Sav-Con® connector savers

For circular and rectangular connectors

Overview

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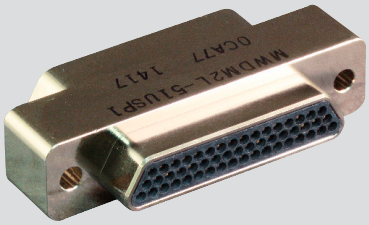


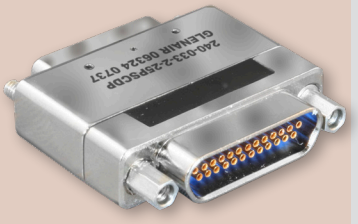
- For most every Military Standard connectors
- All standard materials and finish platings
- General duty, environmental, filter, hermetic and high-reliability performance classes
- Pin/pin, pin/socket, socket/socket versions, as well as gender changers
- Optional locking mechanism
- Keyed polarization

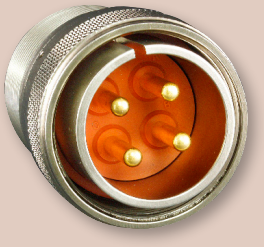
RoHS COMPLIANT

Sav-Con® Connector Savers are the smart solution for preventing contact damage and extending the service life of cable assemblies

Glenair Makes a Sav-Con® Connector Saver for Most Every Military Standard Connector Currently in Use

- MIL-DTL-26482 Series I and II
- MIL-DTL-28840
- MIL-DTL-38999 Series I, II and III
- MIL-DTL-83723
- LN 29729 (SJT)
- PATT 105 and PATT 602
- MIL-DTL-5015
- Series 801 and 805 Mighty Mouse
- M24308 Subminiature
- Series 28 HiPer-D®
- Series MWDM Micro-D Subminiature
- Series 89 Nano-Miniature™
- Series 79 Micro-Crimp®
- EMI/EMP Filter Circular and Rectangular





Mil-Spec Compliance

Each Glenair Sav-Con® Connector Saver series meets the same durability requirements as the Military Specification series with which it mates. The mating portions of the pin-and-socket contacts are in strict compliance with the applicable Military Specification contacts used in each connector series.

Circuit Probing

The closed-entry socket contact design permits probing for individual circuits during equipment test and check-out, preventing possible damage to the equipment connectors.

Standard Material and Finishes

- Shell, Barrel and Coupling Nut – 300-series stainless steel, titanium, aluminum
- Front and Rear Insulators – Glass reinforced thermoset plastic
- PC Receptacle Potting – High-performance potting material
- Finish – See material and finish table
- Contacts – PC tails, socket and pin crimp contacts – Copper alloy, gold plated
- Contact Retention Clip – Beryllium copper, heat-treated, unplated
- Retaining Ring – Ryton
- Wave Spring – CRES

Military Specification Compliance			
Characteristic	Class 0	Class 1	Class 2
Mechanical			
Mating/Unmating Forces	Yes	Yes	Yes
Durability	Yes	Yes	Yes
Insert retention	Yes	Yes	Yes
Contact Retention	Yes	Yes	Yes
Coupling Pin strength	Yes	Yes	Yes
Contact Engagement & Disengagement Forces	Yes	Yes	Yes
Resistance to Probe Damage	Yes	Yes	Yes
EMI Ground Spring Forces	Yes	Yes	Yes
Electrical			
Contact Resistance	Yes	Yes	Yes
Electrical Engagement	Yes	Yes	Yes
Insulation Resistance	Yes	Yes	Yes
Dielectric Withstanding Voltage	Yes	Yes	Yes
Magnetic Permeability	Yes	Yes	Yes
Electrical Conductivity	Yes	Yes	Yes

Shell Finishes			
Plating Code	Material	Finish	Specification
M	Aluminum	Electroless Nickel	AMS-C-26074
B	Aluminum	Cad Plate, Olive Drab	AMS-QQ-P-416, Type II, Class 3
NF	Aluminum	Cadmium Plate Olive Drab over Electroless Nickel	AMS-QQ-P-416, over AMS-C-26074 (1000 Hour Salt Spray)
NC	Aluminum	Zinc-Cobalt	ASTMB840
ZN	Aluminum	Olive Drab Zinc-Nickel	Zinc alloy per ASTM B841-91, Class 1 Type E Grade 3 over Electroless nickel per ASTM B733-90 SC2, Type 1 Class 5
MT	Aluminum	Ni-PTFE 1000 Hour Grey™ (Nickel Flourocarbon Polymer)	MIL-DTL-38999 (500 Hour Salt Spray)
ZR	Aluminum	Zinc Nickel, Black	
ME	Aluminum	Electroless Nickel (RoHS)	

Sav-Con® connector savers
Circular military standard connectors
Performance selection guide

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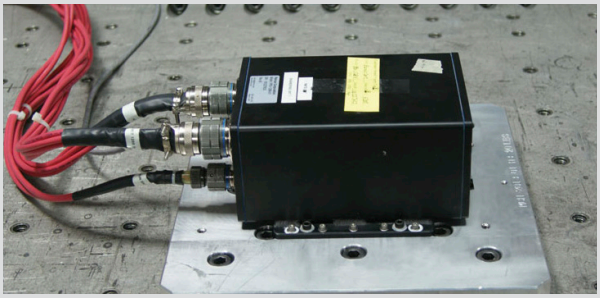
Sav-Con® Product Applications

Glenair Sav-Con® Connector Savers are designed to protect connectors that are subject to repeated mating and unmating cycles. Sav-Con® Connector Savers prevent costly repair or replacement of expensive connectors and cables while preserving the quality and integrity of connector performance. Sav-Con® Connector Savers take the abuse of repeated connection cycles instead of "black box" or other equipment connectors. Equipment connectors that are mated and unmated frequently during manufacturing, check-out phases and environmental test programs can be protected by Glenair Sav-Con® Connector Savers at considerable savings in time and money.



When a Sav-Con® Connector Saver is installed between a receptacle and a plug, the effective additional length is less than the length of an equivalent mated plug and receptacle. When using bayonet coupled Sav-Con® Connector Savers, Glenair recommends our Lock Ring design feature in applications where large cable bundles may induce unwanted stress to the coupling mechanism and potential unwanted contact displacement.

Choosing the right Sav-Con® Connector Saver for your application

All classes of Glenair Sav-Con® Connector Savers feature one-piece, non-removable pin/socket contacts for maximum reliability and minimum effect on circuit resistance. The mating portions of the pin-and-socket contacts are in strict compliance with the applicable Military Specification contacts used in each connector series. The one-piece design adds resistance to a circuit equal to a mated pin and socket contact, thus it has minimum or no effect on sensitive circuits.

All bayonet coupled Sav-Con® Connector Savers are available with an optional locking feature on the coupling nut. This feature eliminates the wave spring inside the coupling nut, thus providing positive metal-to-metal bottoming out of the plug side of the Sav-Con® Connector Saver to the mating receptacle. Improved durability can be provided by specifying the optional dry lubricant on the inside surfaces of the coupling nut.
Note: *Dry lubricant is not recommended for space applications due to outgassing requirements.*

Glenair Sav-Con® Connector Savers are available in one or more of the following service classes (see specific series page for details):

Class 0 - General Duty	Class 1 - Environmental	Class 2 - Hi-Rel
Glenair's basic Sav-Con® design is suitable for use in benign environments, such as manufacturing and bench test areas. Not recommended for use in environmental test programs, or in installations which will be exposed to non-ambient conditions.	This category offers peripheral and interfacial sealing to comply with mating connector environmental requirements.	High-performance versions of Class 1 configurations. This design employs materials to provide an extremely broad operating temperature range. Additional outgassing is also available via a modification code for use in space applications. Consult factory for appropriate modification code.

Optional Lock Ring prevents accidental disengagement of bayonet coupled connectors

The Coupling Nut:

This feature eliminates the wave spring inside the coupling nut, thus providing positive metal-to-metal bottoming out of the plug side of the Sav-Con® Connector Saver to the mating receptacle. This is a desirable option in the following applications:

Locking a Sav-Con® to a receptacle:

Locking a Sav-Con® Connector Saver to a receptacle can prevent accidental or unauthorized unmating. This can insure that the equipment receptacle remains in its unused condition prior to delivery.

Locking a Sav-Con® to reduce lateral forces:

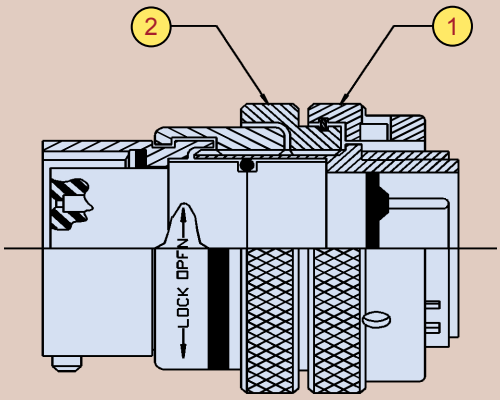
Lateral forces caused by a heavy cable can be reduced when the Sav-Con® Connector Saver is locked to the equipment receptacle. On high-density connectors that have a limited pin-and-socket engagement length, the force applied by a heavy cable can collapse the wave spring and create unwanted discontinuities in the mated contacts.

Locking a Sav-Con® when delivered to end-user:

When equipment is delivered to the end-user, the Sav-Con® Connector Saver may be locked to its mating receptacle to insure that the receptacles mounted on the equipment will remain unused until final installation of the equipment.

Locking a Sav-Con® to a cable mounted plug:

It is often desirable to lock a Sav-Con® Connector Saver on a cable-mounted plug coupler to prevent accidental disconnect of the Sav-Con®.



Locking a Sav-Con® Connector Saver to a receptacle can prevent accidental or unauthorized unmating. This can insure that the equipment receptacle remains in its unused condition prior to delivery.

1. To engage the plug portion of the saver, first ensure that the Lock Ring (2) is in the fully open position by turning the Lock Ring by hand clockwise until it stops.
2. Couple (1) to the Mating receptacle. Note: Pins should be visible in the three holes of the Coupling Ring (1).
3. To lock the Sav-con®, turn the Lock Ring (2) counter-clockwise by hand until it stops. This will seat the bayonet pins.
4. Dis-Engagement is the reverse of steps 3 and 2. Turn Lock Ring (2) to the open position clockwise by hand until it stops. Then rotate the Coupling Ring (1) counter-clockwise until all contacts are separated.

CATALOG NOTES

For all circular Sav-Con® connectors in this catalog:

- All parts will be identified with manufacturer's name and part number, space permitting.
- Glenair 600 series backshell assembly tools are recommended for assembly and installation.
- Dimensions are subject to change without notice. Metric dimensions appear in parentheses in diagrams and tables, based on 1 inch = 25.4 mm, for reference only. Unless otherwise specified, the following other dimensional tolerances apply:
  .xx = ± .03 (0.8) Lengths = ± .060 (1.52)
  .xxx = ± .015 (0.4) Angles = ± 5°

Customers are advised to consult the factory for the latest specifications, particularly to confirm critical dimensions such as connector lengths, threads, and so on. When errors or mistakes are brought to our attention, corrected content is posted immediately to www.glenair.com.

Sav-Con® connector savers
D-Subminiature Rectangular connectors
Series 28 HiPer-D® Specifications

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Sav-Con® HiPer-D® Shell Plating Codes					
Shell Plating	**Glenair Plating Code**	**Salt Fog (Hours)**	**RoHS Compliant**	**Conductivity**	**Typical Applications**
Electroless Nickel	**ME**	96	RoHS COMPLIANT	Excellent	Space vehicles, missiles, avionics, unmanned vehicles, instrumentation. Corresponds to MIL-DTL-24308 Class K.
Nickel-PTFE	**MT**	500	RoHS COMPLIANT	Excellent	Harsh environment, soldier systems, communications equipment. Corresponds to MIL-DTL-24308 Code T.
Zinc-Nickel with Black Chromate	**ZR**	500	RoHS COMPLIANT	Good	Harsh environment, soldier systems. Corresponds to MIL-DTL-24308 Code K.
Cadmium with Olive-Drab Chromate	**NF**	500	No	Excellent	Harsh environment, military equipment.
Cadmium with Yellow Chromate	**JF**	500	No	Excellent	General purpose military equipment. Comparable to MIL-DTL-24308 Code F.
Black Anodize	**C**	336	RoHS COMPLIANT	Non-Conductive	Applications where EMI shielding is not required.
Gold	**Z2**	48	RoHS COMPLIANT	Excellent	Space. Corresponds to M24308 Class M.
Chem Film	**E**	48	No	Excellent	Avionics
Stainless Steel, Electroless Nickel	**ZM**	500	RoHS COMPLIANT	Excellent	Extreme environments where stainless steel is preferred for strength, corrosion resistance,and where high conductivity is desired.
Stainless Steel, Passivated	**Z1**	500	RoHS COMPLIANT	Good	Extreme environments where stainless steel is preferred for strength, corrosion resistance. Corresponds to MIL-DTL-24308 Class P.

Sav-Con® HiPer-D® Specification		
Description	**Material**	**Finish**
Contacts	Copper Alloy	Gold (50 microin.) over nickel
Socket Contact Hood (Size 20, 22)	Stainless steel	Passivated
Shell	Aluminum Alloy or stainless steel	See ordering information
Insulators	Ultem 2300	None
Interfacial Seal	Fluorosilicone	None
Grommet	Fluorosilicone	None
EMI Spring	Copper alloy	Electroless nickel
Contact retention clips	Copper alloy	None
Insert retention clip	Copper alloy	None
Adhesive/Sealant	RTV silicone	None
Hardware	Stainless steel (300 series)	Passivated
O-ring	Fluorosilicone	None

Sav-Con® connector savers
Rectangular connectors
Micro-D Specifications

Sav-Con® Micro-D Plating Codes: ROHS Compliance			
Micro-D Plating Code	**Plating Type**	**RoHS Compliance**	**Notes**
1, A	Cadmium with yellow chromate conversion coating over electroless nickel	No	Electroless nickel is the preferred alternate.
2, B	Electroless nickel	RoHS COMPLIANT	First choice for RoHS compliance. Good corrosion resistance, excellent conductivity, M83513 approved, always in stock.
3, F	Stainless steel shell, passivated	RoHS COMPLIANT	Higher cost but unsurpassed corrosion resistance, not conductive enough for typical EMI needs. Build-to-order.
4, D	Black anodize over aluminum	RoHS COMPLIANT	Economical, non-reflective, non-conductive. Build-to-order.
5, E	Gold over aluminum	RoHS COMPLIANT	Low volume, higher cost, excellent conductivity. Build-to-order.
6, C	Chem film	No	Electroless nickel is the preferred alternate.
33, T	Nickel-PTFE	RoHS COMPLIANT	Glenair's 500 Hour Grey™ meets the need for a cadmium replacement with excellent conductivity, wear resistance and corrosion protection, M83513 approved.

Sav-Con® MIcro-D Material Specification	
Component	**Material and finish**
Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, Passivated. See Ordering Information for Aluminum Plating Options.
Insulator	Liquid Crystal Polymer (LCP)
Seals	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper With 50 Microinches Gold over Nickel Plating
Socket Contact	Copper Alloy With 50 Microinches Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
PCB Terminals	Gold-Plated Copper Alloy, Solder Dipped
Capacitors	Planar Ceramic Array
Inductors	Ferrite
EMI Ground Spring	Beryllium Copper, Gold Plated
Encapsulant	Thermally Conductive Epoxy

Sav-Con® Micro-D Performance Summary	
Current Rating	3 AMP
Dielectric Withstanding Voltage	250 VDC
Working Voltage	100 VDC
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +125° C.
Shock	50 g.
Vibration	20 g.
Mating Force	(10 Ounces) X (# of Contacts)

Sav-Con® connector savers

Rectangular connectors

Series 89 Nano-Miniature™ Specifications

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Sav-Con® Nano-Miniature™ Plating Codes: ROHS Compliance			
Nano Plating Code	**Plating Type**	**RoHS Compliance**	**Notes**
A1	Cadmium with yellow chromate conversion coating over electroless nickel	No	Electroless nickel is the preferred alternate.
A2	Electroless nickel	RoHS COMPLIANT	First choice for RoHS compliance. Good corrosion resistance, excellent conductivity, M32139 approved, always in stock.
S	Stainless steel shell, passivated	RoHS COMPLIANT	Higher cost but unsurpassed corrosion resistance, not conductive enough for typical EMI needs. Build-to-order.
T	Titanium, unplated	RoHS COMPLIANT	Higher cost but unsurpassed corrosion resistance, not conductive enough for typical EMI needs. Build-to-order.

Sav-Con® Series 89 Nano-Mianiture™ Material Specification	
Connector Shell	Aluminum Alloy, Electroless Nickel Plated Per SAE-AMS-C-26074, Class 3 or 4, Grade B
Socket Insulator	Liquid Crystal Polymer (LCP), per MIL-M-24519 or ASTM D5138
Plug Insulator	Liquid crystal polyer (LCP) per MIL-M-24519 or ASTM D5138
Potting material	Dexterhysol epoxy
Plug contact	Gold alloy per AST B477 and ASTM B541
Socket Contact	Gold alloy, unplated, per ASTM B477 or ASTM B541.
Wire	30 AWG gold plated copper alloy
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy

Sav-Con® Series 89 Nano-Mianiture™ Performance Summary	
Contact Spacing	.025" (0.64) Contact Centers
Wire Accommodation	#30-#32 AWG
Current Rating	1 AMP Maximum
Voltage Rating (DWV)	250 VAC RMS Sea Level, 100 VAC RMS 70,000 Feet
Insulation Resistance	5000 Megohms Minimum
Operating Temperature	-55° C. to +125° C.
Optional High Operating Temperature	Mod Code 428 rated up to 400° C.
Contact Resistance	71 Millivolt Drop Maximum, 1 AMP Current, #30 AWG Wire
Vibration	20 g's, in Accordance with EIA-364-28, Condition IV
Shock	100 g's, in Accordance with EIA-364-27, Condition G
Durability	200 Mating Cycles
Corrosion Resistance	48 Hours Salt Spray In Accordance With EIA-364-26, Condition B
Humidity	96 Hours, In Accordance with EIA-364-31 Condition A
Contact Engaging/Separation Force	5 Ounce Maximum, 0.4 Ounce Minimum
Thermal Vacuum Outgassing	Total Mass Loss (TML) 1.0% Max., Volatile Condensible Material (VCM) 0.1% Max.

Sav-Con® connector savers
Rectangular connectors
Series 79 Micro-Crimp® Specifications

Sav-Con® Series 79 Mico-Crimp® Shell Plating Codes							
Shell Plating	**Plating Code**	**Salt Fog* (Hours)**	**Cadmium Free**	**Hexavalent Chromium Free**	**Conductivity**	**Compatible with EMI Spring**	**Typical Applications**
Electroless Nickel	M	48	Yes	Yes	Excellent	Yes	Space vehicles, missiles, avionics, unmanned vehicles, instrumentation
Nickel-PTFE	MT	500	Yes	Yes	Excellent	Yes	Harsh environment, soldier systems, communications equipment
Zinc-Nickel with Olive-Drab Chromate	ZN	500	Yes	No	Good	No	Harsh environment, soldier systems, unmanned and manned vehicles
Zinc-Nickel with Black Chromate	ZNU	500	Yes	No	Good	No	Harsh environment, soldier systems, unmanned and manned vehicles
Cadmium with Olive-Drab Chromate	N	500	No	No	Excellent	No	Harsh environment, military equipment
Cadmium with Yellow Chromate	J	500	No	No	Excellent	No	General purpose military equipment
Black Anodize	C	336	Yes	Yes	Non-Conductive	N/A	Applications where EMI shielding is not required
Gold	Z2	48	Yes	Yes	Excellent	Yes	Space
Chem Film	E	48	Yes	No	Excellent	Yes	Avionics
* Salt spray test in accordance with ASTM B117							

Sav-Con® Series 79 Micro-Crimp® Material Specification	
Size #23 contacts	Beryllium copper alloy, plated gold over nickel
Size #16 and #12 contacts	Copper alloy
Insulators	Liquid crystal polymer, 30% glass-reinforced
Shell	Aluminum alloy. See ordering info for finish options
Interfacial seal and grommet	Fluorosilicone
Contact and insert retention clips	Beryllium copper, heat-treated, unplated
Jackposts and guide pins	Stainless steel, passivated
Spring, EMI (plug)	Stainless steel or beryllium copper alloy, gold plated

Sav-Con® Series 79 Micro-Crimp® Performance Summary	
Current rating	Contact size #23 5 Amps, size #16 13 Amps, size #12 23 Amps maximum
Voltage rating (DWV)	Contact size #23 500 VAC rms. Size #16 and #12 1800 VAC rms. Sea level.
Insulation resistance	5000 megohms minimum
Operating temperature	-65° C. to +150° C.
Contact resistance	5 milliohms maximum
Water ingress protection	IP67 (Mated condition)
Shielding effectiveness	>75 dB attenuation from 100 MHz to 1000MHz, >60dB 1GHz to 4GHz, >40dB 4GHz to 10GHz.