## Silver Engineering Inc.



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# MODULAR SERIES BREAKOUT BOX

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www.breakoutboxes.com

**Data Sheet** 

#### **Features**

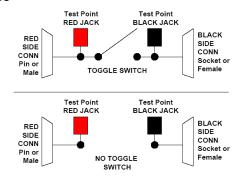
- Supports almost any style of panel mount connector
- Supports up to 225 circuits
- Supports Circular Connectors with size 16, 20 and 22D contact types
- 10, 15, 20 and 25 Switch/Test Point Row Widths available
- 10 Switch/Test Point Row Widths support high currents typical of size 16 (13 Amp) connector contacts
- 15 Switch/Test Point Row Widths supports size 20 (7.5 Amp) connector contacts
- 20 and 25 Switch/Test Point Row Widths support size 22D (5 Amp) connector contacts
- 10 Switch/Test Point Row Widths with Toggle Switches include test point series safe resistors
- Test points may be specified as 0.080" Tip Jack (typical voltmeter size probes), Mini Banana Jack (2mm), or Banana Jack (4mm)
- Jack spacing of 0.5" supports shorting plugs for Tip and Mini Banana Jacks
- Available with toggle switches or without toggle switches
- Housed in a rugged aluminum attaché case with removable cover
- Chassis ground connection point available on front panel
- Optional Hipot testing available
- Other custom features available, contact SEI
- SEI can also provide adapter and extension cables

#### Description

SEI's MODULAR Series Breakout Box can support almost any style of panel mounted connectors with switch/test points configured for up to 225 circuits. The breakout box is packaged in a rugged aluminum attaché case with removable lid that is ideal for bench and field test applications.

The MODULAR Series Breakout Box maintains different electrical characteristics depending on the Row Width of the Switch/Test Point array. Smaller Row Widths can carry higher currents, up to 13 Amps for the 10 Switch/Test Point Row Width. Larger Row Widths of Switch/Test Points carry lower currents but permit more circuits in the breakout box when required for connectors with higher numbers of circuits.

Test point configurations are available with tip, mini-banana (2mm), or banana (4mm) test points and switch and no-switch configurations are available. The 10 Row Width provides safe resistors in series with test points when configured with toggle switches.



Typical Connections



MOD 128(20 Switch/Test Point Row Width) and MOD 29(10 Switch/Test Point Row Width) MODULAR Breakout Boxes

SE-15014 Rev-

## Specifications

#### Electrical

| Switch/Test Point Row Width     |                                       | MAX<br>Current<br>Note 1  | MAX<br>Voltage<br>Note 2 | Typical Array<br>Resistance<br>(milli-Ohms)<br>Note 3 | Test Point Safe<br>Resistor<br>[Value]<br>Note 4 |  |  |  |  |
|---------------------------------|---------------------------------------|---|--------------------------|---|--|--|--|--|--|
| 10 Wide with Toggle Switches    |                                       | 13.0A   | 30Vrms/60Vdc             | $25 \mathrm{m}\Omega$                                 | YES [5kΩ 1W]                                     |  |  |  |  |
| 10 Wide without Toggle Switches |                                       | 13.0A   | 30Vrms/60Vdc             | $25 \mathrm{m}\Omega$                                 | NO   |  |  |  |  |
| 15 Wide                         |                                       | 7.5A  | 30Vrms/60Vdc             | $80 \mathrm{m}\Omega$                                 | NO   |  |  |  |  |
| 20 Wide                         |                                       | 7.0A  | 30Vrms/60Vdc             | $85 \mathrm{m}\Omega$                                 | NO   |  |  |  |  |
| 25 Wide                         |                                       | 6.5A  | 30Vrms/60Vdc             | 90mΩ  | NO   |  |  |  |  |
| NOTES                           |                                       |   |                          |   |  |  |  |  |  |
| Notes                           | Descripti                             | Description   |                          |   |  |  |  |  |  |
| 1                               | current lir<br>particular<br>number o | Maximum recommended current for one circuit active on a switch/test point array row. De-rate current linearly to 25% of maximum recommended current if all circuits active simultaneously for a particular row of switches/test points in the array. For $I = max$ . recommended current, $N = total$ number of circuits in Switch/Test Point row, $n = number$ of circuits used, $i = de$ -rated current each circuit, then $i = I + (0.75*I*(n-1)/(1-N))$ . |                          |   |  |  |  |  |  |
| 2                               | 500VDC<br>voltages o                  | 30Vrms/60VDC recommended for equipment safe handheld use. Unit can be Hipot tested at 500VDC if specified as an option. For units with toggle switches, maximum current rated at DC voltages of 28VDC/125VAC or less with resistive load, de-rate operating current at higher operating voltage levels.   |                          |   |  |  |  |  |  |
| 3                               | * *                                   | Typical resistance of switch/test point array only, does not include resistance of panel mount connectors or internal wiring to switch/test point array.  |                          |   |  |  |  |  |  |
| 4                               | Safe resis                            | Safe resistors are installed in series with each test point when indicated YES in table.  |                          |   |  |  |  |  |  |

#### Typical Case Dimensions (Panel connectors specified may affect typical case dimensions.)

| Switch/Test Point Array | Max. Number of    | CASE DIMENSIONS |       |                  |                   |  |
|-------------------------|-------------------|-----------------|-------|------------------|-------------------|--|
| Width                   | Switch/Test Point | LENGTH          | WIDTH | HEIGHT<br>w/ TOP | HEIGHT<br>w/o TOP |  |
| 10 Wide                 | 30                | 16"             | 9"    | 7.8"             | 5.3"              |  |
| 10 Wide                 | 50                | 18"             | 13"   | 6"               | 3.5"              |  |
| 15 Wide                 | 75                | 21"             | 13"   | 6.5"             | 3.8"              |  |
| 20 Wide                 | 160               | 24"             | 18"   | 8"               | 4.5"              |  |
| 25 Wide                 | 225               | 29"             | 20"   | 9.9"             | 4.7"              |  |

All specifications are subject to change without notice.

### **Ordering Information**

Contact SEI with the panel mount connectors, test point style, switch configuration and quantity of breakout boxes required and SEI will respond with breakout box case dimensions, cost and delivery information.

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