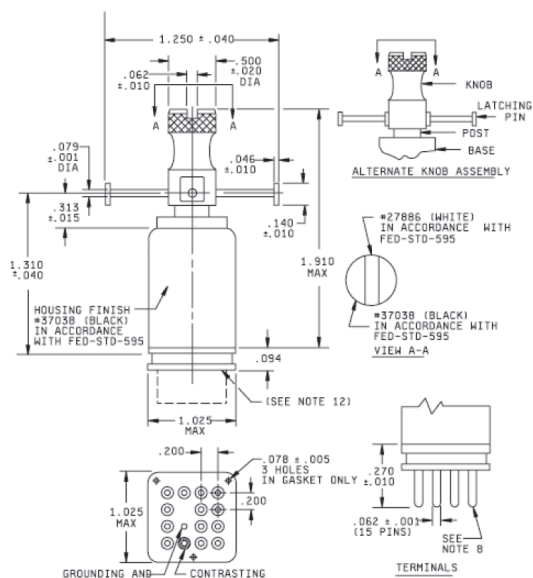
Mount 01



Mount 02

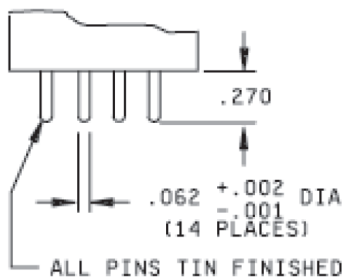


Mount 03

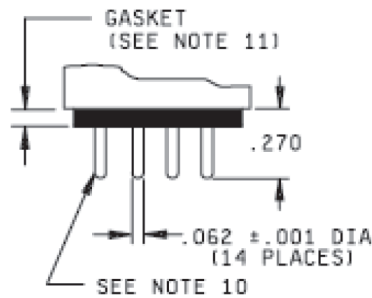


Mount 09

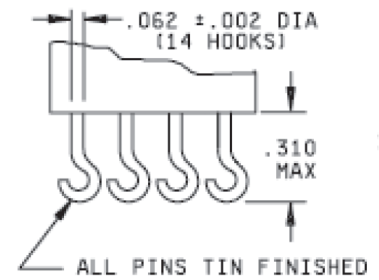
TERMINAL STYLES



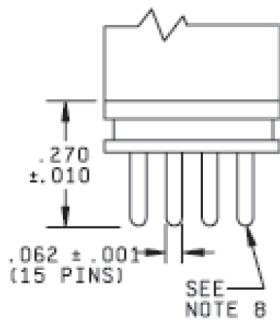
Terminal ET: Tin Plated



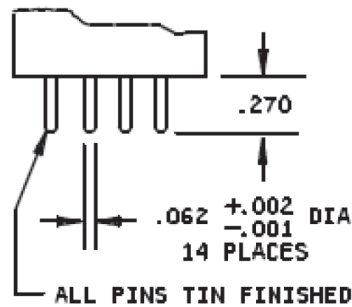
Terminal BG: Gold Plated



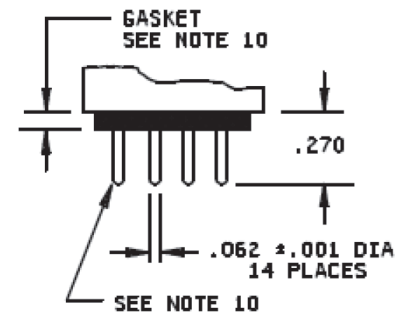
Terminal AT: Tin Plated



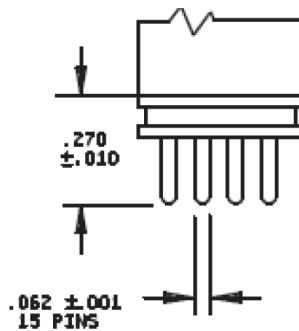
Terminal GG: Gold Plated



Terminal JT: Tin Plated



Terminal CG: Gold Plated



Terminal HG: Gold Plated

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