Eclipta - ECL Series
Edge Card Connectors

Medical Connectors Featuring Edge Card Contact Technology
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State of the art medical devices designed for diagnostic and therapeutic systems, such as mapping and ablation catheters, require repeated mating between reusable and disposable electronic components. As a result, system reliability and durability is critical.

Smiths Interconnect’s Eclipta Connector Series addresses the industry’s need for a reliable interconnect system with minimal cost. Eclipta connectors incorporate an innovative double-ended, edge card contact system featuring a PCB as the contact on the disposable connector side. This reduces both the cost and potential damage of male pins traditionally found in such a system.

The Eclipta module, located in the reusable connector body, has 34 contacts which are designed for high mating cycle life, providing reliable connection over the life of the reusable device. Terminating to these modules is a simple matter of unplugging the existing plug and replacing it with a new one.

Modules are also available with 14, 58, and 82 contacts. For custom connector flexibility, multiple modules can be combined in a single connector, either in line or in parallel, to meet specific customer needs.

By combining superior high reliability technology into a disposable, low cost solution, the Eclipta connector joins Smiths Interconnect’s portfolio of world-class interconnect solutions for the medical market.

Features & Benefits

Eclipta edge card technology
- Double-ended edge card contact design
- Mates to PCB on the disposable connector side
- Patented technology: US Patent #8727795 B2

PCB connection
- Fine pitch edge card contacts allow for smaller footprint in medical equipment
- Reusable connector is fingerproof (meets the requirements of IEC 60601-1) for patient and medical personnel safety
- Eliminates bent pin damage
- Mass termination

High mating cycle life
- Up to 2,500 mating cycles
- Increases Mean Time Between Failure (MTBF) of reusable side

Plug and play design
- Minimizes assembly time and inventory costs
- Rugged plug mates either to (PCB inside) the disposable device or directly to the system

Sterilizable connector
- Meets typical medical sterilization requirements (Autoclave, ETO and Sterrad® protocols)

Quick, intuitive mating
- Unique connector shape and available keying ensures correct mating in fast-paced medical settings
- Simple push-button active latch prevents inadvertent unmating and provides audible feedback

Embedded electronics
- Allows for greater design flexibility

Note: Sterrad® is a registered trademark of Advanced Sterilization Products (ASP), division of Ethicon US, LLC, a Johnson & Johnson Company.
# Technical Characteristics

## Mechanical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Contacts</td>
<td>34</td>
</tr>
<tr>
<td>Contact Pitch</td>
<td>0.60 mm staggered contact spacing</td>
</tr>
<tr>
<td>Mating/Unmating Force (34 contacts)</td>
<td>Mating force = 8.5 lbs max, unmating force = 7.0 lbs max</td>
</tr>
<tr>
<td>Mating Cycle Life (reusable side)</td>
<td>Up to 2,500</td>
</tr>
<tr>
<td>Storage/Processing Temperature Range (unmated)</td>
<td>-40°C to +135°C (100°C max for disposable receptacle)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-10°C to +65°C*</td>
</tr>
<tr>
<td>Sterilization (reusable side)</td>
<td>Steam autoclave, Eto, Sterrad® (20 cycles each)</td>
</tr>
<tr>
<td>Fingerproof (reusable side)</td>
<td>Meets the requirements of IEC 60601-1 (tested per ANSI/IEC 60529-2004)</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP 30</td>
</tr>
<tr>
<td>RoHS</td>
<td>Compliant</td>
</tr>
</tbody>
</table>

*For optimal performance, the suggested operating temperature range is -10°C to +50°C*

## Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Rating (at room temperature ~25°C)</td>
<td>0.5 A per contact (2.0 A for a single contact)</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>&lt; 40 mΩ per contact (average values, measured after testing - see test report for details)</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>&gt; 500 MΩ @ 500 VDC</td>
</tr>
<tr>
<td>DWV (Dielectric Withstanding Voltage)</td>
<td>550 VDC</td>
</tr>
</tbody>
</table>

## Material & Finishes

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td>BeCu, selective gold over nickel plating</td>
</tr>
<tr>
<td>Insulator</td>
<td>LCP (Liquid Crystal Polymer)</td>
</tr>
<tr>
<td>Connector Body</td>
<td>Plugs and reusable receptacle: Polyphenylsulfone (PPSU) Disposable receptacles: Polycarbonate (PC)</td>
</tr>
</tbody>
</table>

## Derating Curves

- **Current-Carrying Capacity Curves - All Contacts Energized Reusable Plug and Disposable Receptacle (Mated Pair)**
- **Current-Carrying Capacity Curves - Single Contact Energized Reusable Plug and Disposable Receptacle (Mated Pair)**
# How To Order

<table>
<thead>
<tr>
<th>1 Series</th>
<th>ECL</th>
<th>Eclipta [Fixed]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Contact Positions</td>
<td>34</td>
<td>34 [Fixed]</td>
</tr>
<tr>
<td>3 Types</td>
<td>ED</td>
<td>Disposable Receptacle</td>
</tr>
<tr>
<td></td>
<td>PD</td>
<td>Disposable Plug</td>
</tr>
<tr>
<td></td>
<td>ND</td>
<td>Disposable Plug without strain relief boot (overmoldable connector)</td>
</tr>
<tr>
<td></td>
<td>ER</td>
<td>Reusable Receptacle w/Edge Card Contact Module</td>
</tr>
<tr>
<td></td>
<td>PR</td>
<td>Reusable Plug w/Edge Card Contact Module</td>
</tr>
<tr>
<td></td>
<td>NR</td>
<td>Reusable Plug without strain relief boot (overmoldable connector) w/Edge Card Contact Module</td>
</tr>
<tr>
<td>4 Keying</td>
<td>A</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>BCD</td>
<td>Additional Keying Options</td>
</tr>
<tr>
<td>5 Suffix</td>
<td>-</td>
<td>Omit for standard PCB included in the connector kit</td>
</tr>
<tr>
<td></td>
<td>- N</td>
<td>PCB not included in the connector kit</td>
</tr>
<tr>
<td></td>
<td>- *</td>
<td>TBD for custom PCB <em>(please contact Smiths Interconnect for details)</em></td>
</tr>
</tbody>
</table>
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Disposable receptacle/reusable plug
Disposable receptacle with PCB contact mating to reusable plug

Disposable plug/reusable receptacle
Disposable plug with PCB contact mating to reusable receptacle

Plugs without strain relief boots

Note: 1 Contact Smiths Interconnect for more information Dimensions are in mm [inches]
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Eclipta module sizes

Eclipta contact modules, located in the reusable connector, are available in four standard sizes (14, 34, 58 and 82 contacts) providing flexibility for custom connector designs. Please contact Smiths Interconnect for more information.
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