



A COMPANY OF STPI GROUP

# **E210, ES210, & EA210**

## **Military Specified**

**Meets MIL-PRF-83536**

### **General Characteristics**

|                    |                                                     |
|--------------------|-----------------------------------------------------|
| No. of Poles:      | 2 Form C (2PDT)                                     |
| Dimensions:        | 1.025" x 0.525" x 1.010"<br>(26.0 x 13.3 x 25.7) mm |
| Weight:            |                                                     |
| -Mounting Code 09: | 0.12 lbs Max (54.5 grams)                           |
| -All Others        | 0.10 lbs Max (46.0 grams)                           |

### **Switching Characteristics**

|                      |                |
|----------------------|----------------|
| Operate Time @ +25°C |                |
| -EA210:              | 20 ms. Max     |
| -All Others:         | 10 ms. Max     |
| Release Time @ +25°C |                |
| -Mounting Code 09:   | 20 ms. Max     |
| -EA210:              | 50 ms. Max     |
| -All Others:         | 10 ms. Max     |
| Bounce Time:         | 1 ms. Max      |
| Mechanical Life:     | 400,000 Cycles |

### **Environmental Characteristics**

|                        |                                                      |
|------------------------|------------------------------------------------------|
| Temperature Range:     | -70°C to +125°C                                      |
| Vibration (Sinusoidal) | 30g 10-3,000 Hz                                      |
| Shock (any axis)       | 200g, 6 ms                                           |
| Seal:                  | Hermetic (1x10 <sup>-8</sup> atm cm <sup>3</sup> /s) |

### **Electrical Characteristics**

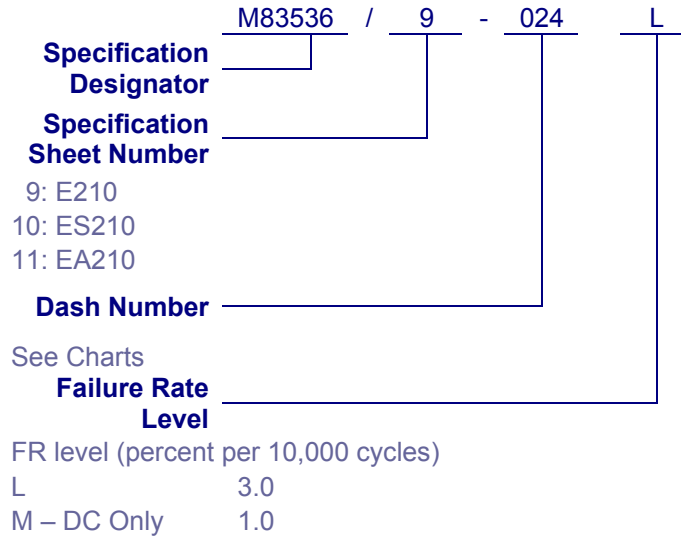
|                                                |                                                     |
|------------------------------------------------|-----------------------------------------------------|
| Contact Voltage Drop (at rated resistive load) |                                                     |
| -Initial:                                      | 150 mV Max.                                         |
| -After Guaranteed Life:                        | 175 mV Max.                                         |
| Dielectric Strength @ Sea Level                |                                                     |
| Mounting Code 09                               |                                                     |
| -Initial @ 60 Hz:                              | Coil to Case 1,050 Vrms All Other Points 1,500 Vrms |
| -After Life Test @ 60 Hz:                      | Coil to Case 1,050 Vrms All Other Points 1,250 Vrms |
| All Others                                     |                                                     |
| -Initial @ 60 Hz:                              | Coil to Case 1,000 Vrms All Other Points 1,250 Vrms |
| -After Life Test @ 60 Hz:                      | Coil to Case 1,000 Vrms All Other Points 1,000 Vrms |
| 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, ES210 Only)       | -42 Vdc Max                                         |

### Contact Rating (Amps)

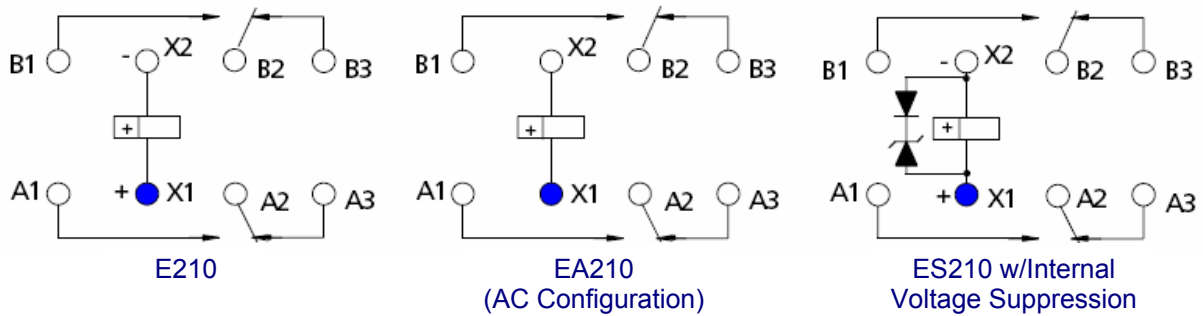
| Type of Load<br>(High Level) | Cycles<br>x 10 <sup>3</sup> | 28 Vdc | 115 Vac<br>400 Hz<br>1 Phase | 115 Vac<br>50/60 Hz<br>1 Phase | 115/200 Vac<br>400 Hz<br>3 Phase | 115/200 Vac<br>50/60 Hz<br>3 Phase |
|------------------------------|-----------------------------|--------|------------------------------|--------------------------------|----------------------------------|------------------------------------|
| 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



### Circuit Diagram



### Dash Numbers – Specification Sheet Number 9: E210

| Dash Number | Coil Code | Mount | Terminals | Coil Voltage | Max Pickup Voltage at 25°C | Max Pickup Voltage at 125°C | Max Hold Voltage at 125°C | Min Dropout Voltage at -70°C | Coil Resistance (Ω, Min. at 25°C) |
|-------------|-----------|-------|-----------|--------------|----------------------------|-----------------------------|---------------------------|------------------------------|-----------------------------------|
| 010         | 02        | 01    | ET        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 011         | 02        | 01    | AT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 012         | 02        | 01    | BG        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 013         | 02        | 03    | ET        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 014         | 02        | 03    | AT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 015         | 02        | 03    | BG        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 016         | 02        | 07    | ET        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 017         | 02        | 07    | AT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 018         | 02        | 07    | FT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 019         | 04        | 01    | ET        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 020         | 04        | 01    | AT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 021         | 04        | 01    | BG        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 022         | 04        | 03    | ET        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 023         | 04        | 03    | AT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 024         | 04        | 03    | BG        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 025         | 04        | 07    | ET        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 026         | 04        | 07    | AT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 027         | 04        | 07    | FT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |

### Dash Numbers – Specification Sheet Number 10: ES210

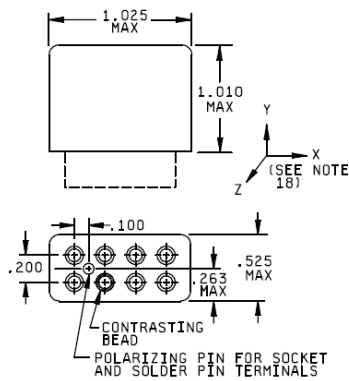
| Dash Number | Coil Code | Mount | Terminals | Coil Voltage | Max Pickup Voltage at 25°C | Max Pickup Voltage at 125°C | Max Hold Voltage at 125°C | Min Dropout Voltage at -70°C | Coil Resistance (Ω, Min. at 25°C) |
|-------------|-----------|-------|-----------|--------------|----------------------------|-----------------------------|---------------------------|------------------------------|-----------------------------------|
| 010         | 02        | 01    | CT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 011         | 02        | 01    | AT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 012         | 02        | 01    | BG        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 013         | 02        | 03    | CT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 014         | 02        | 03    | AT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 015         | 02        | 03    | BG        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 016         | 02        | 07    | CT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 017         | 02        | 07    | AT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 018         | 02        | 07    | FT        | 12           | 6.5                        | 9                           | 4.5                       | 0.5                          | 72                                |
| 019         | 04        | 01    | CT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 020         | 04        | 01    | AT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 021         | 04        | 01    | BG        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 022         | 04        | 02    | CT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 023         | 04        | 02    | AT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 024         | 04        | 02    | BG        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 025         | 04        | 03    | CT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 026         | 04        | 03    | AT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 027         | 04        | 03    | FT        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 028         | 00        | 09    | GG        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |
| 038*        | 28        | 03    | BG        | 28           | 14                         | 18.7                        | 7                         | 1.5                          | 280                               |

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

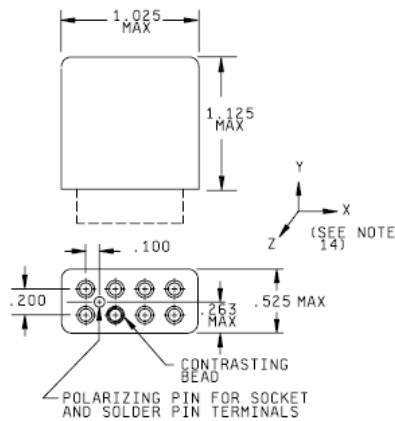
### Dash Numbers – Specification Sheet Number 11: EA210

| Dash Number | Coil Code | Mount | Terminals | Coil Voltage / Freq. | Max Pickup Voltage at 25°C | Max Pickup Voltage at 125°C | Max Hold Voltage at 125°C | Min Dropout Voltage at -70°C | Coil Current (A, Max. at 25°C) |
|-------------|-----------|-------|-----------|----------------------|----------------------------|-----------------------------|---------------------------|------------------------------|--------------------------------|
| 001         | 07        | 04    | AT        | 115 / 400            | 73                         | 90                          | 30                        | 5                            | .04                            |
| 002         | 07        | 04    | CG        | 115 / 400            | 73                         | 90                          | 30                        | 5                            | .04                            |
| 005         | 08        | 04    | ET        | 115 / 50/60          | 73                         | 90                          | 40                        | 5                            | .04                            |
| 006         | 08        | 04    | AT        | 115 / 50/60          | 73                         | 90                          | 40                        | 5                            | .04                            |
| 007         | 08        | 04    | CG        | 115 / 50/60          | 73                         | 90                          | 40                        | 5                            | .04                            |
| 008         | 07        | 08    | AT        | 115 / 400            | 73                         | 90                          | 30                        | 5                            | .04                            |
| 009         | 08        | 08    | AT        | 115 / 50/60          | 73                         | 90                          | 40                        | 5                            | .04                            |
| 010         | 08        | 02    | ET        | 115 / 50/60          | 73                         | 90                          | 40                        | 5                            | .04                            |
| 011         | 08        | 02    | AT        | 115 / 50/60          | 73                         | 90                          | 40                        | 5                            | .04                            |
| 012         | 07        | 09    | CG        | 115 / 400            | 75                         | 95                          | 30                        | 5                            | .04                            |

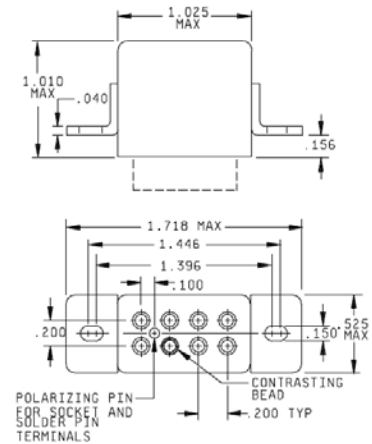
## Mounting Styles



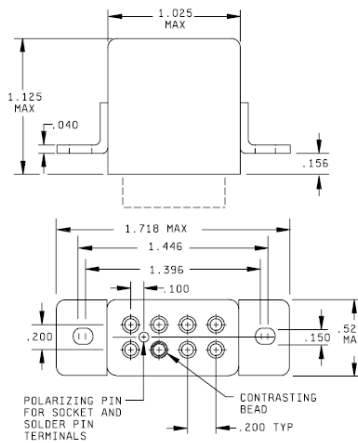
Mount 01  
(E210 & ES210)



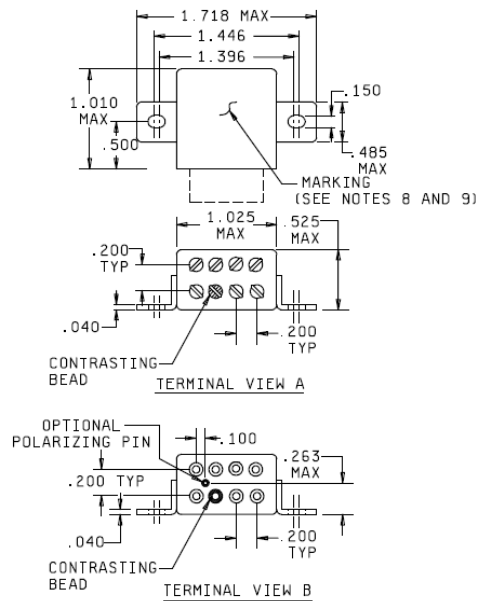
Mount 02 (EA210)



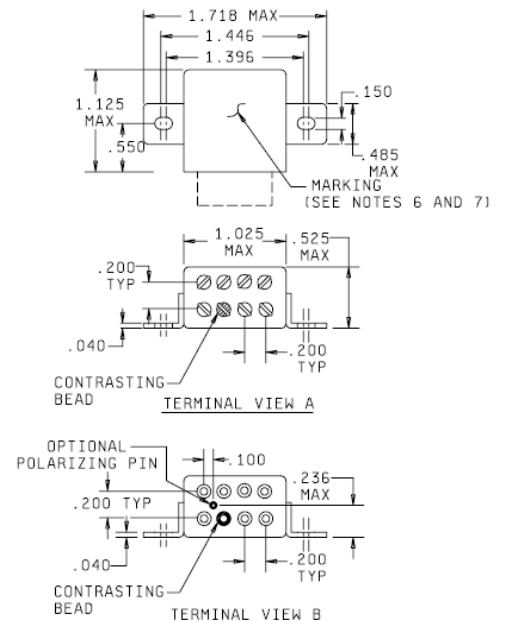
Mount 02 (ES210)  
& Mount 03 (E210)



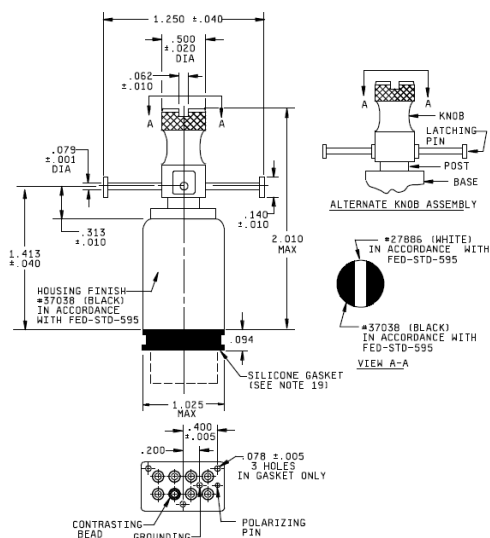
Mount 04 (EA210)



Mount 07 (E210) &  
Mount 03 (ES210)



Mount 08 (EA210)



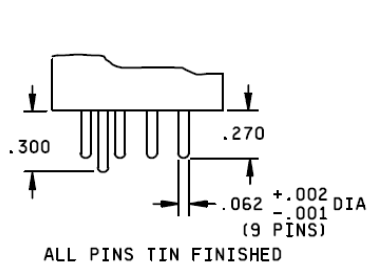
Mount 09 (ES210)

55 Engineers Road  
Hauppauge, NY 11788

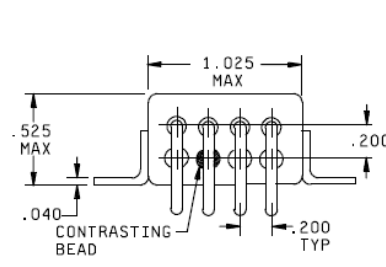
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(631) 342-1700

Mil Spec E210  
Page 5/6

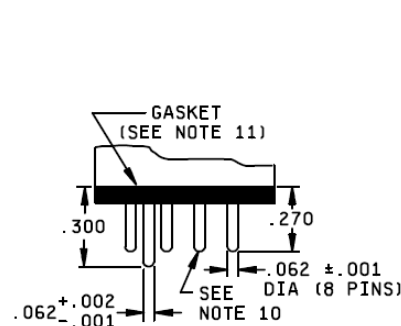
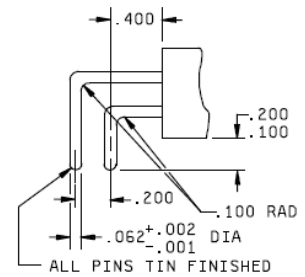
## Terminal Styles



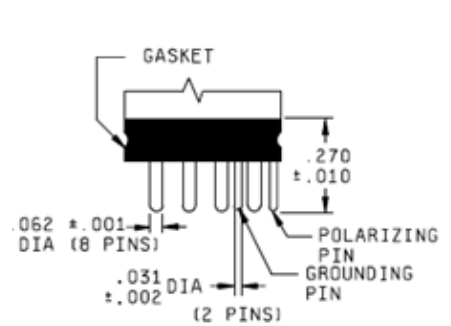
Terminal CT & ET: Tin Plated



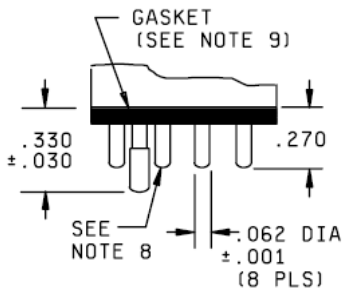
Terminal FT: Tin Plated



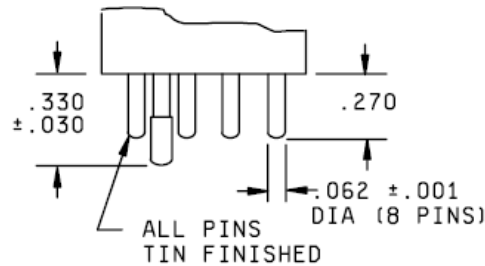
Terminal AT: Tin Plated



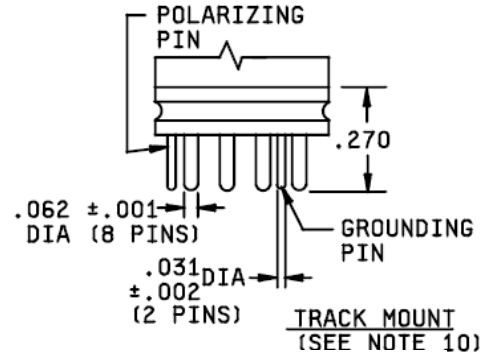
Terminal GG (ES210)



Terminal CG:  
Gold Plated (EA210)



Terminal ET:  
Tin Plated (EA210)



Terminal CG:  
Gold Plated (EA210)