

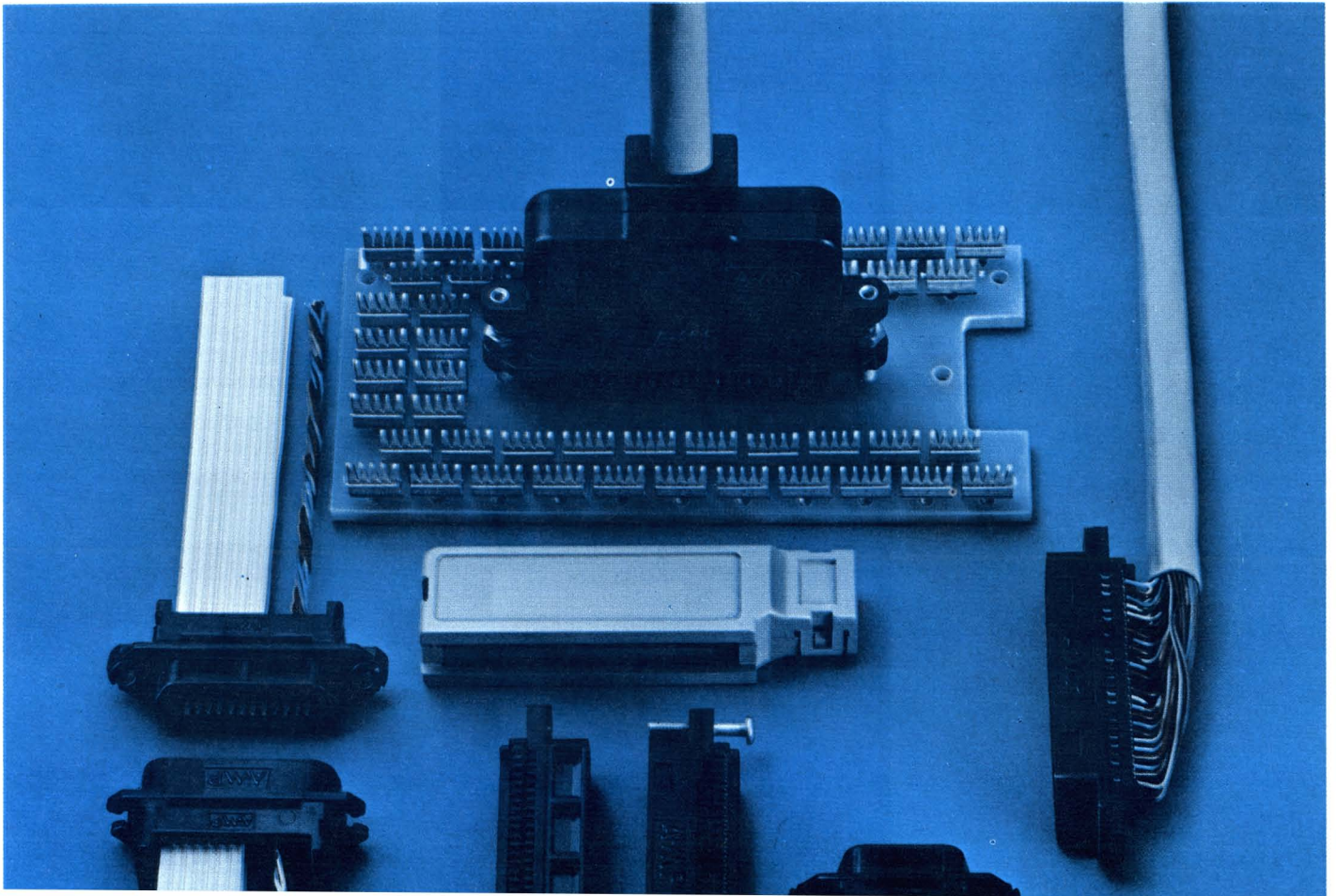


CHAMP Connectors and Kits..... 7-3
Lace-N-Lok Wire to Post Connector 7-21

INSULATION DISPLACEMENT CONNECTORS



CHAMP CONNECTORS AND KITS



CHAMP Connectors and Kits

Introduction

The CHAMP Connector is fully intermateable and interchangeable with existing connectors of a similar design. Applications for this type of connector are widely diversified and include all phases of the Telecommunications Industry, including original telephone manufacturing, Operating Telephone Companies,

Cable Reclamation, Cable Manufacturing and Bay Connectorization. In addition, the CHAMP connector line is ideally suited for use in computer terminals, test equipment, business and copying machines, telemetering and various equipment used in the security industry.

How to Use the CHAMP Connector Catalog

This catalog is organized to provide you with the basic information necessary to select the CHAMP connector or connector kit best suited for your specific application. Pages 2 to 5 contain general information to acquaint you with the complete family of connectors, accessories and application tooling. It is advisable to familiarize yourself with the vast selection available to you prior to examining technical specification sections of the catalog.

The first technical specifications section contains part numbers for all individual plugs and receptacles and their vital dimensions plus part numbers for the various types of mounting hardware. In the case of cable to panel mount applications, panel cutout dimensions are provided for all connector configurations.

All accessory items are illustrated and dimensioned, these include strain reliefs, dust covers, cable clamps and back to back adapter covers. For maintenance and repair, replacement contacts are illustrated and dimensioned. A part number chart is provided according to wire size for quick, easy identification.

Since your specific application will determine the degree of automatic or manual application tooling required the complete specifications on all application tooling are provided. This includes semi-automatic, bench mounted power tools; portable hand operated tools; palm grip hand tool and its accessories and the T-handle single wire inserter.

The CHAMP Connector is also adaptable to printed circuit board mount applications. Illustrated with dimensions and part numbers is the complete family of vertical and edge mount connectors and the necessary mounting hardware.

Reference is made to flexible flat cable application. For complete specifications on this type of application it is recommended that you contact AMP Incorporated for precise engineering coordination.

Modular connecting blocks using the CHAMP contact "slotted beam" concept are available in a variety of sizes and commoning terminals. Other products in this first section are printed circuit board free standing terminals and complete CHAMP interface assemblies.

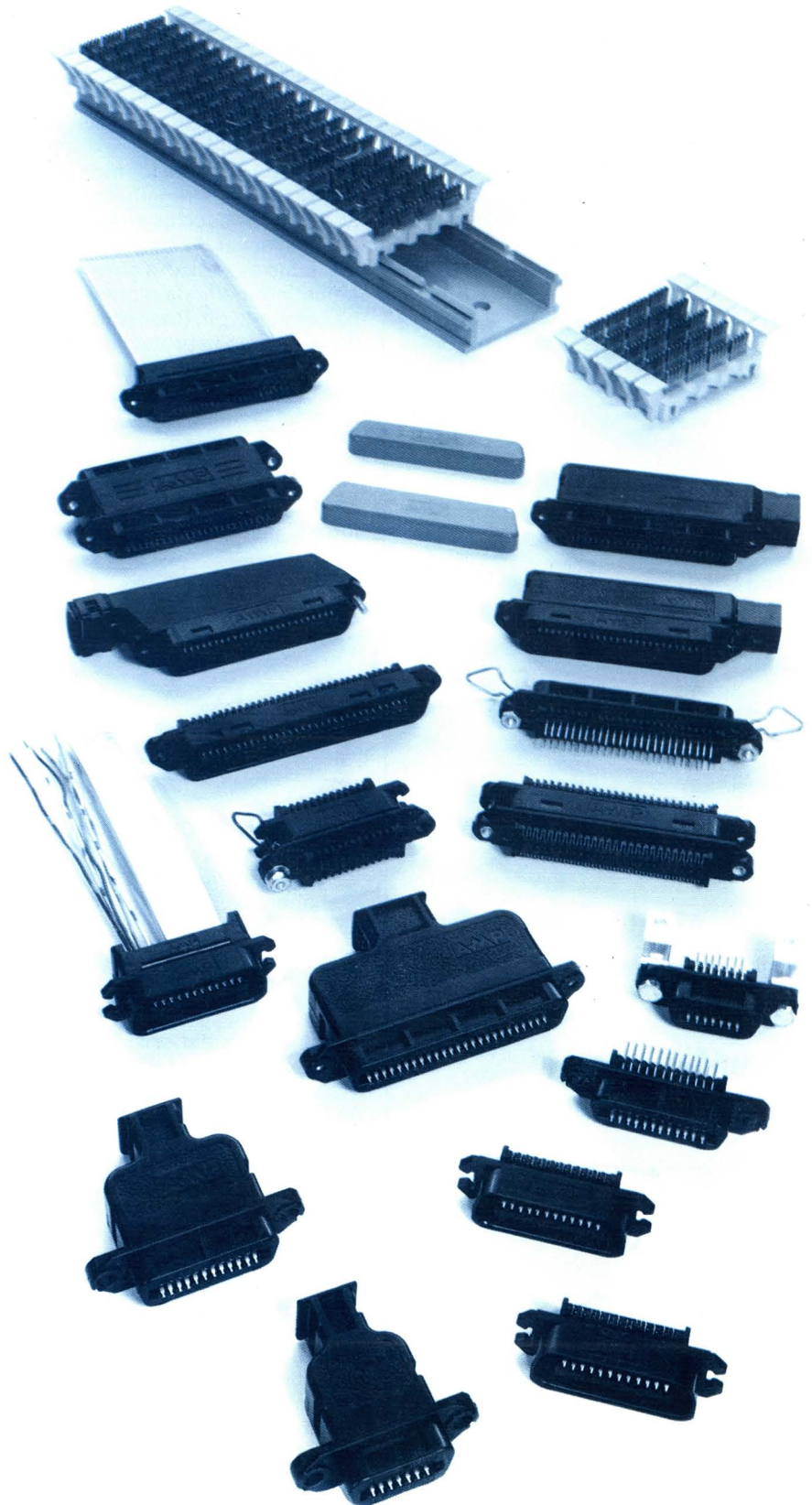
CHAMP CONNECTOR KITS

The second section is devoted to the popular 50 position CHAMP Connector Kits. Available in a wide assortment of 50 position connectors and accessories these kits are of particular interest to the Telecommunications Industry where the 50-position connector is finding extensive application.

CHAMP Connectors

Features

- Eliminates costly wire preparation.
- Terminates unstripped solid and stranded (7 strand) wire, multi-conductor cable and certain ribbon and molded cable.
- Replaceable contacts.
- Accommodates most insulation types as well as insulation diameters to .045".
- Connectors fully intermateable and interchangeable with other similar connectors.
- Ideally suited for rack and panel or printed circuit board connector applications.
- Exceptionally stable performance under various environmental conditions.
- Self extinguishing thermoplastic housings and accessories.
- Contacts on .085" centers in dual-position arrangement.
- Optional accessories include dust covers to protect contacts and cover and strain reliefs for 90° and 180° rear-entry wiring.
- High speed application tooling assures electrically and mechanically reliable terminations at lowest installed cost.
- Connectors available in 14, 24, 36, 50 and 64 positions with a choice of mounting methods, screw-type or bail mount type.
- Recognized under the Components Program of Underwriters' Laboratories Incorporated.



CHAMP Connectors

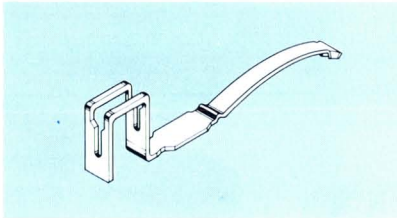
General Information

Connector Configurations (Housings):

Male and female connectors are furnished pre-loaded with contacts on .085" centers in dual position. Available in 14, 24, 36, 50 and 64 positions in standard black housings* molded from self-extinguishing plastic material for high impact and dielectric strength. Optional accessories such as strain reliefs, dust covers and adaptor blocks are available as well as a choice of mounting methods, screw type or bail mount type. Connector housings are designed to protect contacts and prevent misalignment. A rib design assures contact portion of terminal locating in correct cavity when inserted.

Terminals (Contacts):

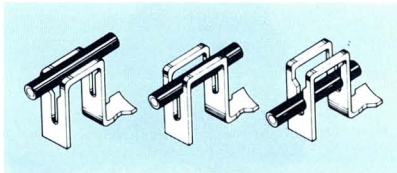
The terminal is of stamped and formed high conductivity beryllium



copper with .000030" gold over .000050" nickel plating. The wire terminating area (rear of terminal) is shaped like a slotted reverse "U" and each leg of the "U" contains a wire slot with precisely controlled dimensions.

Terminating solid or stranded wire:

An insulated wire fits loosely into the uppermost portion of the slot. As the tool pushes the wire deeper



into position, the "funnel shaped" area of the slot displaces the insulation and restricts the conductor. Additional downward movement of the tool forces the conductor to fit into the confines

*Standard Connector Color is Black; Alabaster Beige, Rose Beige and Gray are available.

of the narrow parallel portion of the slot where electrical contact is made. The wiping action that takes place as the conductor is forced deeper into the slot produces a clean metal surface, free of oxides or other contaminants that may exist on the contact surface, and aids in effecting a stable electrical resistance.

Residual spring energy in the terminal causes the two side walls of the slot to function like opposing cantilever beams maintaining the constant pressure necessary to ensure positive metal to metal contact.

The front and rear slots are of different widths. The rear slot is wider and functions in the same manner as the front slot just described. However, the conductor is deformed to a lesser degree serving as insulation support and strain relief.

The strain relief slot, being wider, does not appreciably deform (and hence weaken) the wire. The result is the Slotted Beam Termination: a reliable, high-quality, gas-tight, electrical and mechanical connection that withstands vibration and shock. The CHAMP Connector termination is purposely designed and proven in field applications to withstand the forces of handling, shipping and maintenance activities.

Wire Range and Types:

The connector housing and tooling is designed to accept 22 through 26 Solid wire and 22 through 28 Stranded wire (7 strands) with insulation diameter to .045". AMP Incorporated should be consulted for complete information for terminating stranded wire.

During actual termination, unstripped wire is depressed into both slots with a single stroke of the application tool. Excess wire is automatically cut off during the operation.

Covers and Strain Relief:

Made of thermoplastic material, in matching colors, the cover forms the strain relief for the cable. Inner ribs in the cover are arranged so that they confine the wire to the wire termination slot.

**General Information
(Continued)**

Application Tooling:

For volume production at the lowest installed cost, AMP has Portable Hand-operated and Semi-automatic Power Tools for terminating the connector. The hand-operated tool simultaneously applies all terminations for all configurations except the 64 position connector. The power-operated tool, terminating two wires at a time, accepts all connector configurations and offers production speeds at a rate determined by operator's skill.

The Palm-grip insertion tool utilizes a connector holding slide which allows single wire insertion, one side at a time, using a stepping action. Small and compact, the entire tool and slide fits in the palm of the hand.

A T-Handle Single Wire Insertion Tool is used for making repairs,

replacement or circuit changes.

For Terminal Boards and Blocks

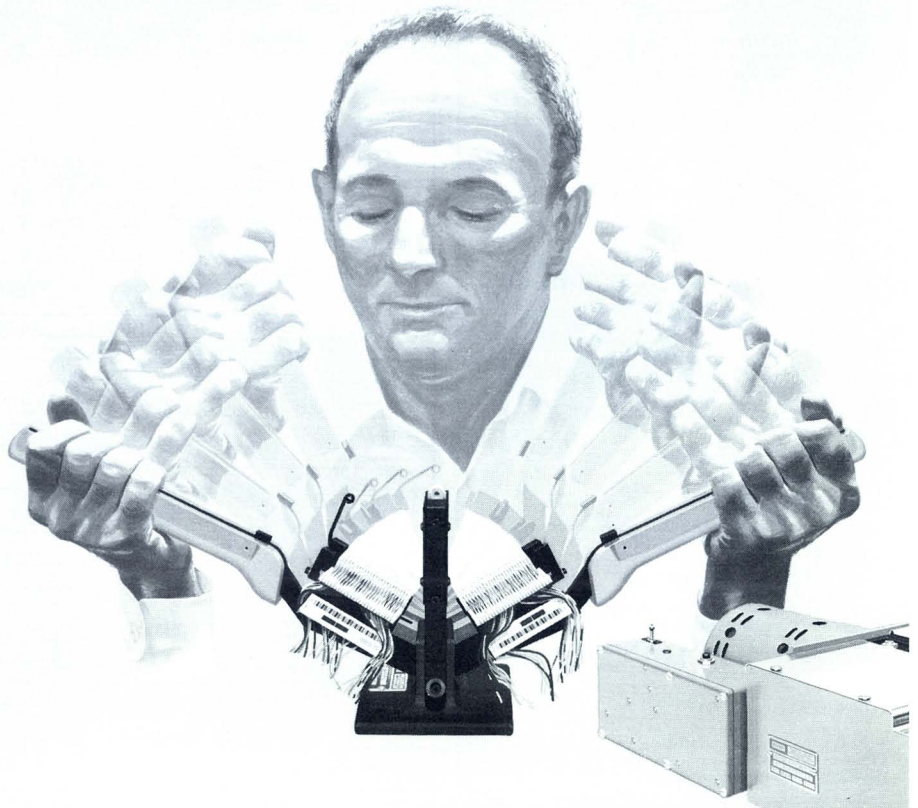
A pistol-grip hand tool terminates one wire at a time and is ideal for field service. In actual application a trained operator demonstrated wiring rates with this tool that were significantly faster than either solder-less wrapping or soldering.

Testing:

Extensive testing, both laboratory and actual application have been conducted on this entire product line. These tests included; heat aging, temperature cycling (MIL-STD-202D, Method 102A, Condition D), moisture resistance (MIL-STD-202D, Method 106C), as well as shock and vibration. Both electrical and mechanical test results have met or exceeded performance objectives and copies of these test results are available from AMP Incorporated.

Installation and Repair

For field operations, including installation, maintenance and repair, the Hand Operated tool provides the craftworker with the maximum flexibility with a minimum of training. Inside moves and cut backs in wiring plans can be accomplished quickly and in many instances without the need for running new cable. This Hand-Operated tool permits the craftworker in repair situations to remove the old connector and replace it on the job with a CHAMP Connector. For original installation, considerable savings can be realized in time-saved, and the elimination of excess cable. A pre-survery will ascertain the exact length of cable required for the wiring plan —the AMP Hand-Operated tool will allow you to run the cable and terminate on site.



CHAMP Cable to Cable Connectors

Screw Mount Type

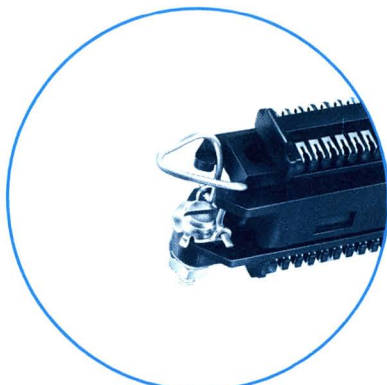


Screw Kit
Part No. 229911-1
(Two req'd. per assy)
(One req'd. per conn. half)

Bail Mount Type

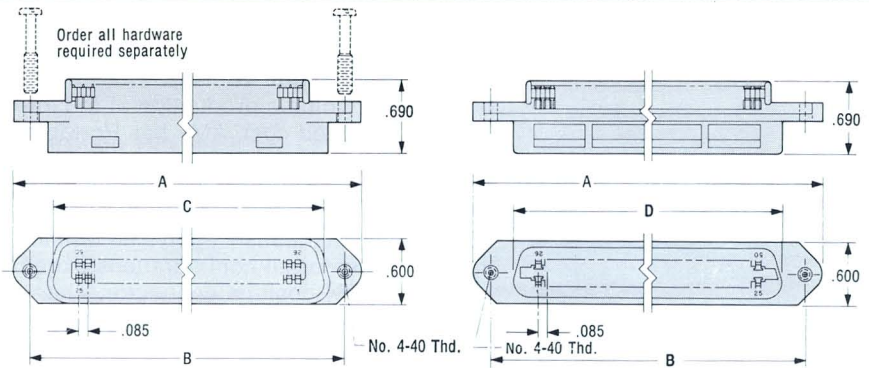


Bail Mount
Kit Assembly
Part No. 552561-1
(One set req'd. per receptacle)



Bent Bail Mount
Kit Assembly
(For use with 90° Strain Relief Cover)
Part No. 552561-2
(One set req'd. per receptacle)

NOTE: Standard connector color is black; other colors can be made available. Consult AMP Incorporated.

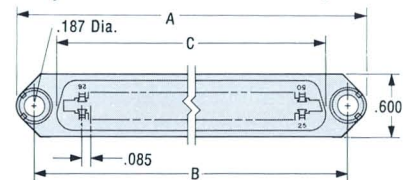
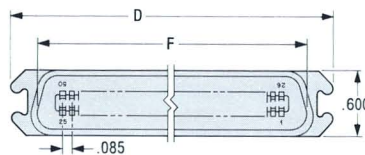
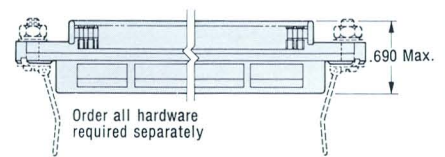
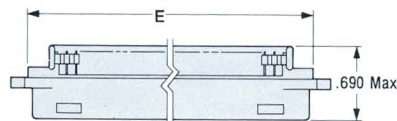


Plug (Male)

SCREW MOUNT

Receptacle (Female)

No. of Pos.	Wire Size		Color Dot Designation	Part Numbers		Dimensions			
	Solid	7 Strand		Plug	Receptacle	A ^{Max.}	B ^{+.014}	C ^{+.010}	D ^{+.010}
14				552300-1	552304-1	1.750	1.416	1.010	.990
24				552301-1	552305-1	2.175	1.842	1.435	1.415
36	22	22	GREEN	552302-1	552306-1	2.685	2.352	1.945	1.925
50				552173-1	552064-1	3.280	2.946	2.540	2.520
64				552303-1	552307-1	3.875	3.542	3.135	3.115
14				552134-1	552308-1	1.750	1.416	1.010	.990
24				552136-1	552309-1	2.175	1.842	1.435	1.415
36	24	—	RED	552138-1	552310-1	2.685	2.352	1.945	1.925
50				229940-1	229941-1	3.280	2.946	2.540	2.520
64				552140-1	552311-1	3.875	3.542	3.135	3.115
14				552282-1	552312-1	1.750	1.416	1.010	.990
24				552283-1	552313-1	2.175	1.842	1.435	1.415
36	26	24	BLUE	552284-1	552314-1	2.685	2.352	1.945	1.925
50				229974-1	229975-1	3.280	2.946	2.540	2.520
64				552285-1	552315-1	3.875	3.542	3.135	3.115
14				552442-1	552463-1	1.750	1.416	1.010	.990
24				552443-1	552464-1	2.175	1.842	1.435	1.415
36	—	26-27-28	YELLOW	552444-1	552465-1	2.685	2.352	1.945	1.925
50				552390-1	552391-1	3.280	2.946	2.540	2.520
64				552488-1	552489-1	3.875	3.542	3.135	3.115



Plug (Male)

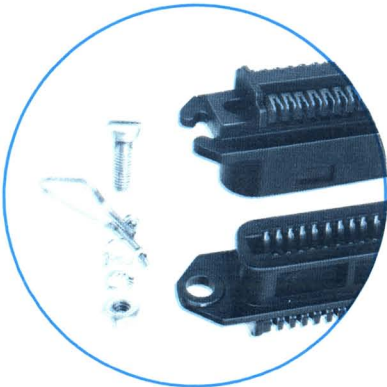
BAIL MOUNT

Receptacle (Female)

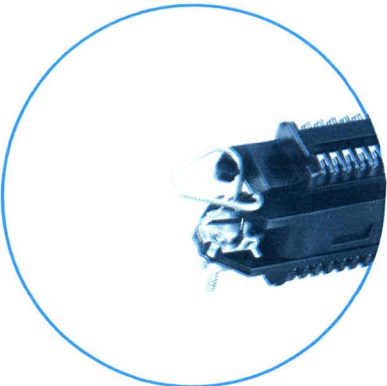
No. of Pos.	Wire Size		Color Dot Designation	Part Numbers		Dimensions					
	Solid	7 Strand		Plug	Receptacle	A ^{Max.}	B ^{+.014}	C ^{+.010}	D ^{Ref.}	E ^{+.010}	F ^{+.010}
14				552316-1	552321-1	1.750	1.416	.990	1.526	1.196	1.010
24				552317-1	552322-1	2.175	1.842	1.415	1.951	1.621	1.435
36	22	22	GREEN	552318-1	552323-1	2.685	2.352	1.925	2.462	2.312	1.945
50				552319-1	552324-1	3.280	2.946	2.520	3.056	2.726	2.540
64				552320-1	552325-1	3.875	3.542	3.115	3.651	3.321	3.135
14				552175-1	552135-1	1.750	1.416	.990	1.526	1.196	1.010
24				552142-1	552137-1	2.175	1.842	1.415	1.951	1.621	1.435
36	24	—	RED	552144-1	552139-1	2.685	2.352	1.925	2.462	2.312	1.945
50				552031-1	552000-1	3.280	2.946	2.520	3.056	2.726	2.540
64				552146-1	552141-1	3.875	3.542	3.115	3.651	3.321	3.135
14				552270-1	552271-1	1.750	1.416	.990	1.526	1.196	1.010
24				552272-1	552273-1	2.175	1.842	1.415	1.951	1.621	1.435
36	26	24	BLUE	552274-1	552275-1	2.685	2.352	1.925	2.462	2.312	1.945
50				552032-1	552001-1	3.280	2.946	2.520	3.056	2.726	2.540
64				552276-1	552277-1	3.875	3.542	3.115	3.651	3.321	3.135
14				552468-1	552473-1	1.750	1.416	.990	1.526	1.196	1.010
24				552469-1	552474-1	2.175	1.842	1.415	1.951	1.521	1.435
36	—	26-27-28	YELLOW	552470-1	552475-1	2.685	2.352	1.925	2.462	2.312	1.945
50				552471-1	552476-1	3.280	2.946	2.520	3.056	2.726	2.540
64				552472-1	552477-1	3.875	3.542	3.115	3.651	3.321	3.135



Screw Mount Kit Assembly
Part No. 552568-1
(One set req'd. per assembly)



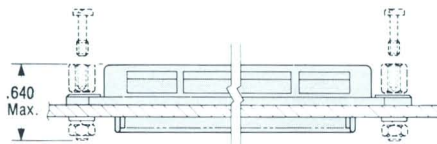
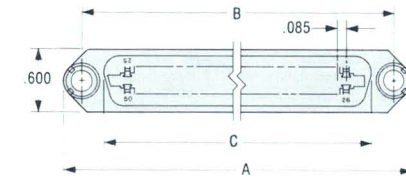
Bail Mount Kit Assembly
Part No. 552567-1
(One set req'd. per receptacle)



Bent Bail Mount Kit Assembly
(For use with 90° Strain Relief Cover)
Part No. 552567-2
(One set req'd. per receptacle)

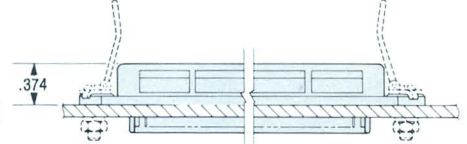
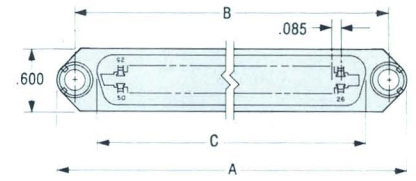
NOTE: Standard connector color is black; other colors can be made available. Consult AMP Incorporated.

Screw Mount Type



Order all hardware required separately
Receptacle (Female)

Bail Mount Type



Receptacle (Female)

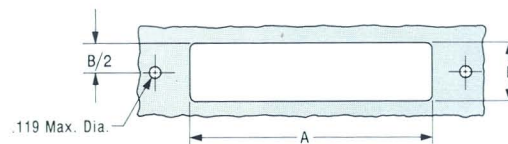
No. of Pos.	Wire Size		Color Dot Designation	Plug Cable Half*		Receptacle Panel Half		Receptacle Panel MT Dimensions		
	Solid	7 Strand		Screw Mount	Bail Mount	Screw Mount	Bail Mount	A ^{Max.}	B ^{.014}	C ^{.010}
14			GREEN	552300-1	552316-1	2-552321-1	2-552321-1	1.750	1.416	.990
24				552301-1	552317-1	2-552322-1	2-552322-1	2.175	1.842	1.415
36	22	22		552302-1	552318-1	2-552323-1	2-552323-1	2.685	2.352	1.925
50				552173-1	552319-1	2-552324-1	2-552324-1	3.280	2.946	2.520
64				552303-1	552320-1	2-552325-1	2-552325-1	3.875	3.542	3.115
14			RED	552134-1	552175-1	2-552135-1	2-552135-1	1.750	1.416	.990
24				552136-1	552142-1	2-552137-1	2-552137-1	2.175	1.842	1.415
36	24	—		552138-1	552144-1	2-552139-1	2-552139-1	2.685	2.352	1.925
50				229940-1	552031-1	2-552000-1	2-552000-1	3.280	2.946	2.520
64				552140-1	552146-1	2-552141-1	2-552141-1	3.875	3.542	3.115
14			BLUE	552282-1	552270-1	2-552271-1	2-552271-1	1.750	1.416	.990
24				552283-1	552272-1	2-552273-1	2-552273-1	2.175	1.842	1.415
36	26	24		552284-1	552274-1	2-552275-1	2-552275-1	2.685	2.352	1.925
50				229974-1	552032-1	2-552001-1	2-552001-1	3.280	2.946	2.520
64				552285-1	552276-1	2-552277-1	2-552277-1	3.875	3.542	3.115
14			YELLOW	552442-1	552468-1	2-552473-1	2-552473-1	1.750	1.416	.990
24				552443-1	552469-1	2-552474-1	2-552474-1	2.175	1.842	1.415
36	—	26-27-28		552444-1	552470-1	2-552475-1	2-552475-1	2.685	2.352	1.925
50				552390-1	552471-1	2-552476-1	2-552476-1	3.280	2.946	2.520
64				552488-1	552472-1	2-552477-1	2-552477-1	3.875	3.542	3.115

*For dimensions refer to plug drawings and tables page 6.

NOTE: Insulation diameter .045 dia. max.

Strain relief on panel half is recommended. See accessory page 8.

Panel Cutout Dimensions

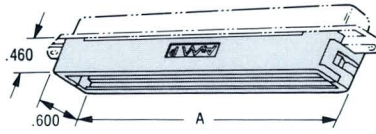


NOTE: Panel Thickness .125 (Nom.)

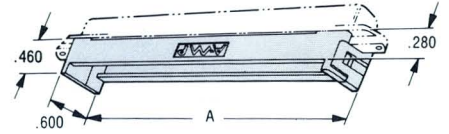
No. of Positions	Dimensions			
	For Recept. Only		For Recept. with Strain Relief	
	A	B	A	B
14	.870	.560	1.063	.625
24	1.300	.560	1.488	.625
36	1.810	.560	1.998	.625
50	2.400	.560	2.593	.625
64	2.990	.560	3.188	.625

CHAMP Cable to Cable and Cable to Panel Accessories

Strain Relief



High Profile

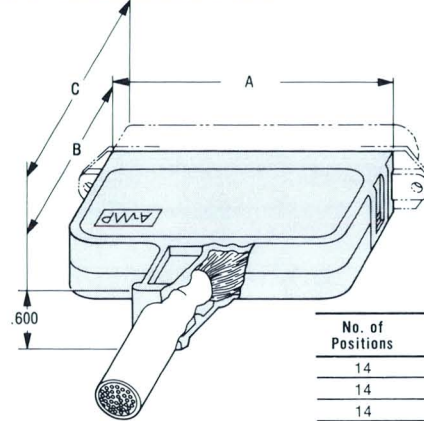


Standard

No. of Positions	High Profile Part Number	Standard Part Number	Dimensions A
14	552299-1	1-552299-1	1.030
24	552298-1	1-552298-1	1.455
36	552297-1	1-552297-1	1.965
50	552027-1	1-552027-1	2.560
64	552296-1	1-552296-1	3.155

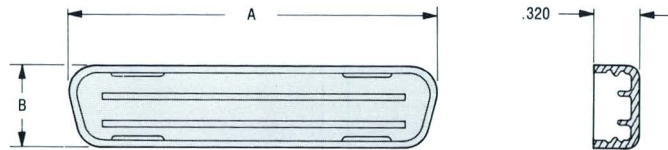
Note: 2 identical parts required per assembly.

180° Strain Relief Cover



No. of Positions	Part Number	Dimensions			Cable Dia. Range
		A	B	C	
14	552079-1	.986	1.450	1.825	.175-.220
14	1-552079-1	.986	1.450	1.825	.220-.265
14	2-552079-1	.986	1.450	1.825	.265-.310
24	552076-1	1.411	1.450	1.825	.230-.280
24	1-552076-1	1.411	1.450	1.825	.280-.320
24	2-552076-1	1.411	1.450	1.825	.320-.380
36	552073-1	1.921	1.450	1.825	.290-.340
36	552073-5	1.921	1.450	1.825	.360-.430
36	552073-6	1.921	1.450	1.825	.430-.500
50	3-552008-1	2.515	1.550	1.925	.330-.380
50	2-552008-1	2.515	1.550	1.925	.380-.430
50	552008-1	2.515	1.550	1.925	.430-.490
50	4-552008-1	2.515	1.550	1.925	.490-.550
64	552082-1	3.111	1.650	2.025	.480-.540

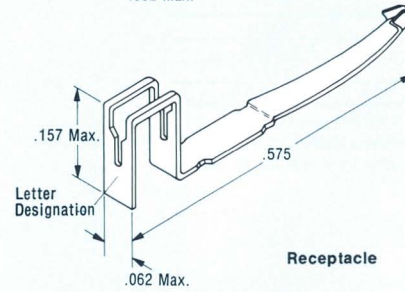
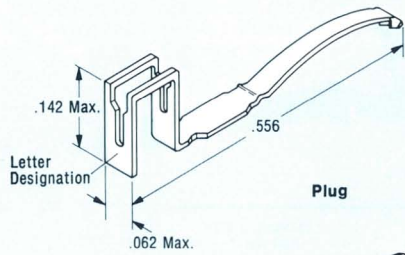
Dust Cover



No. of Pos.	Plug Cover (Blue)			Recept. Cover (Red)		
	Dim. A	Dim. B	Part No.	Dim. A	Dim. B	Part No.
14	1.240-	.751-	229968-5	1.085-	.563-	229969-5
	1.310	.692		1.140	.598	
24	1.665-	.751-	229968-4	1.510-	.563-	229969-4
	1.735	.692		1.565	.598	
36	2.175-	.751-	229968-3	2.020-	.563-	229969-3
	2.245	.692		2.075	.598	
50	2.770-	.751-	229968-1	2.615-	.563-	229969-1
	2.840	.692		2.670	.598	
64	3.365-	.751-	229968-2	3.210-	.563-	229969-2
	3.435	.692		3.265	.598	

CHAMP Cable to Cable and Cable to Panel Accessories

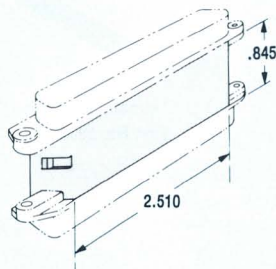
Replacement Contacts



Part No.		Wire Size		
Plug	Receptacle	Solid	7 Strand	Designation
552087-1	552063-1	22	22	C
229903-1	229905-1	24	—	A
229972-1	229973-1	26	24	B
552279-1	552281-1	—	26-27-28	E

Back to Back Adapter Cover for 50 Position Connector

(Two required)

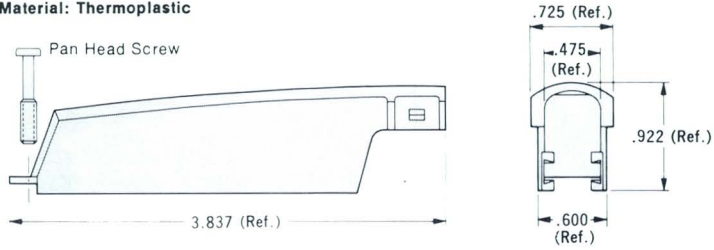


Part No. 229993-1
Material: Thermoplastic

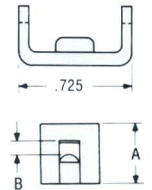
NOTE: Any mix of the 50 position plug and receptacle connector may be used with the back-to-back Adaptor Cover.

90° Tapered Cover for 50 Position

Material: Thermoplastic

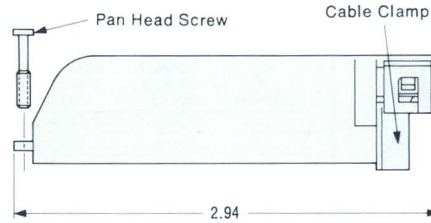


Cable Clamp

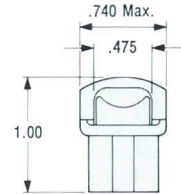


Kit Part Number	Approx. Cable Diameter	Dimensions		Pan Head Screw (No. 4-40 x .75 Lg.)	Kit consists of:	
		A	B		Tapered Cover	Cable Clamp
552560-1	.350-.425	.375	.100	229911-1	229909-1	229910-1
552560-5	.425-.500	.470	.195	229911-1	229909-1	1-229910-1
552560-9	.325-.370	.375	.050	229911-1	229909-1	2-229910-1
1-552560-3	.300-.325	.375	.015	229911-1	229909-1	3-229910-1
1-552560-7	.500-.550	.535	.260	229911-1	229909-1	4-229910-1

90° Slide-On Cover for 50 Position

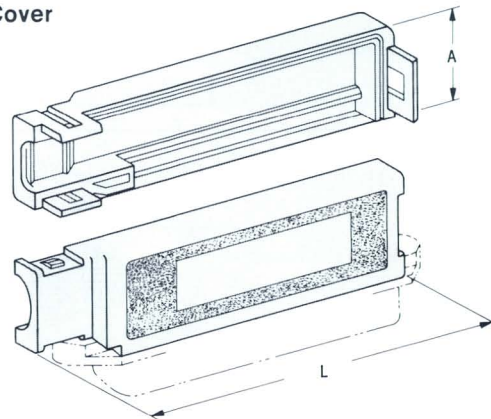


Cable Clamp



Kit Part Number	Approx. Cable Diameter	Pan Head Screw (No. 4-40 x .75 Lg.)	Kit consists of:	
			Cover	Cable Clamp
552616-1	.340-.400	229911-1	552617-1	552618-1

90° Strain Relief Cover



No. of Positions	Part Number	Dimensions		Cable Dia. Range
		A	L	
14	552412-1	.680	1.853	.185-.230
14	1-552412-1	.680	1.853	.240-.300
14	2-552412-1	.680	1.853	.310-.360
24	552413-1	.680	2.278	.240-.300
24	1-552413-1	.680	2.278	.310-.360
36	552414-1	.680	2.788	.310-.360
36	3-552414-1	.680	2.788	.330-.380
50	552014-1	.680	3.383	.340-.400
50	1-552011-1	.920	3.383	.340-.400
50	552011-1	.920	3.383	.415-.465
64	552496-1	1.220	4.178	.410-.475
64	1-552496-1	1.220	4.178	.475-.540
64	2-552496-1	1.220	4.178	.540-.605

CHAMP Cable to Cable and Cable to Panel Tooling

Standard Connector Application Tooling



T-Handle Wire Insertion Tool for repair and maintenance (does not cut wire)
Part No. 229384-1

Portable Hand Operated Tool (MI-1)



Position	Standard Portable Hand-Operated Tool Part No.*	Conversion Kit Part No.**
14	229378-7	229711-1
24	229378-8	229712-1
36	229378-9	229713-1
50	229378-1†	229763-1

*Standard Hand-Operated Tool with prefixed positions.

**To convert any existing tool to alternate position.

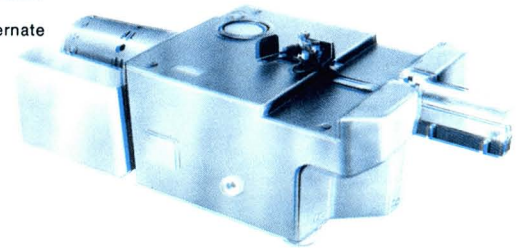
†This tool is also available with Toggle Link feature for added leverage. Order Part No. 229378-5.

CHAMPOMATIC Semi-Automatic Power Tool (SA-1)

No. of Positions	Standard Machine Part No.*	Machine with Boot Locator Part No.*	Conversion Kit Part No.**
14	253980-5	1-253980-5	229714-5
24	253980-4	1-253980-4	229714-4
36	253980-3	1-253980-3	229714-3
50	253980-1	1-253980-1	229714-1
64	253980-2	1-253980-2	229714-2

*Machine with prefixed positions

**To convert any existing machine to alternate size

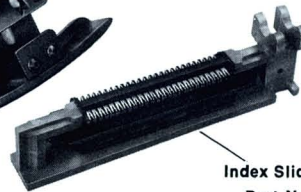


Palm Grip Hand Tool (SI-1)

for repair, prototyping and low volume production



Palm Grip Tool
Part No. 229451-1



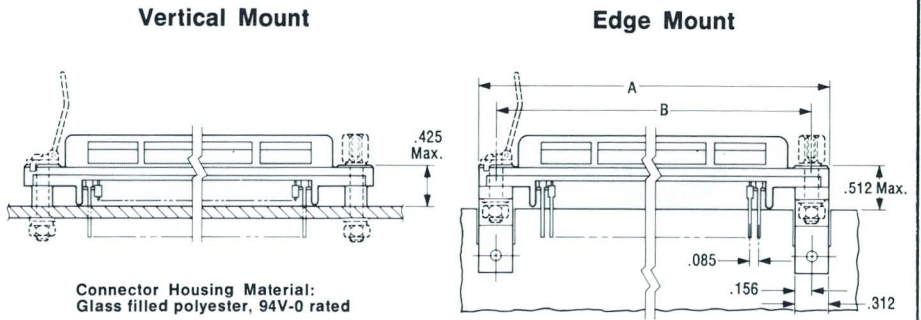
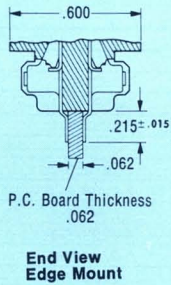
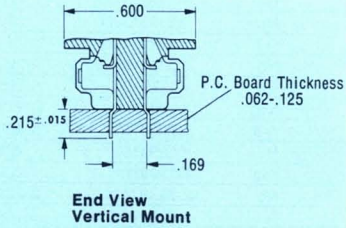
Index Slide
Part No. (See Table)



Terminal Extraction Tool
Part No. 230238-1

No. of Positions	Palm Grip Tool Kit Part No.	Kit consists of:									
		Palm Grip Tool	14 Position Index Slide	24 Position Index Slide	36 Position Index Slide	50 Position Index Slide	64 Position Index Slide	Cable Clamp	Ratchet Release	Terminal Extraction Tool	Tool Carrying Case
14	229451-3	229451-1	229706-1	—	—	—	—	229622-1	—	—	—
24	229451-4	229451-1	—	229707-1	—	—	—	229622-1	—	—	—
36	229451-5	229451-1	—	—	229708-1	—	—	229622-1	—	—	—
50	229451-2	229451-1	—	—	—	229621-1	—	229622-1	—	—	—
64	229451-6	229451-1	—	—	—	—	229709-1	229622-1	—	—	—
All Positions	229764-1	—	229706-1	229707-1	229708-1	229621-1	229709-1	229622-1	229765-1	230238-1	229710-1
All Positions	229764-2	229451-1	229706-1	229707-1	229708-1	229621-1	229709-1	229622-1	229765-1	230238-1	229710-1

CHAMP Printed Circuit Board Mounted Connectors

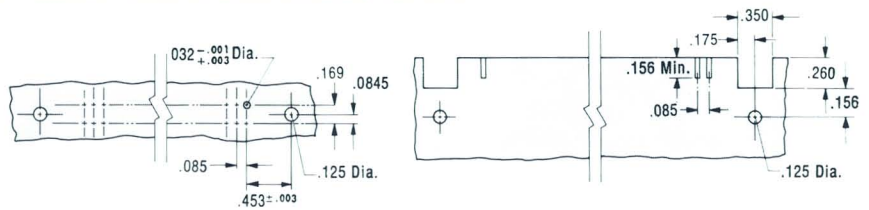


Connector Housing Material:
Glass filled polyester, 94V-0 rated

Order all hardware required separately

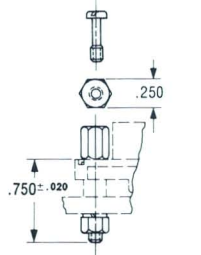
No. of Positions	Receptacle (Female)		Plug (Male)		Dimensions	
	Vertical Mount Part Number	Edge Mount Part Number	Vertical Mount Part Number	Edge Mount Part Number	A	B
14	552212-1	552218-1	552209-1	552215-1	1.750	1.416
24	552224-1	552230-1	552221-1	552227-1	2.175	1.842
36	552235-1	552241-1	552232-1	552238-1	2.685	2.352
50	552118-1	552130-1	552116-1	552126-1	3.280	2.946
64	552246-1	552252-1	552243-1	552249-1	3.875	3.542

Recommended Printed Circuit Board Mounting Dimensions

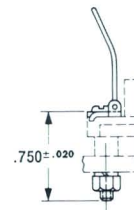


Vertical Mount Hardware

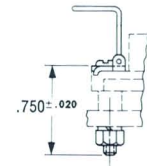
Material: Screws, Nuts, Washers and Bails — Stainless Steel



Vertical Mount Screw Lock Hardware Kit
Part No. 552563-1
(One set req'd per assy.)



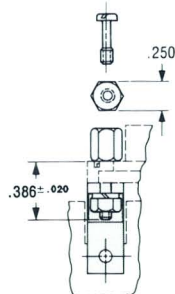
Vertical Mount Bail Lock Hardware Kit
Part No. 552562-1
(One set req'd per assy.)
Not used with plug.



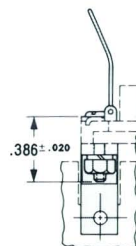
Vertical Mount Bent Bail Lock Hardware Kit
Part No. 552562-2
(One set req'd per assy.)
Not used with plug.

Edge Mount Hardware

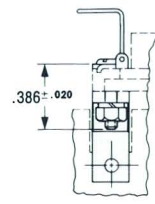
Material: Screws, Nuts and Washers — Cadmium Plated Steel, Mounting Bracket — Thermoplastic



Edge Mount Screw Lock Hardware Kit
Part No. 552565-1
(One set req'd per assy.)



Edge Mount Bail Lock Hardware Kit
Part No. 552566-1
(One set req'd per assy.)
Not used with plug.

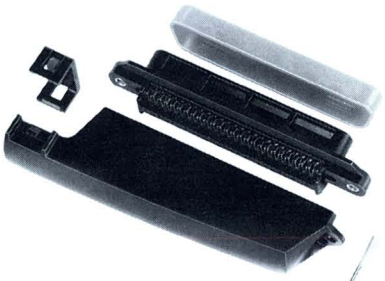
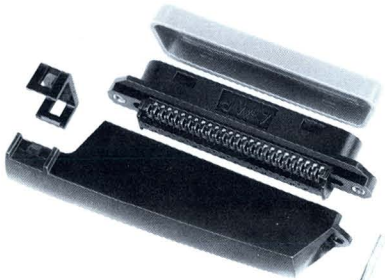


Edge Mount Bent Bail Lock Hardware Kit
Part No. 552566-2
(One set req'd per assy.)
Not used with plug.

NOTE: Standard connector color is black.

CHAMP Connector Kits for Telecommunications Industry (50-Position)

Cable to Cable



Plug with Tapered Cover

Solid	Wire Size		Color Dot Designation	Cable Diameter Range	Dust Cover	Kit Part Number	
	7 Strand					Black	Gray
22	22		Green	Up to .550	No	552382-1	552382-4
					No	4-229912-1	4-229912-4
					Yes	5-229912-1	5-229912-4
24	—		Red	.350-.425	No	229912-1	229912-4
					Yes	1-229912-1	1-229912-4
				.425-.500	No	2-229912-1	2-229912-4
					Yes	3-229912-1	3-229912-4
				.325-.370	No	4-229976-1	4-229976-4
					Yes	5-229976-1	5-229976-4
26	24		Blue	.350-.425	No	229976-1	229976-4
					Yes	1-229976-1	1-229976-4
				.425-.500	No	2-229976-1	2-229976-4
					Yes	3-229976-1	3-229976-4
—	26, 27, 28	Yellow	.350-.425	No	552402-1	552402-4	

Receptacle with Tapered Cover

Solid	Wire Size		Color Dot Designation	Cable Diameter Range	Dust Cover	Kit Part Number	
	7 Strand					Black	Gray
22	22		Green	Up to .550	No	552383-1	552383-4
					No	4-229913-1	4-229913-4
					Yes	5-229913-1	5-229913-4
24	—		Red	.350-.425	No	229913-1	229913-4
					Yes	1-229913-1	1-229913-4
				.425-.500	No	2-229913-1	2-229913-4
					Yes	3-229913-1	3-229913-4
				.325-.370	No	4-229977-1	4-229977-4
					Yes	5-229977-1	5-229977-4
26	24		Blue	.350-.425	No	229977-1	229977-4
					Yes	1-229977-1	1-229977-4
				.425-.500	No	2-229977-1	2-229977-4
					Yes	3-229977-1	3-229977-4
—	26, 27, 28	Yellow	.350-.425	No	552403-1	552403-4	

Plug with 90° Strain Relief Cover — Screw Lock (Max. Cable Dia. .450)

Solid	Wire Size		Color Dot Designation	Kit Part Number	
	7 Strand			Black	Gray
24	—	Red	552259-1	552259-4	

Receptacle with 90° Strain Relief Cover — Screw Lock (Max. Cable Dia. .450)

Solid	Wire Size		Color Dot Designation	Kit Part Number	
	7 Strand			Black	Gray
24	—	Red	552260-1	552260-4	

CHAMP
Connector Kits for
Telecommunications Industry
(50-Position)

Cable to Cable



Plug with 180° Strain Relief Cover — Screw Lock
(Max. Cable Dia. .500)

Wire Size		Color Dot Designation	Kit Part Number	
Solid	7 Strand		Black	
22	22	Green	552384-1	
24	—	Red	552430-1	
26	24	Blue	552429-1	

Receptacle with 180° Strain Relief Cover — Screw Lock
(Max. Cable Dia. .500)

Wire Size		Color Dot Designation	Kit Part Number	
Solid	7 Strand		Black	
22	22	Green	552337-1	
24	—	Red	552423-1	
26	24	Blue	552424-1	

Plug with 180° Strain Relief Cover — Bail Lock
(Max. Cable Dia. .500)

Wire Size		Color Dot Designation	Dust Cover	Cover with Probe Holes	Kit Part Number	
Solid	7 Strand				Black	Gray
22	22	Green	No	No	552368-1	—
			No	No	552019-1	552019-4
24	—	Red	Yes	No	1-532019-1	1-552019-4
			No	Yes	552020-1	552020-4
			Yes	Yes	1-552020-1	1-552920-4
26	24	Blue	No	No	552021-1	552021-4
			Yes	No	1-552021-1	1-552021-4
			No	Yes	552022-1	552022-4
			Yes	Yes	1-552022-1	1-552022-4

Receptacle with 180° Strain Relief Cover — Bail Lock
(Max. Cable Dia. .500)

Wire Size		Color Dot Designation	Kit Part Number	
Solid	7 Strand		Black	
22	22	Green	552342-1	
24	—	Red	552409-1	
26	24	Blue	552410-1	

CHAMP

Connector Kits for Telecommunications Industry (50-Position)

Cable to Panel



Panel Mount Receptacle Screw Lock

Solid	Wire Size		Color Dot Designation	Dust Cover	Strain Relief	Kit Part Number	
	7 Strand					Black	Gray
22	22	Green	No	No	2-552388-1		
					No	No	2-552023-1
24	—	Red	Yes	No	3-552023-1	3-552023-4	
			No	Yes	2-552037-1	2-552037-4	
26	24	Blue	Yes	Yes	3-552037-1	3-552037-4	
			No	No	2-552024-1	2-552024-4	
			Yes	No	3-552024-1	3-552024-4	

Panel Mount Receptacle — Bail Lock

Solid	Wire Size		Color Dot Designation	Dust Cover	Kit Part Number	
	7 Strand				Black	Gray
22	22	Green	No	2-552386-1		
				No	No	2-552025-1
24	—	Red	Yes	3-552025-1	3-552025-4	
			No	2-552026-1	2-552026-4	
26	24	Blue	Yes	3-552026-1	3-552026-4	

Cable to Panel Plug with 180° Strain Relief Cover — Screw Lock (Max. Cable Dia. .500)

Solid	Wire Size		Color Dot Designation	Dust Cover	Cover with Probe Holes	Kit Part Number	
	7 Strand					Black	Gray
22	22	Green	No	No	552363-1		
					No	No	552015-1
24	—	Red	Yes	No	1-552015-1	1-552015-4	
			No	Yes	552016-1	552016-4	
			Yes	Yes	1-552016-1	1-552016-4	
			No	No	552017-1	552017-4	
26	24	Blue	Yes	No	1-552017-1	1-552017-4	
			No	Yes	552018-1	552018-4	
			Yes	Yes	1-552018-1	1-552018-4	

Cable to Panel Plug with 180° Strain Relief Cover — Bail Lock (Max. Cable Dia. .500)

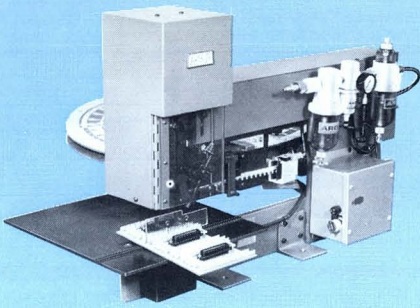
Solid	Wire Size		Color Dot Designation	Dust Cover	Cover with Probe Holes	Kit Part Number	
	7 Strand					Black	Gray
22	22	Green	No	No	552368-1		
					No	No	552019-1
24	—	Red	Yes	No	1-552019-1	1-552019-4	
			No	Yes	552020-1	552020-4	
			Yes	Yes	1-552020-1	1-552020-4	
			No	No	552021-1	552021-4	
26	24	Blue	Yes	No	1-552021-1	1-552021-4	
			No	Yes	552021-1	552022-4	
			Yes	Yes	1-552022-1	1-552022-4	

50 Position Connector Kit Components

Kit Part Number	Connector Assembly	Cover	Dust Cover	Cable Clamp	Screw or Bail
552382-1	552173-1	229909-1	—	4-229910-1	229911-1
552382-4	552173-4	229909-4	—	4-229910-4	229911-1
4-229912-1	229940-1	229909-1	—	2-229910-1	229911-1
4-229912-4	229940-4	229909-4	—	2-229910-4	229911-1
5-229912-1	229940-1	229909-1	229968-1	2-229910-1	229911-1
5-229912-4	229940-4	229909-4	229968-1	2-229910-4	229911-1
229912-1	229940-1	229909-1	—	229910-1	229911-1
229912-4	229940-4	229909-4	—	229910-4	229911-1
1-229912-1	229940-1	229909-1	229968-1	229910-1	229911-1
1-229912-4	229940-4	229909-4	229968-1	229910-4	229911-1
2-229912-1	229940-1	229909-1	—	1-229910-1	229911-1
2-229912-4	229940-4	229909-4	—	1-229910-4	229911-1
3-229912-1	229940-1	229909-1	229968-1	1-229910-1	229911-1
3-229912-4	229940-4	229909-4	229968-1	1-229910-4	229911-1
4-229976-1	229974-1	229909-1	—	2-229910-1	229911-1
4-229976-4	229974-4	229909-4	—	2-229910-4	229911-1
5-229976-1	229974-1	229909-1	229968-1	2-229910-1	229911-1
5-229976-4	229974-4	229909-4	229968-1	2-229910-4	229911-1
229976-1	229974-1	229909-1	—	229910-1	229911-1
229976-4	229974-4	229909-4	—	229910-4	229911-1
1-229976-1	229974-1	229909-1	229968-1	229910-1	229911-1
1-229976-4	229974-4	229909-4	229968-1	229910-4	229911-1
2-229976-1	229974-1	229909-1	—	1-229910-1	229911-1
2-229976-4	229974-4	229909-4	—	1-229910-4	229911-1
3-229976-1	229974-1	229909-1	229968-1	1-229910-1	229911-1
3-229976-4	229974-4	229909-4	229968-1	1-229910-4	229911-1
552402-1	552390-1	229909-1	—	229910-1	229911-1
552402-4	552390-4	229909-4	—	229910-4	229911-1
552383-1	552064-1	229909-1	—	4-229910-1	229911-1
552383-4	552064-4	229909-4	—	4-229910-4	229911-1
4-229913-1	229941-1	229909-1	—	2-229910-1	229911-1
4-229913-4	229941-4	229909-4	—	2-229910-4	229911-1
5-229913-1	229941-1	229909-1	229969-1	2-229910-1	229911-1
5-229913-4	229941-4	229909-4	229969-1	2-229910-4	229911-1
229913-1	229941-1	229909-1	—	229910-1	229911-1
229913-4	229941-4	229909-4	—	229910-4	229911-1
1-229913-1	229941-1	229909-1	229969-1	229910-1	229911-1
1-229913-4	229941-4	229909-4	229969-1	229910-4	229911-1
2-229913-1	229941-1	229909-1	—	1-229910-1	229911-1
2-229913-4	229941-4	229909-4	—	1-229910-4	229911-1
3-229913-1	229941-1	229909-1	229969-1	1-229910-1	229911-1
3-229913-4	229941-4	229909-4	229969-1	1-229910-4	229911-1
4-229977-1	229975-1	229909-1	—	2-229910-1	229911-1
4-229977-4	229975-4	229909-4	—	2-229910-4	229911-1
5-229977-1	229975-1	229909-1	229969-1	2-229910-1	229911-1
5-229977-4	229975-4	229909-4	229969-1	2-229910-4	229911-1
229977-1	229975-1	229909-1	—	229910-1	229911-1
229977-4	229975-4	229909-4	—	229910-4	229911-1
1-229977-1	229975-1	229909-1	229969-1	229910-1	229911-1
1-229977-4	229975-4	229909-4	229969-1	229910-4	229911-1
2-229977-1	229975-1	229909-1	—	1-229910-1	229911-1
2-229977-4	229975-4	229909-4	—	1-229910-4	229911-1
3-229977-1	229975-1	229909-1	229969-1	1-229910-1	229911-1
3-229977-4	229975-4	229909-4	229969-1	1-229910-4	229911-1
552403-1	552391-1	229909-1	—	229910-1	229911-1
552403-4	552391-4	229909-4	—	229910-4	229911-1
552259-1	229940-1	552011-1	—	—	229911-1
552259-4	229940-4	552011-4	—	—	229911-1
552260-1	229941-1	552011-1	—	—	229911-1
552260-4	229941-4	552011-4	—	—	229911-1
552384-1	552173-1	552008-1	—	—	229911-1
552430-1	229940-1	552008-1	—	—	229911-1
552429-1	229974-1	552008-1	—	—	229911-1

Kit Part Number	Connector Assembly	Cover	Dust Cover	Cable Clamp	Screw or Bail
552337-1	552064-1	552008-1	—	—	229911-1
552423-1	229941-1	552008-1	—	—	229911-1
552424-1	229975-1	552008-1	—	—	229911-1
552368-1	552319-1	552008-1	—	—	—
552019-1	552031-1	552008-1	—	—	—
552019-4	552031-4	552008-4	—	—	—
1-552019-1	552031-1	552008-1	229968-1	—	—
1-552019-4	552031-4	552008-4	229968-1	—	—
552020-1	552031-1	552003-1	—	—	—
552020-4	552031-4	552003-4	—	—	—
1-552020-1	552031-1	552003-1	229968-1	—	—
1-552020-4	552031-4	552003-4	229968-1	—	—
552021-1	552032-1	552008-1	—	—	—
552021-4	552032-4	552008-4	—	—	—
1-552021-1	552032-1	552008-1	229968-1	—	—
1-552021-4	552032-4	552008-4	229968-1	—	—
552022-1	552032-1	552003-1	—	—	—
552022-4	552032-4	552003-4	—	—	—
1-552022-1	552032-1	552003-1	229968-1	—	—
1-552022-4	552032-4	552003-4	229968-1	—	—
552342-1	552324-1	552008-1	—	—	552561-1
552409-1	552000-1	552008-1	—	—	552561-1
552410-1	552001-1	552008-1	—	—	552561-1
2-552388-1	2-552324-1	—	—	—	552568-1
2-552023-1	2-552000-1	—	—	—	552568-1
2-552023-4	2-552000-4	—	—	—	552568-1
3-552023-1	2-552000-1	—	229969-1	—	552568-1
3-552023-4	2-552000-4	—	229969-1	—	552568-1
2-552037-1	2-552000-1	—	—	552027-1	552568-1
2-552037-4	2-552000-4	—	—	552027-4	552568-1
3-552037-1	2-552000-1	—	229969-1	552027-1	552568-1
3-552037-4	2-552000-4	—	229969-1	552027-4	552568-1
2-552024-1	2-552001-1	—	—	—	552568-1
2-552024-4	2-552001-4	—	—	—	552568-1
3-552024-1	2-552001-1	—	229969-1	—	552568-1
3-552024-4	2-552001-4	—	229969-1	—	552568-1
2-552386-1	2-552324-1	—	—	—	552567-1
2-552025-1	2-552000-1	—	—	—	552567-1
2-552025-4	2-552000-4	—	—	—	552567-1
3-552025-1	2-552000-1	—	229969-1	—	552567-1
3-552025-4	2-552000-4	—	229969-1	—	552567-1
2-552026-1	2-552001-1	—	—	—	552567-1
2-552026-4	2-552001-4	—	—	—	552567-1
3-552026-1	2-552001-1	—	229969-1	—	552567-1
3-552026-4	2-552001-4	—	229969-1	—	552567-1
552363-1	552173-1	552008-1	—	—	—
552015-1	229940-1	552008-1	—	—	—
552015-4	229940-4	552008-4	—	—	—
1-552015-1	229940-1	552008-1	229968-1	—	—
1-552015-4	229940-4	552008-4	229968-1	—	—
552016-1	229940-1	552003-1	—	—	—
552016-4	229940-4	552003-4	—	—	—
1-552016-1	229940-1	552003-1	229968-1	—	—
1-552016-4	229940-4	552003-4	229968-1	—	—
552017-1	229974-1	552008-1	—	—	—
552017-4	229974-4	552008-4	—	—	—
1-552017-1	229974-1	552008-1	229968-1	—	—
1-552017-4	229974-4	552008-4	229968-1	—	—
552018-1	229974-1	552003-1	—	—	—
552018-4	229974-4	552003-4	—	—	—
1-552018-1	229974-1	552003-1	229968-1	—	—
1-552018-4	229974-4	552003-4	229968-1	—	—

Free Standing Terminals for Printed Circuit Board Assemblies



**Terminal Insertion Machine
for Automatic Application**
Part No. 229821-1 (4 Wire Terminal)
229821-2 (Single Wire Terminal)

Pistol-Grip Wiring Insertion Tool

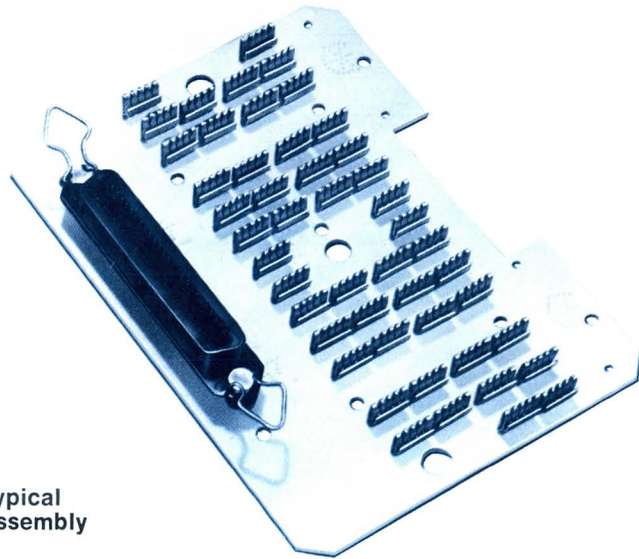
Part No. 229373-1 (Solid Wire)
Part No. 229373-3 (Stranded Wire)



Part No. 229373-4
Accommodates Solid or Stranded Wire
.060 Max. Insulation Dia.

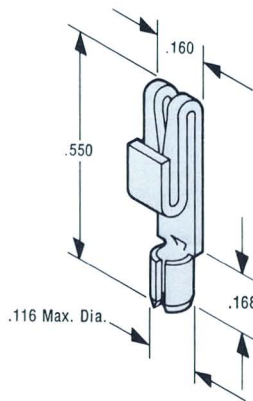


Field Service Insertion Tool
Part No. 230387-1

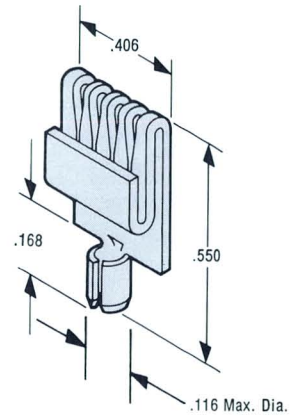


Typical
Assembly

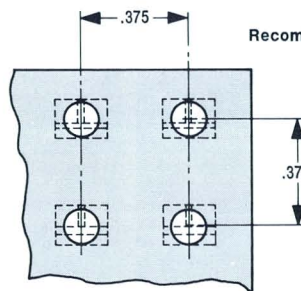
Terminals



Single Wire Terminal
Strip Form Part No. 552411-1
Loose Piece Part No. 552411-2
Wire Size—26-22 AWG Solid (O.D.—.050")
Material: Brass-Tin Plated

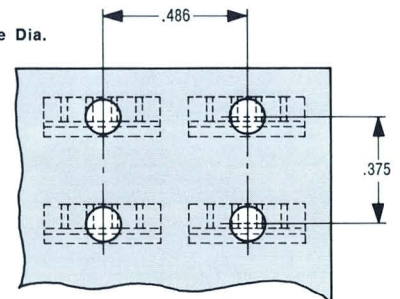


4 Wire Terminal
Strip Form Part No. 552168-1
Loose Piece Part No. 552168-2
Wire Size—26-22 AWG Solid (O.D.—.050")
Material: Brass-Tin Plated



Single Wire Terminal
Board Layout

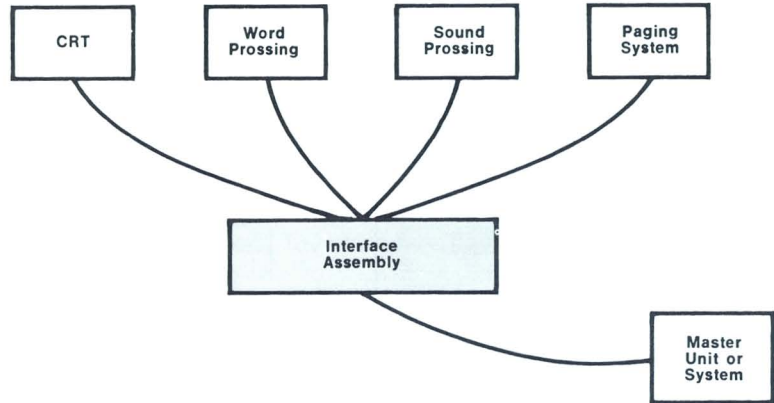
Recommended Hole Dia.
.111-.113



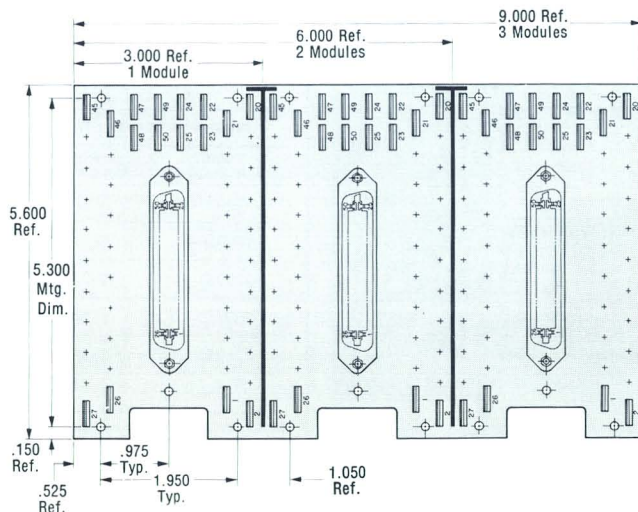
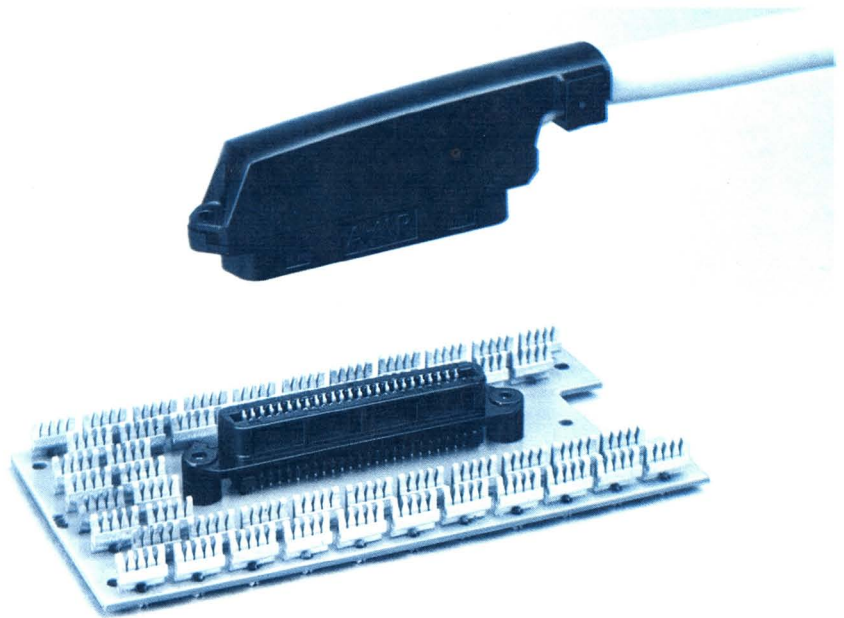
4 Wire Terminal
Board Layout

NOTE: Other terminal sizes can be made available. Consult AMP Incorporated.
Closer spacing may be attained depending on application.

The CHAMP Interface Assembly is designed to allow individual wires to be collected and mated with a long run conductor cable through the CHAMP Connector. Individual wires are terminated, cut and laced simultaneously. The assembly is modular and can be obtained in a one connector, two connector, or three connector configuration. Many peripheral units, as suggested in the diagram on the right, may be tied in through one interface board and then transmitted long distances to a central master unit from several feet up to miles away. The interface assembly can be mounted vertically or horizontally as required. Each module contains 50 free standing 4-wire terminals and one 50 position, female CHAMP connector. Each position in the 50 position, female CHAMP connector is interconnected through the PC board to one of the free standing 4-wire terminals. Circuit identification is provided for both the free standing terminals and the 50 position connector. See pages 6 and 7 for mating male CHAMP Connector.



TYPICAL APPLICATION



Modules help solve many panel wiring problems because they are easy to use, yield lower applied-termination costs, and have a modular-design assembly that reduces wasted termination space in panel wiring.

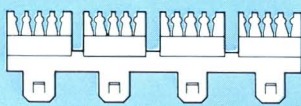
Connecting Modules and Base are molded of high-impact, self-extinguishing thermoplastic. Each module has a 20-terminal array with four slots per terminal. Thus, up to 20 four-common terminals per module are available for wiring application. With other configurations it's often necessary to purchase more capacity than required, while the connecting-modules you only purchase what you need for each job. More modules can be added if expansion is desired. This flexibility promotes cost and space savings for the user by reducing unused space and terminals.

In addition to base mounting, Connecting Modules are also mountable directly onto walls or panels using conventional screws.

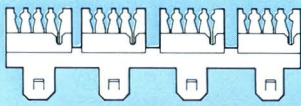
(4-Slot Terminal Illustrated)



(Wire Retainer Terminals Illustrated)



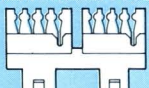
4 Common Without Feed Thru



4 Common With Feed Thru



2 Common Without Feed Thru

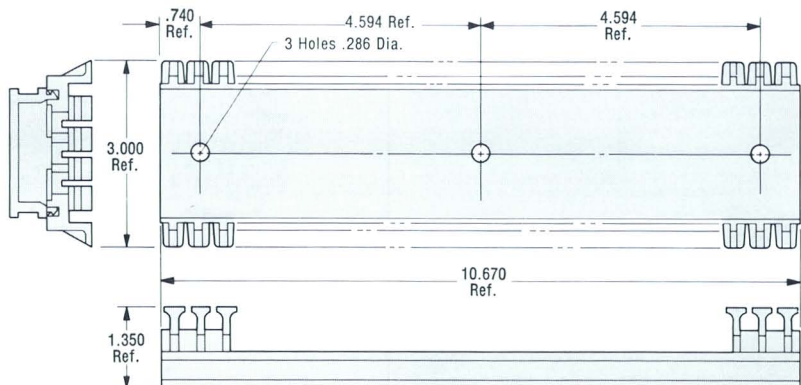
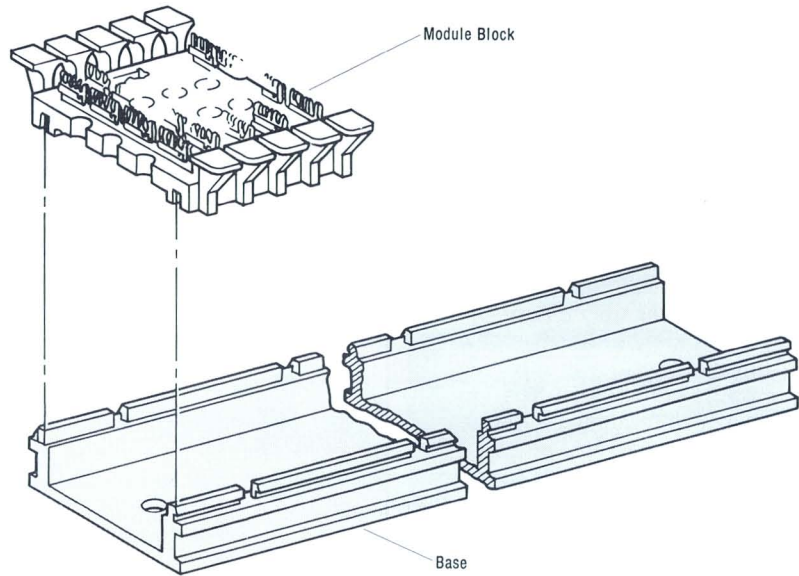


2 Common With Feed Thru



Single Terminal Without Feed Thru

Single Terminal With Feed Thru



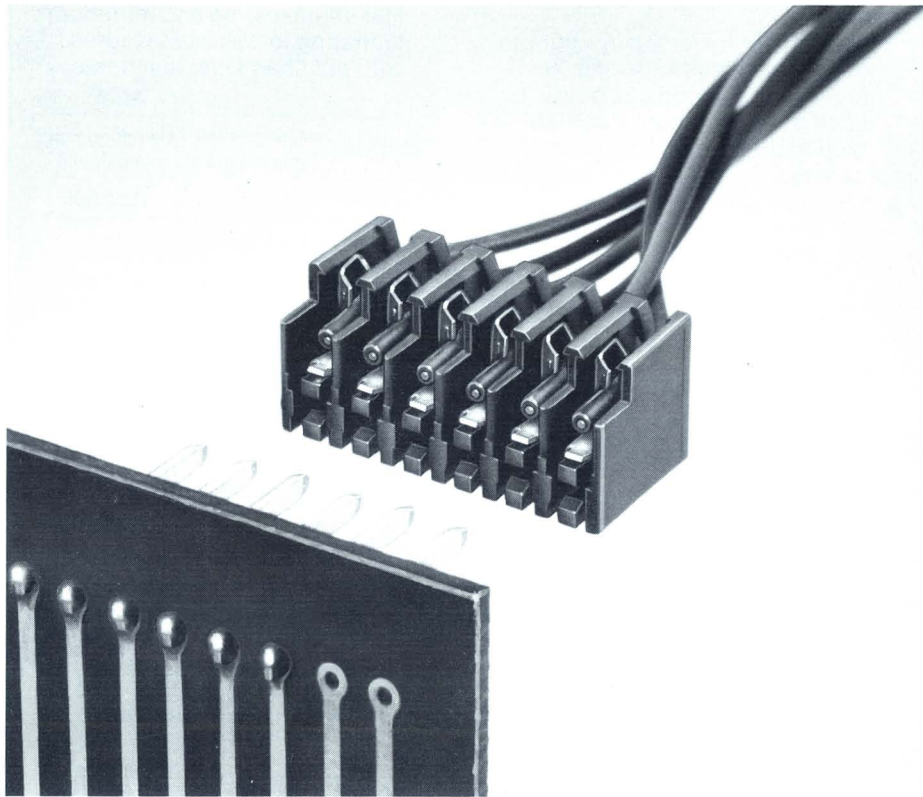
Modular Block Assembly Part Nos.

Wire Size 26-22—4-Slot Terminal	Wire Size 24-20 3-Slot Terminal	Type Terminals	Terminals Per Module	Modules Per Assy.	
With Wire Retainer	Without Wire Retainer				
229955-1	552293-1	552499-4	Single Terminal W/Feed-Thru	20	5
229955-2	552293-2	552499-5	Two-Common Terminal W/Feed Thru	10	5
229955-3	552293-3	552499-6	Four-Common Terminal W/Feed-Thru	5	5
229955-4	552293-4	552499-1	Single Terminal W/O Feed-Thru	20	5
229955-5	552293-5	552499-2	Two-Common Terminal W/O Feed-Thru	10	5
229955-6	552293-6	552499-3	Four-Common Terminal W/O Feed-Thru	5	5

Note: Base must be ordered separately. 10 inch base Part No. 229952-1 for 5 modules, 6 foot base Part No. 229988-1 for 35 modules.

Tooling: Refer to Page 16 for Pistol Grip Hand Tool.

Special Application Connectors



Unique in its design, versatile in its application, the Lace-n-lok wire to post connector embodies the most sought after features of today's advanced connector technology. Connectors are pre-loaded with dual beam contacts which are designed for the insulation displacement termination technique. This technique eliminates the need for pre-stripping the conductors. Insulated wire is simply positioned into the uppermost portion of the terminating slot. The application tooling pushes the wire deeper into position, the "funnel-shaped" area of the slot displaces the insulation and constricts the conductor. Additional downward movement of the tool forces the conductor into the confines of the narrow parallel portion of the slot where positive electrical contact is made.

These connectors are presently available in 2 through 18 position configurations with contacts on .156" centerlines. They mate with

.045², .045 round or .031 x .062 posts. Keying plugs with posts key connectors to the printed circuit boards while plugs without posts simply fill a connector cavity. These connectors are designed to accept 24 AWG solid and fused stranded or 22 AWG solid, fused stranded and stranded wire with an insulation diameter not in excess of 0.085". Housings are constructed from flame retardant thermoplastic UL 94 V-0 material. Connectors have been designed with redundant dual beam contacts to provide excellent mechanical stability and electrical continuity even during shock and vibration.

Insulation displacement type application tooling is designed to provide fast economical mass termination. Depending on your requirements, this tooling can be made available in manual, semi-automatic and completely automatic versions. For additional information contact AMP Incorporated, Harrisburg, Pa.

AMP Lace-n-lok Wire to Post Connectors

Features

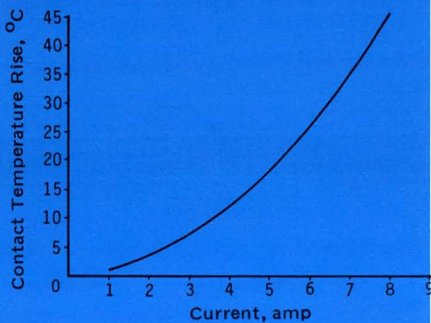
- Mates with .045², .045 round or .031 x .062 posts
- Connectors pre-loaded with tin plated brass dual beam contacts on .156" centerlines
- Available in 2 through 18 position connector configurations
- Insulation displacement wire termination technique
- Eliminates need for pre-stripped wire
- Accepts 24 AWG solid and fused stranded or 22 AWG solid, fused stranded and stranded wire
- Accepts ribbon wire (consult AMP Incorporated for specifications)
- Housings made of flame retardant thermoplastic UL 94 V-0 material
- Application tooling is available to meet your manufacturing requirements — manual, semi-automatic and automatic

All dimensions are in inches unless otherwise specified.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

Test Specifications

Contact Temperature Rise vs. Current



Connector Specifications

Wire Size:

No. 22 — Solid, Fused Stranded, Stranded

No. 24 — Solid, Fused Stranded

Materials:

Housing — Noryl 225*, 94 V-0, grey

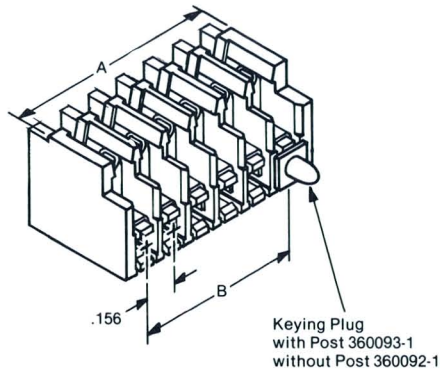
Contact — Tin plated brass

*Trademark of General Electric Co.

Tensile strength of wire in termination:
 No. 22 AWG solid and fused stranded wire — 15 lb.
 No. 22 AWG stranded wire — 10 lb.
 No. 24 AWG solid and fused stranded wire — 10 lb.

Vibration:

10-50-10 Hz traversed in 1 minute at a double amplitude of 0.06 inches for a period of 2 hours in each of three mutually perpendicular directions. No physical damage, no discontinuities greater than 10 microseconds.



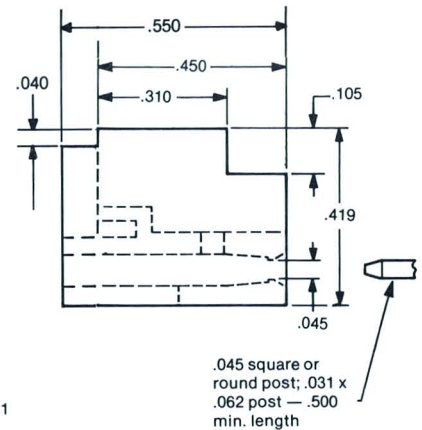
Thermal Shock:

Mated connectors subjected to 5 cycles consisting of 1/2 hour at -40°C and 1/2 hour at $+85^{\circ}\text{C}$. No physical damage.

Mating-Unmating:

Maximum mating and minimum unmating forces as measured with polished steel test posts.

Post Size	Mating Force (maximum)	Unmating Force (minimum)
.045 ²	1.6 lbs.	0.12 lbs.
.045 Dia.	1.2 lbs.	0.04 lbs.
.031 x .062	2.7 lbs.	0.12 lbs.



No. of Contacts	Dimensions		Part Number
	A	B	
2	.348	.156	360127-1
3	.504	.312	360128-1
4	.660	.468	360129-1
5	.816	.624	360130-1
6	.972	.780	360131-1
7	1.128	.936	360132-1
8	1.284	1.092	360133-1
9	1.440	1.248	360134-1
10	1.596	1.404	360135-1
11	1.752	1.560	360136-1
12	1.908	1.716	360137-1
13	2.064	1.872	360138-1
14	2.220	2.028	360139-1
15	2.376	2.184	360140-1
16	2.532	2.340	360141-1
17	2.688	2.496	360142-1
18	2.844	2.652	360143-1

Replacement Contact No. 62369-1