NEXSYS™ LOGIC Component Technology by Applied Avionics provides electrical system design engineers with the opportunity to create additional avionics system functionality and system integration, replacing the need for software modifications and oversized, single-function hardware. LOGIC components can be packaged inside of VIVISUN® lighted pushbutton switches or a NEXSYS LOGIC Module. With over 1,000,000 distinct mix-and-match combinations of specific components, LOGIC Component Technology offers unparalleled design flexibility in a variety of standard enclosures. The online Part Configurator makes specifying the exact combination of parts required for any application accurate and quick, and can deliver a complete part number on demand. LOGIC components have all been designed and tested in accordance with DO-160.
**Electronic Switching**

**Electronic Latch (8-pin)**
- Uses an internal electronic flip-flop to replace Magnetic or Solenoid Switches
- Set, Reset and Toggle Capabilities with built-in Blink circuitry
- Provides a significant weight, power and reliability improvement over traditional electromechanical latching options.
- EL1 powers up in RESET state with BLINK off;
  EL2 powers up in SET state with BLINK active
- Ability to reset to an off or “safe” position on power up
- Local, Remote and Lockout Control
- See Data Sheet DS-EL1-12

**Electronic Rotary (8-pin)**
- Allows a single illuminated pushbutton switch to cycle through up to 4 latched states
- Holds the existing latched state until either the next increment input (high to low transition) or a remote reset occurs
- Sink up to 2 amps with a resistive load
- Accepts reset from an external input for external override
- Maintain operational status with power drop to 200ms
- See Data Sheet DS-ER1-11

**Solid State Relay (4-pin)**
- Normally open (SSR1H, SSR1M, SSR1L) and normally closed (SSR2H, SSR2M, SSR2L) options available
- Switch power or ground up to 0.75 amps normally open and 0.25 amps normally closed.
- Convert logic level input to 28 VDC aircraft power
- Provide signal polarity reversal (High to Low or Low to High)
- SSR activates when an input voltage of 4 to 6 VDC (SSR1L, SSR2L), 8 to 18 VDC (SSR1M, SSR2M) or 18 to 32 VDC (SSR1H, SSR2H) is applied
- Provide output switching up to 32 VDC or 28 VAC rms
- See Data Sheet DS-SSR1-11

**Mechanical Switching**

**Single & Double Break Switches (3 or 4-pin)**
- High reliability snap action switches that are MIL-PRF-8805/101
- Silver (silver with gold flash) or Gold (gold plated) contacts
- Single Break or Double Break option
- Gold switch contacts required when used in a High Capacity body containing an 8 pin device

**Sensors & Detectors**

**Pulse/ Timer (8-pin)**
- Dual channel, edge detecting, one-shot pulse generators each producing a timed output signal that can be active high or low with specified time intervals from 125 ms to 20 seconds
- Replaces external one-shot pulse generators, timers and time delay relays
- Responds to any reciprocal transition such as “Weight On/Off Wheels” or “Open/Close”
- Channels may be connected in series for custom timing options
- See Data Sheet DS-PT1-12 for complete information and additional coding parameters

**Voltage Sensor (4-pin)**
- Monitor DC under-volt or over-volt condition and deliver a discrete output signal
- Set point range from 2 VDC to 50 VDC, 1V increments
- Output selectable as active low or open (high impedance)
- Units can be combined with an Electronic Latch to create a wide hysteresis voltage sensor with separate pull-in and drop-out voltages.
- See Data Sheet DS-VS-14 for complete information and additional coding parameters

**Diode Pack (4-Pin)**
- 2 independent diodes per component
- Can be configured with two commercial diodes (DP2C) or two military diodes (DP2M)
- Increases design flexibility
- See Data Sheet DS-DP-13

**Terminal Block (4-Pin)**
- Rated at 5 amps
- Can occupy unused switch poles to increase design flexibility
- 10 pin external terminal block also available
- See Data Sheet DS-DP-13

**Defined Logic (8-pin)**
- Boolean AND, OR, NOT (Inverter) and Exclusive OR capability
- Replaces power or ground drop-out relays, and traditional diode and relay logic devices
- Available as 2 input Exclusive OR (DL1), dual-channel 2 input (DL2), 4 input with 2 cascaded levels (DL3) and 4 input decoder (DL4)
- See Data Sheet DS-DL-13 for complete information and additional coding parameters

**Logic & Interface**

**Voltage Sensor (4-pin)**
- Voltage Sensor (4-pin)
- Uses an internal electronic flip-flop to replace Magnetic or Solenoid Switches
- Set, Reset and Toggle Capabilities with built-in Blink circuitry
- Provides a significant weight, power and reliability improvement over traditional electromechanical latching options.
- EL1 powers up in RESET state with BLINK off;
  EL2 powers up in SET state with BLINK active
- Ability to reset to an off or “safe” position on power up
- Local, Remote and Lockout Control
- See Data Sheet DS-EL1-12

**Voltage Sensor (4-pin)**
- Monitor DC under-volt or over-volt condition and deliver a discrete output signal
- Set point range from 2 VDC to 50 VDC, 1V increments
- Output selectable as active low or open (high impedance)
- Units can be combined with an Electronic Latch to create a wide hysteresis voltage sensor with separate pull-in and drop-out voltages.
- See Data Sheet DS-VS-14 for complete information and additional coding parameters

**Diode Pack (4-Pin)**
- 2 independent diodes per component
- Can be configured with two commercial diodes (DP2C) or two military diodes (DP2M)
- Increases design flexibility
- See Data Sheet DS-DP-13

**Terminal Block (4-Pin)**
- Rated at 5 amps
- Can occupy unused switch poles to increase design flexibility
- 10 pin external terminal block also available
- See Data Sheet DS-DP-13
LOGIC Module

LOGIC Modules can contain up to four, 4-pin LOGIC components and up to two, 8-pin LOGIC components in the four positions (H, J, K, and L). 8-pin LOGIC components will occupy two of the available positions.

Compact bodies with LOGIC can contain two, 4-pin LOGIC components; one, 4-pin LOGIC component and one electromechanical switch in each position (A and B).

High Capacity Body

High Capacity bodies with LOGIC can contain up to four, 4-pin LOGIC components; one, 8-pin LOGIC Component or up to three, electromechanical switches in the four positions (H, J, K, and L). 8-pin LOGIC components will occupy the middle two available positions.

Part Configuration

Our online Part Configurator allows customers to easily and accurately specify all aspects of a new part and generate complete, ready-to-order part numbers. The Part Configurator is available anytime and will allow you to:

- **Configure LOGIC Modules**, including LOGIC component configurations and LOGIC Module mounting options.
- **Configure LED and Incandescent Switches and Indicators**, including the configuration of LOGIC components and electromechanical switch poles. Additionally, you will be able to specify full details of the illuminated cap including size, legend, color, display type, voltage, dimming controls and enclosure options.

www.appliedavionics.com/configurator

LCT-3
**Typical Qualification Level Summary**

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Specification</th>
<th>Section</th>
<th>Category</th>
<th>Reference Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Altitude</strong></td>
<td></td>
<td></td>
<td></td>
<td>-15,000 feet, +55,000 feet (some units +70,000 feet)</td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
<td></td>
<td></td>
<td>-55°C and +85°C</td>
</tr>
<tr>
<td>Temperature Variation</td>
<td></td>
<td></td>
<td></td>
<td>5 cycles -55°C/+85°C</td>
</tr>
<tr>
<td>High Temperature Survival</td>
<td>MIL-STD-202</td>
<td>108A</td>
<td>A</td>
<td>+85°C, 96 hours (Switch Module)</td>
</tr>
<tr>
<td>Liquid Thermal Shock</td>
<td>MIL-STD-202</td>
<td>107</td>
<td>BB</td>
<td>15 cycles -65°C, +125°C (Electronic Unit Only)</td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
<td>6</td>
<td>N/A</td>
<td>240 hours, +65°C, &gt; 90% RH</td>
</tr>
<tr>
<td>Operational Shock and Crash Safety</td>
<td></td>
<td>7</td>
<td>B</td>
<td>20 G Sawtooth, 75 G Half-Sine</td>
</tr>
<tr>
<td>Acceleration</td>
<td></td>
<td>7</td>
<td>A</td>
<td>Procedure IV</td>
</tr>
<tr>
<td>Vibration</td>
<td></td>
<td>8</td>
<td>R U B</td>
<td>10-2000 Hz, 10 G</td>
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<tr>
<td>Explosive Atmosphere</td>
<td></td>
<td>9</td>
<td>E</td>
<td>10-2000 Hz, 15 G</td>
</tr>
<tr>
<td>Waterproofness Seal</td>
<td></td>
<td>10 4.7,20</td>
<td>R</td>
<td>Splashproof 15 gal/min (sealed switches)</td>
</tr>
<tr>
<td>Sand and Dust</td>
<td></td>
<td>12 110</td>
<td>D</td>
<td>Silica media</td>
</tr>
<tr>
<td>Fungus Resistance</td>
<td></td>
<td>13 3.5,2</td>
<td>F</td>
<td>Compliance by material selection</td>
</tr>
<tr>
<td>Salt Fog</td>
<td></td>
<td>14 101</td>
<td>T</td>
<td>96 hour tests</td>
</tr>
<tr>
<td>Magnetic Effect</td>
<td></td>
<td>15</td>
<td>Z</td>
<td>1° deflection, &lt; 0.3 m</td>
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<tr>
<td>Power Input Aircraft Power</td>
<td></td>
<td>16 109C</td>
<td>A or B</td>
<td>EL1, EL2, VSD1: 50ms dropout</td>
</tr>
<tr>
<td>Spike</td>
<td></td>
<td>17 106</td>
<td>A</td>
<td>Power, 600 V, 10 us, 50 ohm</td>
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<tr>
<td>Audio Frequency Conducted Susceptibility</td>
<td></td>
<td>18 101</td>
<td>Z</td>
<td>Power Input, 4 V P-P, 1-150 KHz</td>
</tr>
<tr>
<td>Induced Signal Susceptibility</td>
<td></td>
<td>19</td>
<td>CW</td>
<td>20A RMS, 350-800 Hz</td>
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<tr>
<td>RF Conducted Susceptibility**</td>
<td></td>
<td>20 101</td>
<td>Y</td>
<td>DO-160 Frequency Set</td>
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<tr>
<td>RF Radiated Susceptibility**</td>
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<td>20 101</td>
<td>Y</td>
<td>DO-160 Frequency Set</td>
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<tr>
<td>RF Emissions</td>
<td></td>
<td>21 102</td>
<td>P</td>
<td>Waveform 3, 600 V, 1 MHz, 10 MHz</td>
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<tr>
<td>Damped Sinusoidal Transient**</td>
<td></td>
<td>22 102</td>
<td>B3K33</td>
<td>0.01 - 100 MHz, 1 - 10 A</td>
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<tr>
<td>Lightning Induced Transient**</td>
<td></td>
<td>22 101</td>
<td>B3K33</td>
<td>Waveform 5A, 750 V, 120 us</td>
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<tr>
<td>Dielectric Withstanding</td>
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<td>301</td>
<td>N/A</td>
<td>30 ns, 5 amp</td>
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<tr>
<td>Electrostatic Discharge</td>
<td></td>
<td>160</td>
<td>25 N/A</td>
<td>1000 VAC - Connections to case</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15,000 V, 150 pf, 330 ohms</td>
</tr>
</tbody>
</table>

* Actual qualification levels vary by component. See specific component data sheet for actual qualifications.

** Stated EMC performance based on tests performed on an individually monitored component using unshielded cables as defined by the applicable EMC test document. The EMC performance of an installed system using LOGIC components can be dependent on the actual installation environment and interconnection method.

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**QUALIFICATION LEVELS**

**LOGIC COMPONENTS**

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