Engineering Quick Reference Selection Guide

	2 Position		4 Position	5 Position	
	Plug	Receptacle		Plug	Receptacle
Contact Arrangement	$\left(\begin{array}{c} 0 & 0\\ 1 & 2\end{array}\right)$	$\left(\begin{array}{c} 0 & 0\\ 2 & 1 \end{array} \right)$	Contact Cannon		
	Inline	Feed Thru	Inline	PCB	Inline
Features	Clip Lock	Clip Lock	Clip Lock	Snap Lock	Snap Lock
Specifications	CS-216	CS-216	CS-216	CS-206	CS-206
Plug	086-0066-000 w/Wedgelock 086-0058-000 Standard	086-0058-000 Standard	Contact Cannon	098532-0000 (5 A) 098532-001 (13 A)	098532-0000 (5 A) 098532-001 (13 A)
Receptacle	086-0061-000 w/Wedgelock	083-0242-000	Contact Cannon	098531-0000 (5 A) 098531-0001 (13 A)	098530-0000 (5 A) 098530-0001 (13 A)
Terminals	See page 14	See page 14	Contact Cannon	See page 14	See page 14

How to Order

	<u>SLC</u>	<u>5</u>	I	<u>13</u>	<u>0</u>	<u>0</u>
Series Prefix						
Size/Configuration						
Connector Type						
Contact Termination						
Material/Finish Modifier						
Mechanical Modifier						

Series Prefix

SLC - Snap-Lock Circular

Size/Configuration

5-5 Cavity Housing 8-8 Cavity Housing 10-10 Cavity Housing 15-15 Cavity Housing

Connector Type

P - Plug, In-line (Cable-to-Cable)*

R - Receptacle, In-line (Cable-to-Cable)

T - Receptacle, Snap-thru

B - Receptacle, PCB



Contact Termination

5 - 5 A 13 - 13 A

Material/Finish Modifier

- 0 Standard Assembly (Silicone Elastomer) 1 - Fluorosilicone Elastomer
- Mechanical Modifier
- 0 Standard Assembly
- *Note: In-line Plug mates with all 3 receptacle types (In-line, Snap-thru, and PCB.)

Engineering Quick Reference Selection Guide

						Plu	9	Receptacle
8 Position				10 Position			15 Position	
Plug		Receptacle	Plug	I	Receptacle	2 110 12		
10 02 70 80 0 60 0 50 4		$\begin{array}{ccc} 20 & 01 \\ 0 & 0 & 0 \\ 40 & 8 & 0 \\ 50 & 6 \end{array}$					$ \begin{array}{c} $	$\begin{array}{c} 15 \\ 0 \\ 16 \\ 0 \\ 0 \\ 7 \\ 9 \\ \end{array}$
PCB	Inline	Snap-thru	PCB	Inline	Snap-thru		Snap-thru	
Snap Lock (Double)	Snap Lock (Double)	Snap Lock (Double)	Snap Lock (Double)	Snap Lock (Double)	Snap Lock (Double)		Snap Lock (Double	9)
CS-210	CS-210	CS-210	CS-206	CS-206	CS-210		CS-210	
098532-0010	098532-0008	098532-0010	098532-0002 (5 A) 098532-0003 (13 A)	098532-0002 (5 A) 098532-0003 (13 A)	098532-0002 (5 A) 098532-0003 (13 A)		086-0060-000	
-	-	098533-0010	098531-0002 (5 A) 098531-0003 (13 A)	098530-0002 (5 A) 098530-0003 (13 A)	098533-0002 098533-0003		086-0059-000	
See page 14	See page 14	See page 14	See page 14	See page 14	See page 14		See page 14	



The Snap Lock Environmental Series is environmentally sealed connector created for printed circuit board, black box, cable-to-cable or bulkhead applications.

When your under-the-hood requirements call for tough performance, the SLC "snaps" into a tightly sealed connection that can withstand heat, shock and vibration. The connector is designed to preserve the integrity of the solid state package, while protecting against contaminants - even when unmated.

Gold, tin/lead plated stamped contacts add durability. A rugged, thermoplastic receptacle body maximizes performance by withstanding temperature variances from -40°C to +150°C (material rating).

The SLC series is available in 2, 5, 8, 10, 15 contact cavity configurations. It can also be adapted to robotics assembly. Should you requirement demand higher density configurations, consult Customer Service.



Product Features and Benefits

- · Superior environmental sealing
- · Material rating: -40°C to +150°C continuous operation at rated current
- · Available in sizes 2, 5, 8, 10, 15 contacts
- · Crimp stamped gold, tin/lead plated contacts · Hand insertable/removable contacts
- \cdot Current rating 5 A and 13 A versions · Low millivolt drop
- · Low contact resistance
- · Small footprint on P.C. board and low profile
- · Adaptable to robotics assembly
- · Latch with tactile and audible feedback
- · Increases durability and provides for minimum
- installation
- · Low installed cost · Requires less PCB space

Performance Specifications

Contact Resistance	10m Ω maximum
Insulation Resistance	20MΩ minimum (USCAR)
Current Rating	5 A signal continuous at 150°C all contacts, 2 position
	13 A power continuous at 150°C all contacts, 5 position and 10 position only
Dielectric Withstanding Voltage	1000 Vrms AC at sea level
Applicable Cannon Specification	SLC (CS-206) SLCT 5 & 10 (210) SLCT8 (216) SLCT 15 (206)
Material Rating Operating Temperature	-40°C to +150°C
Crimp Contacts	Semi-automatic or hand crimpable or fully automatic
Wire Size	20 - 16 AWG
Wire Insulation Sealing Range	1,98 (.078) to 3,30 (.130) dia.
Contact Insertion	No tool required. Suitable for automation.
Contact Extraction	Rear Removable
Contact Retention	20 lbs. Minimum per contact
Wire Strip Length	5,59 (.220) to 5,33 (.210)

Materials and Finishes

Connector Housing	High temperature thermoplastic				
Contacts	Copper alloy				
Finish	Engaging area: Gold over nickel				
	Crimp/P.C. tail area: Tin/lead over nickel - standard offering				
	Tin/Lead over nickel - Option #2 all over				
Environmental Seal	High temperature silicone elastomer				



Plug 2 Way 5 Way 8 Way 10 Way 10 Way 15 Way 15

Receptacle

 $\begin{pmatrix} 0 & 0 \\ 2 & 1 \end{pmatrix}$

2 Way

5 Way



8 Way

TT



10 Way





Plug, In-line* (Cable-to-Cable) (Type P) SLC-5, SLC-10





Front-Face View 5 Cavity Housing



Front-Face View 10 Cavity Housing

In-line Plug* (Mates with SLC types R, T, and B)

		·			
Housing Size	Rating	Part Number	Description	А	ØB
5	5 A	098532-0011	SLC-5P5-00	27,81 (1.095)	18,03 (.710)
5	13 A	098532-0001	SLC-5P13-00	26,80 (1.055)	18,03 (.710)
10	5 A	098532-0002	SLC-10P5-00	34,92 (1.375)	24,15 (.990)
10	13 A	098532-0003	SLC-10P13-00	34,04 (1.340)	25,15 (.990)

*Contact lead assemblies are customer terminated and installed. See page 14, part numbers 110238-0488, 110238-2003.



Receptacle, In-line* (Cable-to-Cable) (Type R) SLC-5, SLC-10





In-line Receptacle* (Mates with SLC type P)

Housing Size	Rating	Part Number	Description	А	ØB	C Ref.
5	5 A	098530-0000	SLC-5R5-00	24,13 (.950)	18,03 (.710)	24,38 (.960)
5	13 A	098530-0001	SLC-5R13-00	23,75 (.935)	18,03 (.710)	24,38 (.960)
10	5 A	098530-0002	SLC-10R5-00	31,24 (1.230)	25,15 (.990)	31,62 (1.245)
10	13 A	098530-0003	SLC-10R13-00	30,86 (1.215)	25,15 (.990)	31.62 (1.245)

*Contact lead assemblies are customer terminated and installed. See page 16, part numbers 110238-0446, 110238-2004.

Square Flange



Snaps onto Type R and B connectors

Materials and Finishes Material: Thermoplastic Color: Black





Housing Size	Part Number	А	B Max.	ØC
5	066-9504.000	23,37 (.920)	31,24 (1.230)	32,51 - 31,75 (1.280 - 1.250)
10	066-9504-001	28,45 (1.120)	36,32 (1.430)	25,40 - 24,64 (1.000970)

3,05 (.120)

> 5,33 (.210) MAX

Receptacle, Snap-thru* (Type T) SLC-5, SLC-10









Front-Face View 5 Position Front-Face View 10 Position



Panel Section View

ØD REF

Panel Rear Face View

|--|

Housing Size	Rating	Part Number	Description	ØA	ØB	ØC	ØD
5	5 A	098533-0000	SLC-5T5-00	37,21 (1.465)	24,13 (.950)	25,60 (1.008)	15,62 (.615)
5	13 A	098533-0001	SLC-5T13-00	36,96 (1.455)	23,75 (.935)	25,48 (1.003)	15,34 (.605)
10	5 A	098533-0002	SLC-10T5-00	47,62 (1.875)	31,24 (1.230)	35,05 (1.380)	20,19 (.795)
10	13 A	098533-0003	SLC-10T13-00	47,37 (1.865)	30,86 (1.215)	34,92 (1.375)	19,94 (.785)

*Contact lead assemblies are customer terminated and installed. See page 14, part numbers 110238-0446, 110238-2004.



Receptacle, PCB* (Type B) SLC-5, SLC-10





Front-Face View 5 Cavity Housing Side View In-Line Receptacle With PCB Contacts

Front-Face View 10 Cavity Housing

In-line Receptacle* (Mates with SLC Type P)

Size	Rating	Part Number	Description	А	ØВ	C Ref.	
5	5 A	098531-0000	SLC-5B5-00	24,13 (.950)	18,03 (.710)	24,38 (.960)	
5	13 A	098531-0001	SLC-5B13-00	23,75 (.935)	18,03 (.710)	24,38 (.960)	
10	5 A	098531-0002	SLC-10B5-00	31,24 (1.230)	25,15 (.990)	31,62 (1.245)	
10	13 A	098531-0003	SLC-10B13-00	30,86 (1.215)	25,15 (.990)	31,62 (1.245)	
*DOD 0.							

*PCB Contacts are factory installed.

Recommended PCB Layout









10,10

(.400)

44,00 (1.700) 22,90 (.900)

PANEL

MAX

Note: In-line plug and receptacle available.

Plug, Feed-thru CLC-2

Part No.: 086-0058-000 With Silicone Grommet Seal Part No.: 086-0058-001 With Silicone Grommet Seal Part No.: 086-0058-002 With Fluorosilicone Seal





4,45

(.175)

15.90

(.600)



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Right Angle CLC and CLC Y-Splice, please contact Product Management.



Receptacle, Snap-thru SLC-15



Consult factory for alternate layouts.





	Hooded Socket	Reeled		
Description	Socket Part Number	Pin Part Number	Socket Part Number	Number of Contacts
5 A	110238-1016 (030-2480-007)	110238-0446 (030-2464-007)	110238-0488 (030-2480-000)	4,500
13 A		110238-2004 (030-2464-003)	110238-2003 (030-2480-003)	4,000
5 A 13 A	110238-1016 (030-2480-007)	110238-0446 (030-2464-007) 110238-2004 (030-2464-003)	110238-0488 (030-2480-000) 110238-2003 (030-2480-003)	4,500 4,000

Accessories

Sealing Plugs



Material: Thermoplastic, Color: Natural Part Number: 225-0093-000 +125°C Rating

Connector Clip



Material: Thermoplastic, Color: Natural Part Number: 225-0093-000 +125°C Rating

Mounting Hardware for use on In-line Receptacle (Cable-to-Cable) (Type R) Fits \emptyset 6,35 (.250) hole x 0,51 (.020) thick panel.



Extraction Tool

Contact Extraction Tool Part Number: 274-7068-001 Tip Part Number: 323-9519-000



A Standard CET - SLE/SLC is available for extraction of the individual crimp contacts. Insertion tool is not required.

Insertion / Extraction Instructions for Crimp Contacts

Insertion Tool

No insertion tool is required. The contact is easily snapped in from the rear of the connector manually.



1. Move to the rear of the connector so that the contact cavities can be identified.



2. Insert a crimp terminated assembly into a selected cavity.



3. Continue the forward movement until and audible snap can be felt and heard. Slight pull in the opposite direction will confirm complete insertion.

Extraction



1. Open the CET - SLC Extraction tool and place it over the insulation of the wire.



2. Using a straight motion forward, insert the tool along the wire until it bottoms against the connector. (Do not use a screwing motion damage will result.)



3. While the extraction tool is in place, simply pull the wire/contact assembly out.



4. Remove the extraction tool. Extraction is complete.



Hand Crimp Tool Operation



Hand Crimp Tool - CCT - SLC / SLE Part Number: 995-0002-232

The CCT-SLC/SLE hand crimp tool is designed to crimp individual SLC/SLE contacts on wire sizes 16, 18, and 20 AWG. Each cycle is ratchet-controlled (The tool must be completely closed before it can be reopened) to assure a satisfactory crimp each time. Over and under crimps are eliminated.

This tool is for use when the requirement is for low to moderate volume quantities, and for on-site applications where semiautomatic tools cannot be practically used.



1. Cycle the CCT - SLE / SLC hand tool to the open position.



4. Partially (usually the first click) Cycle the hand tool assuring that the upward thrusting tails of the contact has started engaging with the top jaw of the tool. (There is a slight tendency for the contact to roll out of vertical alignment.)



2. While pressing upward on the locator spring, insert the contact with tails upward completely into the locator



5. Insert the pre-stripped wire into the crimp area of the contact and completely cycle the tool.



3. When correctly positioned the contact should be located beyond flush with the edge of the CCT - SLE / SLC and positioned in the concave polished split level crimp.



6. While pressing upward on the locator spring withdraw the crimp termination.



7. The result will be a perfect termination.



8. Note that there are no unterminated wire strands, and that some strand ends can be seen at the forward edge of the crimp. Also note the insulation is gripped by the smaller secondary crimp. Distortion is at a minimum, both axially and laterally - no sharp edges.

Wire Stripping

	5 and 13	3 A Contact	
Tolerance	A	В	
Low	2,41 (.095)	5,33 (.210)	
High	3,30 (.130)	5,59 (.220)	

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Lease Automatic Tooling - North America*

ABT-607 Pneumatic Crimper



The ABT-607 is a pneumatic powered and controlled machine. It is designed for customers with moderate volume. This machine is designed to semi-automatically crimp stamped and formed contacts onto pre-stripped stranded or single conductor electrical wire. This machine will accommodate size 34 thru 12 AWG wire and is actuated by the use of a foot pedal.

Machine Crimp Rate: 800 per hour

Power Requirements: Pneumatic = 100 psi, 2 cu. ft. per min.

ABT-500 UCCD



The ABT-500 Universal Cannon Crimp Die, is a flywheel driven, electronically controlled machine that is designed to semi-automatically crimp stamped and formed contacts on stranded or single conductor, prestripped wire. This machine will accommodate size 34 thru 12 WG wire. The machine is actuated by the use of a foot pedal. Machine Crimp Rate: 1300 per hour

Power Requirements: Electrical = 115VAC, 60Hz, 20A

ABT-620 UCCS



The ABT-620 Universal Cannon Crimper/Stripper is a pneumatic powered, microprocessor controlled machine. It is designed to semi-automatically strip insulation from stranded or single conductor electrical wire and attach a stamped and formed contact by crimping. The machine will accommodate 34 thru 12 AWG wire. Primary application of the machine is the termination of jacketed cable where the individual leads cannot be stripped by fully automated equipment. The ABT-620 UCCS operates automatically upon insertion of a wire or it can be switched over to foot pedal operation if desired.

Machine Crimp Rate: 1200+ per hour

Power Requirements: Electrical = 115VAC, 60Hz, 20A Pneumatic = 80 psi, 3 cu. ft. per min.

* For other geographical regions, contact Cannon for details.



Crimp Pot Cross Section



The wire crimp heights listed are only reference and valid for the correspondingly listed wire size, wire plating and wire stranding.

The wire crimp tensile values must be used to assure the performance of crimped contacts.

For wire crimp information not listed in this table, please contact Cannon.

Crimp Height and Width

		Wi	re Gauge (AWG)				
	16		18		20	20	
	C*	D Ref.	C*	D Ref.	C*	D Ref.	
Signal (5A)	.064*	.082	.056*	.080	.054*	.080	
Power (13A)	.066*	.082	.062*	.080	.058*	.080	

* Hand Tools are \pm .002 and machines are \pm .001

Insulation Height and Width

		W	ire Gauge (AWG)				
	16		18		20	20	
	Height	Width	Height	Width	Height	Width	
	Max	Max**	Max	Max**	Max	Max**	
Signal (5A)	.110	.115**	.105	.110**	.105	.110**	
Power (13A)	.110	.115**	.105	.110**	.105	.110**	

** Measurements are taken without crimping wire insulation.

Crimp Tensile Strength

Wire Trim Dimension



Wire Size (AWG)	16	18	20
Tensile Min (lbs)	35 lbs.	25 lbs.	20lbs.



Test Parameters

SLC Products are designed to meet Cannon specifications CS-206, CS-210, and CS-216. Items of most general interest to users are designers are listed below.

Test Description	Reference Paragraph	Requirements			
Environmental Sealing	3.2.3.5 3.2.3.6 3.2.3.7 3.2.3.8 3.2.3.9 3.2.3.9 3.2.3.2	Sand and Dust MIL-STD-202 Method 110 Test Condition A 5% salt spray 96 hours 10 cycles of 24 hours, 90-98% humidity Steam Cleaning/Pressure Wash 95°C, 375 Cycles 750 PSIG Solvent Resistance/Immersion (see 3.2.3.9) Thermal Shock 100 Cycles -40°C to +150°C ± 3°C			
Contact Crimp Tensile Strength	3.2.2.1	Wire Size AWG Crimp Tensile Strength, Pounds Minimum 16 35 20 20			
Insulation Resistance	3.2.1.1	Mated and wired connectors shall exhibit an insulation resistance greater than 100 megohms between all contacts. This limit shall apply after exposure to each environment including salt solution immersion. Tests shall be performed at 100 VDC ± 10%.			
Dielectric Withstanding Voltage	3.2.1.2	Wired and mated connectors shall show no evidence of breakdown between adjacent contacts when tested at 1000 VDC ± 5%. Connectors shall meet this requirement after exposure to each environment. Current leakage shall be less than 1.0 milliamp.			
Low Level Contact Resistance	3.2.1.4	The low level contact resistance of mated contacts shall be less than 10 milliohms when measured across the contacts and crimp joints. The test current shall be a maximum of 100 milliamps with an open circuit test voltage of 20 millivolts maximum.			
Mechanical Shock	3.2.3.3	Connectors shall be subjected to three shocks in each direction applied along the three mutually perpendicular axes of the connector test specimen for a total of 12 shocks. Each shock shall consist of a terminal peak sawtooth pulse with a peak value of 100 g's and a duration of 6 milliseconds.			
Vibration	3.2.3.4	Connectors shall be subjected to random vibration in accordance with MIL-STD-1344, Method 2005.1, test condition VI for 20 hours along each of the following three axes: Direction Grms Radial axis of connector (Y) 10.2 Longitudinal axis of connector (Z) 10.2 Electrical continuity of the connectors shall be monitored during the last 20 minutes sweep in each axis with a test current of 100 milliamps or less and a test voltage less than 2VDC. Electrical discontinuities in excess of 10 microseconds shall be cause of failure.			
Durability	3.2.2.6	Connectors shall be subjected to 25 cycles of mating and unmating at room temperature. Following this test there shall be no evidence of damage to the contacts, contact plating, connector housing or seals which may prove detrimental to reliable performance of the connector.			
Contact	3.2.2.2	Contacts shall not be displaced greater than 0.030 inches from the connector body when a force of 10 pounds is applied. When this test follows maintenance again the same contacts shall be tested.			
Maintenance Aging	3.2.2.3	Consist of subjecting each wired receptacle to 5 cycles of removal and reinsertion of 20% of the contacts or a minimum of 5 per connector with approved tooling.			
Mating and Separating Force	3.2.2.4	The maximum force required to mate the plug and receptacle shall be 10 pounds. The maximum force required to separate the plug and receptacle shall be 5 pounds. The rate of travel shall be one inch per minute.			
Solvent Resistance Immersion	3.2.2.9	Connectors shall be subjected to the following fluids at the temperature and length of time specified. Following the fluid dip or immersion, the connectors shall be immersed to a depth of 2 to 12 inches in a 5% salt-water solution for 24 hours at room temperature. At the completion of the salt-water immersion test, while still immersed, the connectors shall meet the insulation resistance requirement specified herein. Fluid Method Temperature. No. 2 Diesel Fluid Immersion (2) 140°F Methyl Alcohol Dip (1) Room Temperature. Antifreeze - Prestone Immersion (2) 180°F - S0% Water/50% Immersion (2) 180°F Ethylene Glycol Degreaser - Gunk Dip (1) Room Temperature - Mineral Spirits Dip (1) Room Temperature - Mineral Spirits Dip (1) Room Temperature (SAE 10 W40) Immersion (2) 200°F Brake Fluid Dip (1) Room Temperature (Delco Supreme) Transmission Fluid Dip (1) Transmission Fluid Dip (1) Room Temperature (Delco Supreme) Transmission Fluid Dip (1) Transmission Fluid Dip (1) Room Temperature (Delco Supreme) T			
Temperature Life	3.2.3.1	Connectors shall be subjected to a temperature of 150°C ± 3°C for a period of 1000 hours. At the end of the temperature soak period and after removal from the chamber, the connectors shall meet the insulation resistance and dielectric withstanding voltage requirements specified herein. Connectors shall be operated at rated current throughout the duration of the temperature life test. Upon removal from the chamber at the conclusion of the test, the connectors shall show no visual signs of damage, which may be detrimental to the performance of the connector.			
Thermal Cycling	3.2.3.2	Connectors shall be subjected to 100 thermal cycles from -40°C to +150°C. One cycle shall consist of the transitions from room temperature to -40°C to +150°C, and from 150°C to room temperature. One cycle shall be accomplished in a three-hour period with a minimum stabilization period of 15 minutes at each temperature extreme. The chamber temperature transition rate shall be a minimum of 1.30°C per minute and a maximum of 6.00°C per minute.			
Specifications and dimer	nsions subject to change				
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