smiths interconnect

Eclipta - ECL Series

Edge Card Connectors

Medical Connectors Featuring Edge Card Contact Technology

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Edge Card Connectors

Specifically designed to meet medical industry requirements

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 plugging another PC board, to which the fine wires in the cable can be mass terminated, into the back of the module. This also makes field servicing of the reusable cable an easy process 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® [1] 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: [1] Sterrad® is a registered trademark of Advanced Sterilization Products (ASP), division of Ethicon US, LLC, a Johnson & Johnson Company.

Technical Characteristics

Mechanical

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

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

Electrical

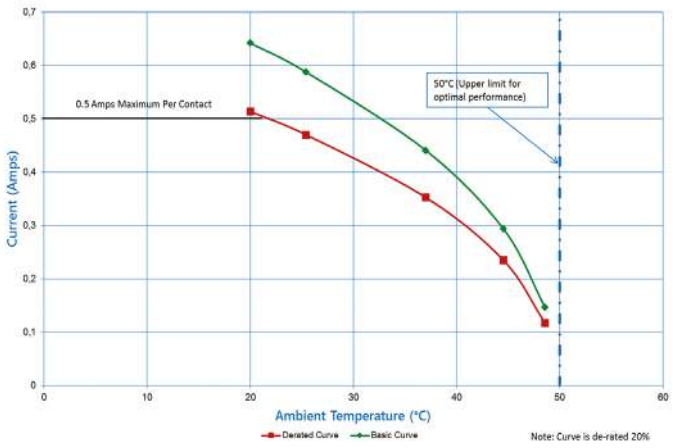
Current Rating (at room temperature ~25°C)	0.5 A per contact (2.0 A for a single contact)
Contact Resistance	< 40 mΩ per contact (average values, measured after testing - see test report for details)
Insulation Resistance	> 5000 MΩ @ 500 VDC
DWV (Dielectric Withstanding Voltage)	550 VDC

Material & Finishes

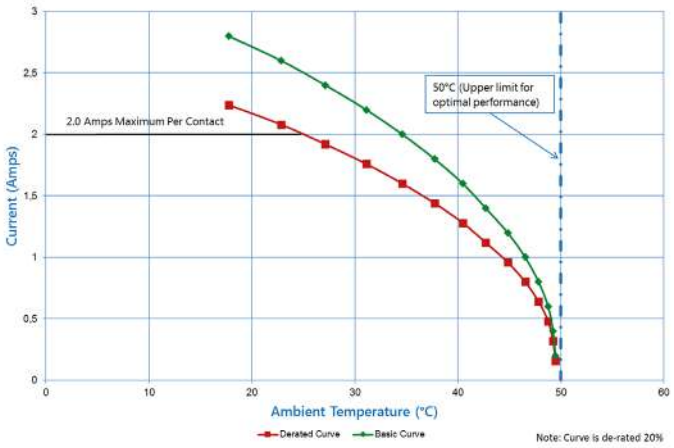
Contacts	BeCu, selective gold over nickel plating
Insulator	LCP (Liquid Crystal Polymer)
Connector Body	Plugs and reusable receptacle: Polyphenylsulfone (PPSU) Disposable receptacles: Polycarbonate (PC)

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

1	2	3	4	5	6	7

1 Series	E C L	Eclipta *[Fixed]*		
2 Contact Positions	3 4	34 *[Fixed]*		
3 Types	E D	Disposable Receptacle	E R	Reusable Receptacle w/Edge Card Contact Module
	P D	Disposable Plug	P R	Reusable Plug w/Edge Card Contact Module
	N D	Disposable Plug without strain relief boot (overmoldable connector)*	N R	Reusable Plug without strain relief boot (overmoldable connector) w/Edge Card Contact Module*
4 Strain relief size* Cable diameter ranges	6	5mm to 6.5mm		
5 Colour Coding*	G	Light gray/Standard	D Blue	R Red V Green Y Yellow B Black
6 Keying	A	Standard	B C D E F	Additional Keying Options
7 Suffix		Omit for standard PCB included in the connector kit		
	- N	PCB not included in the connector kit		
	- *	TBD for custom PCB (please contact Smiths Interconnect for details)		

*Select strain relief size only for PD and PR types
**See details of colours in the table below and examples at page 6

Colour	Pantone
Light Gray	7527C
Light Gray (Strain relief)	427C
Blue	647C
Red	207C
Green	3302C
Yellow	7409C
Black	BlackC

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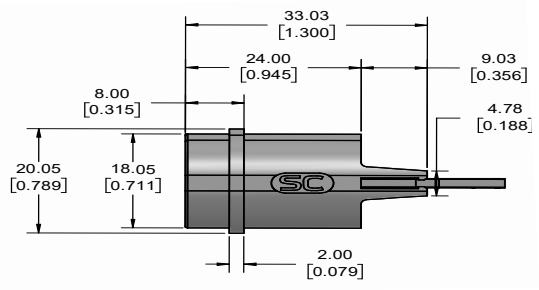
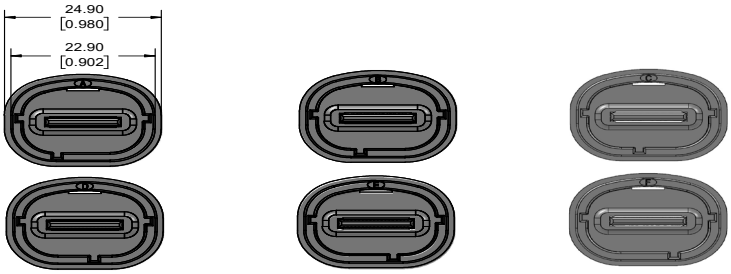
Disposable receptacle/reusable plug

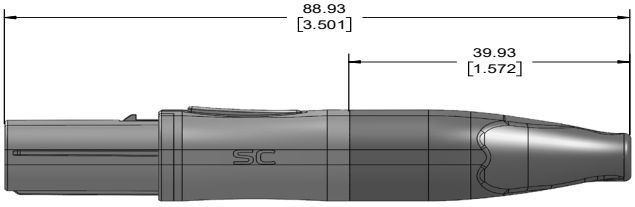
Disposable receptacle with PCB contact mating to reusable plug

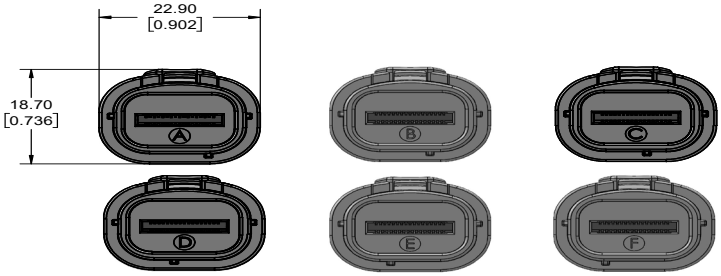
DISPOSABLE ECLIPTA RECEPTACLE





REUSABLE ECLIPTA PLUG

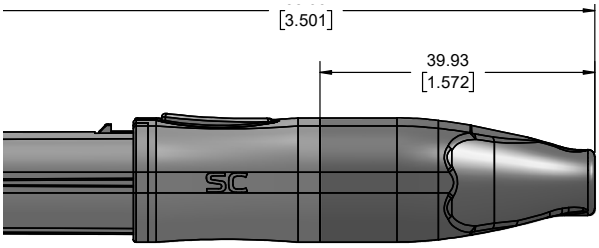


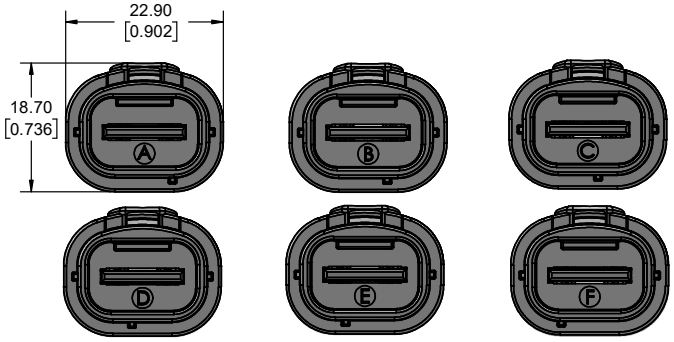


Disposable plug/reusable receptacle

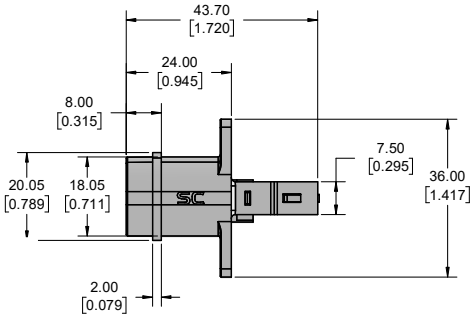
Disposable plug with PCB contact mating to reusable receptacle

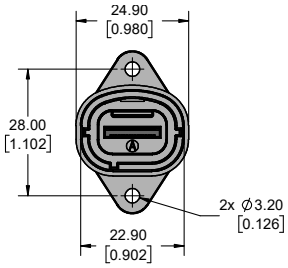
DISPOSABLE ECLIPTA PLUG

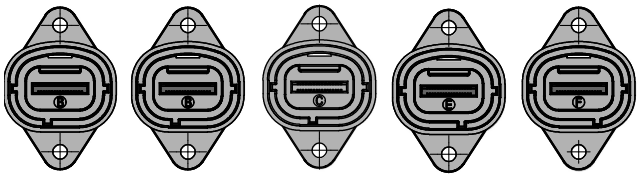




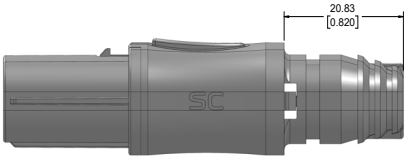
REUSABLE ECLIPTA RECEPTACLE







Plugs without strain relief boots



Note: [1] Contact Smiths Interconnect for more information

Dimensions are in mm [inches]

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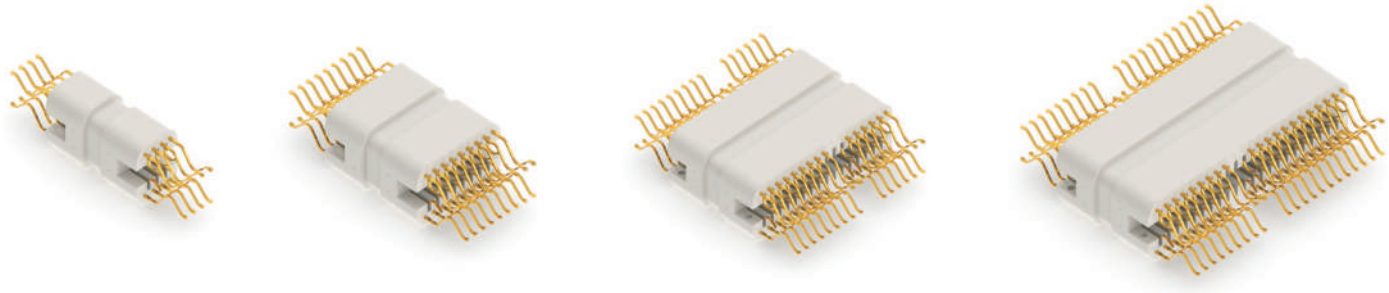
Eclipta module sizes

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.



Example of available colour options

Eclipta receptacles and plug strain relief can be offered in different colour options, see examples below:

Disclaimer

All of the information included in this catalogue is believed to be accurate at the time of printing. It is recommended, however, that users should independently evaluate the suitability of each product for their intended application and be sure that each product is properly installed, used and maintained to achieve desired results.
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