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 ($1x10^{-8}$ 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}

ELECTRICAL CHARACTERISTICS (CONTINUED)

- Insulation Resistance
  Initial: 100 MΩ Min, @ 500 Vdc
  After Life Tests (Mounting Code 09): 100 MΩ Min, @ 500 Vdc
  After Life Tests (All Others): 50 MΩ Min, @ 500 Vdc
  Max Leakage Current (Mounting Code 09): 100 μA 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

Part Number: M83536 / 15 - 022 L

SPECIFICATION DESIGNATOR

SPECIFICATION SHEET NUMBER	
15	E410
16	ES410

DASH NUMBER
See Charts

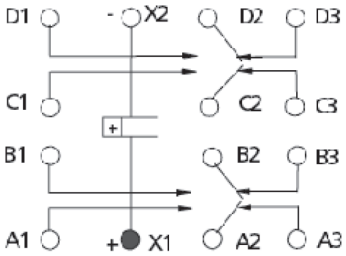
FAILURE RATE LEVEL	
FR level (percent per 10,000 cycles)	
L	3.0
M – DC Only	1.0

QPL PART NUMBERING

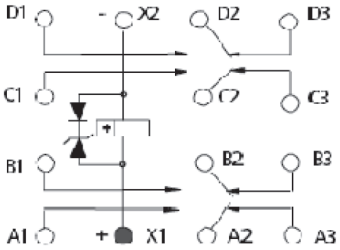
Part Number: E410 04 02 BG L

BASIC SERIES
COIL CODE
MOUNTING CODE
TERMINAL CODE
FR LEVEL

CIRCUIT DIAGRAM



E410



ES410 w/ Internal Voltage Suppression

DASH NUMBERS – SPECIFICATION SHEET NUMBER 15: E410

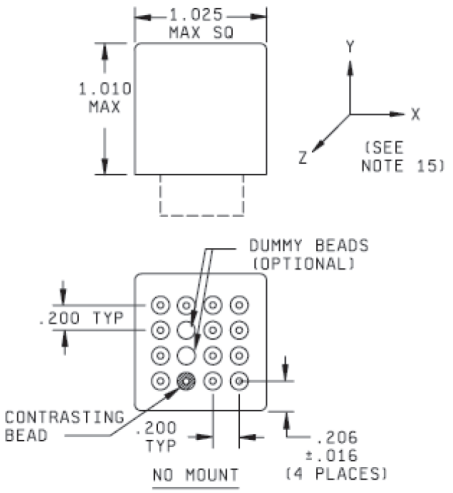
Dash Number	Coil Code	Mount	Terminals	Coil Voltage	Max Pickup Voltage @ +25°C	Max Pickup Voltage @ +125°C	Max Hold Voltage @ +125°C	Min Dropout Voltage @ -70°C	Coil Resistance (Ω, Min @ +25°C)
009	02	01	ET	12	6.5	9	4.5	0.5	63
010	02	01	AT	12	6.5	9	4.5	0.5	63
011	02	01	BG	12	6.5	9	4.5	0.5	63
012	02	02	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

DASH NUMBERS – SPECIFICATION SHEET NUMBER 16: ES410

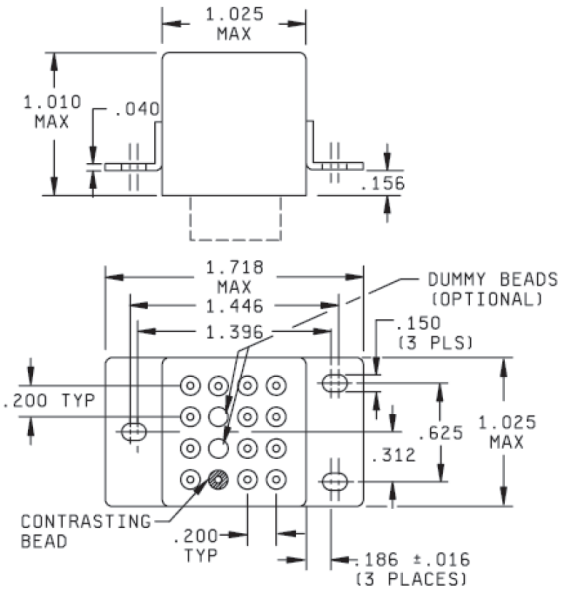
Dash Number	Coil Code	Mount	Terminals	Coil Voltage	Max Pickup Voltage @ +25°C	Max Pickup Voltage @ +125°C	Max Hold Voltage @ +125°C	Min Dropout Voltage @ -70°C	Coil Resistance (Ω, Min @ +25°C)
009	02	01	ET	12	6.5	9	4.5	0.5	63
010	02	01	AT	12	6.5	9	4.5	0.5	63
011	02	01	BG	12	6.5	9	4.5	0.5	63
012	02	02	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

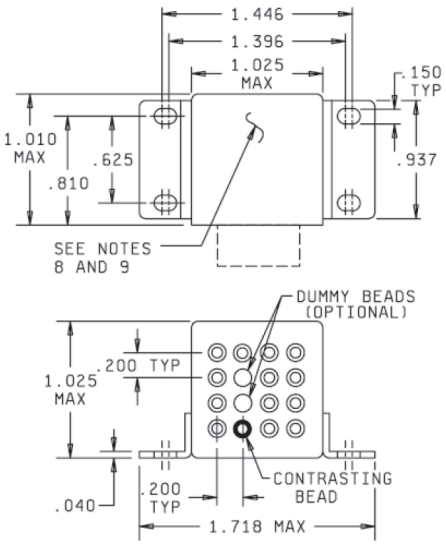
MOUNTING STYLES



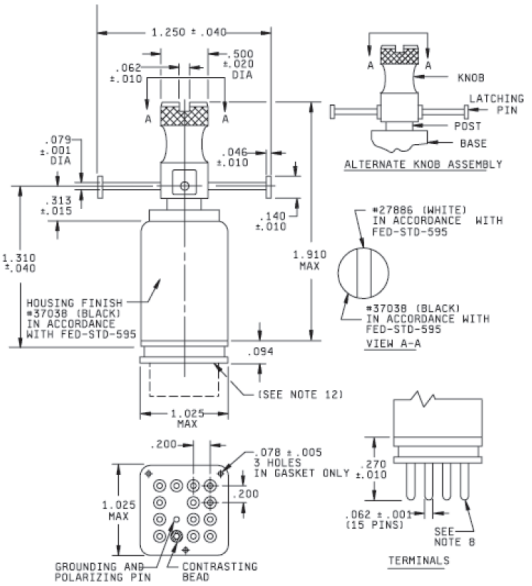
Mount 01



Mount 02

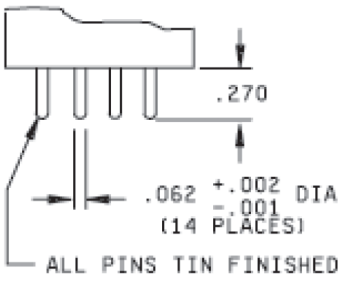


Mount 03

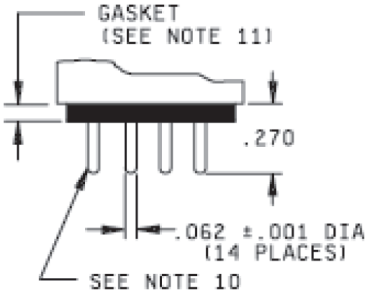


Mount 09

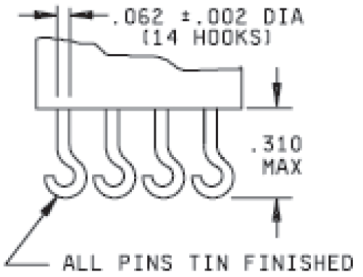
TERMINAL STYLES



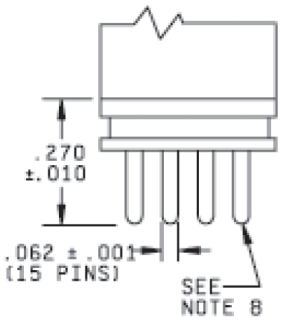
Terminal ET: Tin Plated



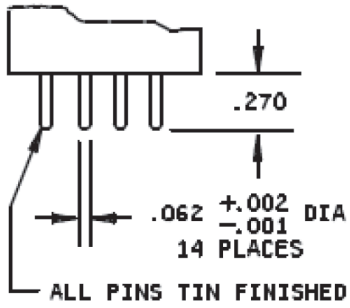
Terminal BG: Gold Plated



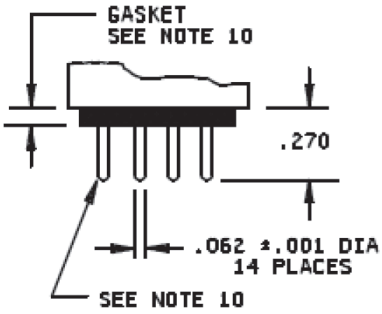
Terminal AT: Tin Plated



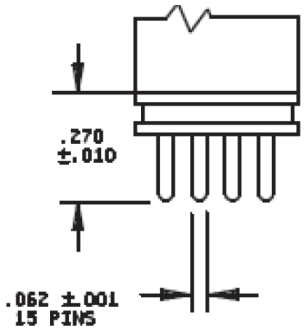
Terminal GG: Gold Plated



Terminal JT: Tin Plated



Terminal CG: Gold Plated



Terminal HG: Gold Plated

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