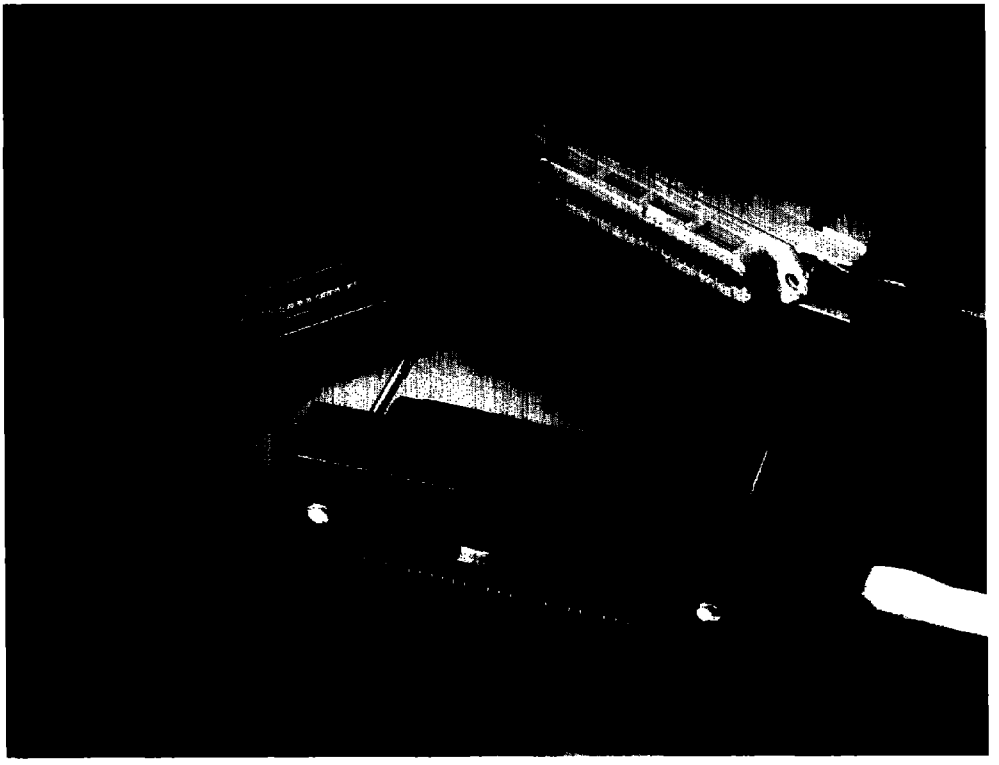
Special Application Connectors

IDC Connectors for Special Application



The CHAMP Connector Systems are widely diversified and have expanded to meet not only the demands of the telecommunications industry, but also the needs of the computer markets. The CHAMP Connector product lines include not only the Standard Connectors, but a growing network of Special and Shielded CHAMP Connectors for various special applications.

All special items are illustrated on the following pages (8083 thru 8094) to assist you in selecting the proper application for your needs.

CHAMP Connector with Crimp Cable Clamp (50 Position Only)

This connector is used for the mass production of 25 Pair Cable Assemblies. The AMP CHAMPOMATOR Machine is used to terminate this style connector. The connector is also available in an Integral Latch version.

Wear Adapter (50 Position Only)

This one-piece disposable assembly saves wear on more expensive mounted test equipment and is applicable when frequent plugging/unplugging is necessary. The Wear Adapter is prewired and can be used with all connectors of similar design.

Multiple Wire Connector (50 Position Only)

This special connector is designed to terminate two unstripped conductors into one terminal position for economical half-tapping and daisy chain (bridging) applications. The panel mount receptacles are preloaded with contacts for 24 or 26 AWG [0.51 or 0.40 mm] solid wire with a maximum insulation diameter of .034 [0.86] per wire.

CHAMP Back-to-Back Connector (50 Position Only)

The 25 pair connector allows systems to grow by adding an electrical connection into an existing cable-to-cable or cable-to-panel application.The kit includes a bonded plug/receptacle assembly, two-piece cover for outer cable diameter range of .380 to .400 [9.65 to 10.16] and two pan head screws. Instruction Sheet 408-6503 describes terminating procedures with an AMP arbor frame applicator and special assembly.

Other specials available are the CHAMP IEEE-488 Cable Assemblies and Connectors in Standard and Shielded versions. The connectors are available in panel mount and pc board styles.

Methods of panel mounting the Small Computer System Interface (SCSI) 50 Position Connectors are shown on page 8094 for reference purposes.

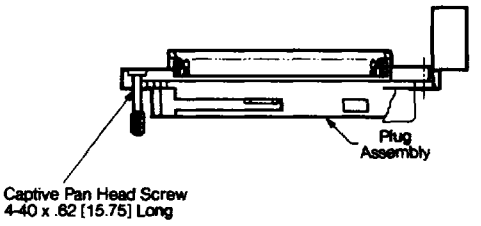
Special Application Connectors
(Continued)

IDC Connectors for Special Applications
(Continued)

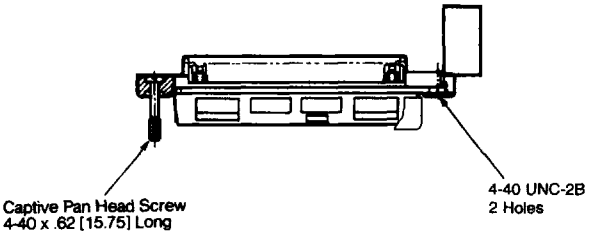
CHAMP Connector with Crimp Cable Clamp (For 50 Position Only)

Product Facts

- For factory cable assembly applications
- Provides for up to a 10% savings in time over conventional cable strain relief methods when used in mass production cable assembly operations
- May be utilized for booted cables
- Metal cable clamp may only be engaged with a special CHAMPOMATOR semi-automatic wire insertion tool
- Once cable clamp is engaged, strain relief is provided
- Maximum cable diameter .450 [11.43]
- Provided with dust covers



50 Position Plug Assembly



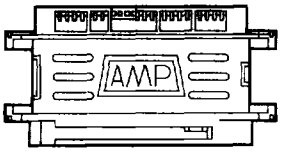
50 Position Receptacle Assembly

Note: 50 Pos. Housing Dim. (Typ.)—3.553 [90.25] L x .600 [15.24] W x 1.296 [32.92] H

Wire Size				Housing Color Dot Description	Contact Letter Code	Housing Color	Part Numbers	
Solid		7 Strand						
AWG	mm	AWG	mm²				Plug	Receptacle
24-26	0.51-0.40	24	0.20	Blue	B	Gray	553213-3	553212-3
24-26	0.51-0.40	24	0.20	Blue	B	Gray	—	554886-2[1]

[1]Integral Locking Latch.

50 Position Wear Adapter (Plug to Receptacle Assembly) Part Number 552705-1



SOURCE: Catalog 82008

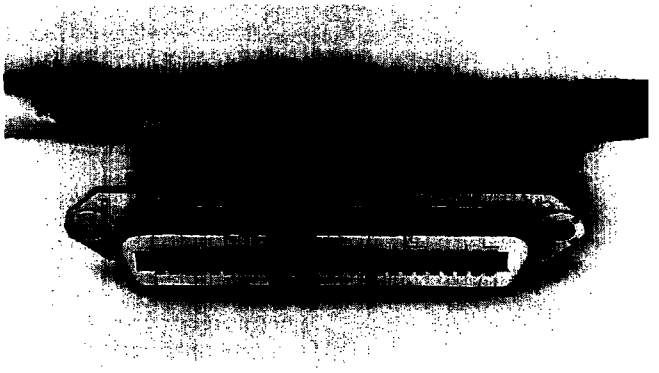
Special Application Connectors
(Continued)

Multiple Wire Connector and Back-to-Back Connector Assembly (50 Position Only)

Multiple Wire Connectors

Product Facts

- **No prestripping of wire required**
- **Positive electrical contact through redundant contact points**
- **Eliminates time-consuming soldering**
- **Standard 50 position receptacle connector configuration**
- **Terminals constructed of high strength copper alloy with gold over nickel plating in contact area**
- **Utilizes standard CHAMP Connector screw lock, bail lock and locking latch hardware**
- **Economical approach to half-tapping and daisy chain applications**



Receptacle Assembly—J Slot
Part Numbers 552827-1 (Gray) and 552827-2 (Black)
Plug Assembly—J Slot Part Number 552826-1 (Gray)

Multiple Wire Strain Relief[1]
Part Number 552851-2 (Black)

[1]Available for use with 50 position thin flange connector only.
Notes: 1. J Slot for 24 AWG [0.51 mm] solid wire only. (Pink Color Dot)
2. Max. insulation dia. .034 (0.86)

For Snap-In Panel Mount Strain Relief, see Panel Mount Connector Accessories on page 8061.

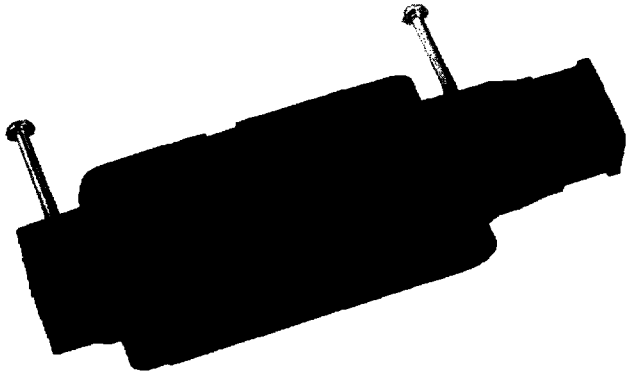
The Multiple Wire CHAMP Connector extends the unique technology of the regular CHAMP connector to provide the capability of terminating two conductors into one terminal position. Use of the Multiple Wire connector offers the labor savings of insulation displacement technology versus the conventional means of hand soldering the terminals. They are available in 50 position receptacle configurations with a molded strain relief and the necessary hardware for panel mount applications. The connector consists of a molded thermoplastic housing with receptacle contacts constructed of high strength copper alloy with gold over nickel plate.

Back-to-Back Connector Assembly

Product Facts

- **No prestripping of wire required**
- **Positive electrical contact through redundant contact points**
- **Leads can be dressed to desired configuration**
- **Terminals constructed of high strength copper alloy with gold over nickel plating**
- **Easy plug-in insertion into existing cables**

Notes:
1. Cable customer supplied.
2. Acceptable cable diameter range is .380-.400 [9.65-10.16].



Plug/Receptacle 50 Position, B-Slot Kit
Part Number 553257-1 (Cable-to-Cable Application)

Plug/Receptacle 50 Position, E-Slot Kit
Part Number 554715-1 (Cable-to-Panel Application)

The 50 Position CHAMP Back-to-Back Connector provides the ability to make an electrical connection into existing cable-to-cable and cable-to-panel applications. The male-to-female connector can be utilized as a bridging connector in central office or PBX Bussing. It also provides a readily accessible interface for test scanning, maintenance or telephone monitoring equipment.

This connector utilizes the insulation displacement technology. To terminate the connector, one half of the unstripped wires are laced through the applicator tool and mass terminated. Reversing the connector allows the mass termination of the remaining connectors.

Wire Ranges—

B-Slot—24 AWG [0.20 mm²] (7-strand) or 26 AWG [0.40 mm] (solid) and 24 AWG [0.51 mm] (solid)

E-Slot—26 AWG [0.14 mm²], 27 AWG [0.10 mm²] or 28 AWG [0.09 mm²] (7-strand)

Special Application Connectors
(Continued)

Gender Menders

50 Position with J-Hook Hardware

Product Facts

- Kit is preassembled
- Like-numbered contacts on both connectors are electrically common
- Allows connections between plug and plug or receptacle and receptacle interfaces
- Terminals constructed of high strength copper alloy with selectively plated gold over nickel plating in contact area
- Hardware is zinc plated steel
- Housing and covers are polyphenylene black

Receptacle Assembly

Plug Assembly

Style	Part Numbers	
	With J-Hook Hardware	Without J-Hook Hardware
Receptacle	554875-1	554875-2
Plug	554876-1	554876-2

Filtered Plug/Receptacle Adapters

Part Numbers	Capacitance
93552-2	470 pF/200 Vdc
93552-3	100 pF/200 Vdc
93552-4	820 pF/200 Vdc

Note: For additional filtered connector information refer to Catalog 65696.

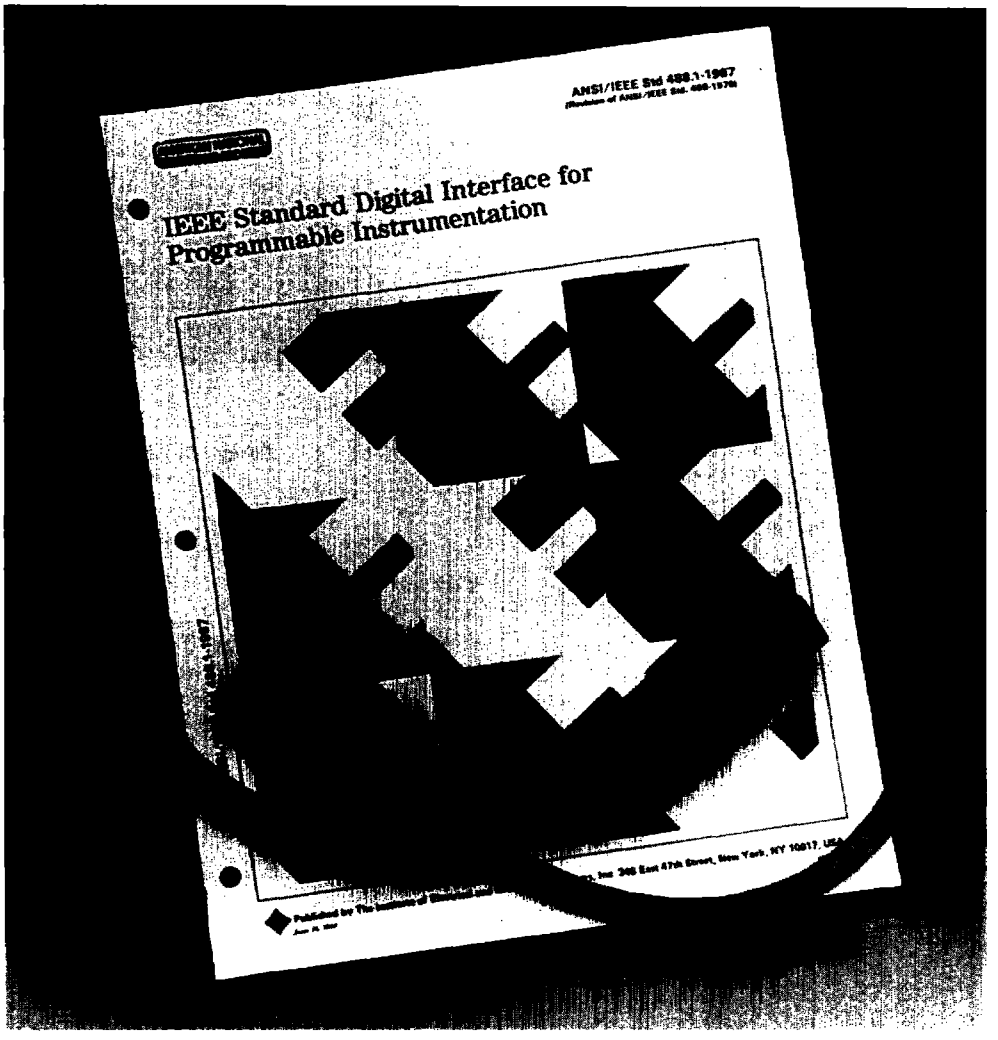
SOURCE: Catalog 82008

Special Application Connectors
(Continued)

Connectors for Interface Bus Applications per IEEE Std 488

Product Facts

- ***Preassembled and pretested* CHAMP Interface Bus Cable Assemblies ready to use**
- **Interface Bus Connector Kits and associated applicator tooling**
- **Interfaces with CHAMP Panel Mount IDC Receptacle *Connectors***
- **Interfaces with CHAMP Edge Mount, Vertical Mount and Right-Angle Printed Circuit Board Receptacle Connectors**
- **Metric hardware available to meet your specific assembly needs**
- **Insulation displacement technique eliminates costly wire preparation**
- **Terminates unstripped solid or stranded wire multiconductor cables and certain types of laminated cable with maximum reliability**



The CHAMP Interface Bus Cable Assembly is designed for the instrumentation industry and conforms to the applicable standard IEEE-488. The assembly includes two preassembled "back-to-back" 24 position CHAMP connectors in a plug-to-receptacle configuration.

AMP offers the advantage of either ordering these cable assemblies complete and pretested or in kit form for assembly by the customer.

In addition to cable assemblies, and kits, a comprehensive line of compatible 24 position receptacles and associated metric hardware is available for the instrumentation side.

CHAMP Cable-to-Panel IDC Connectors eliminate costly wire preparation by terminating unstripped solid or stranded wire, multiconductor cable and certain types of laminated cable. Positive electrical interconnection is enhanced as a result of redundant contact points. A wide variety of application tooling is available to suit production needs. Cable-to-Printed Circuit Board connectors are available in three styles. Each can be mounted directly to the board, thereby eliminating the need for additional hand wiring. Metric hardware, readily identified by their black finish, is available for all versions to comply with IEEE-488.

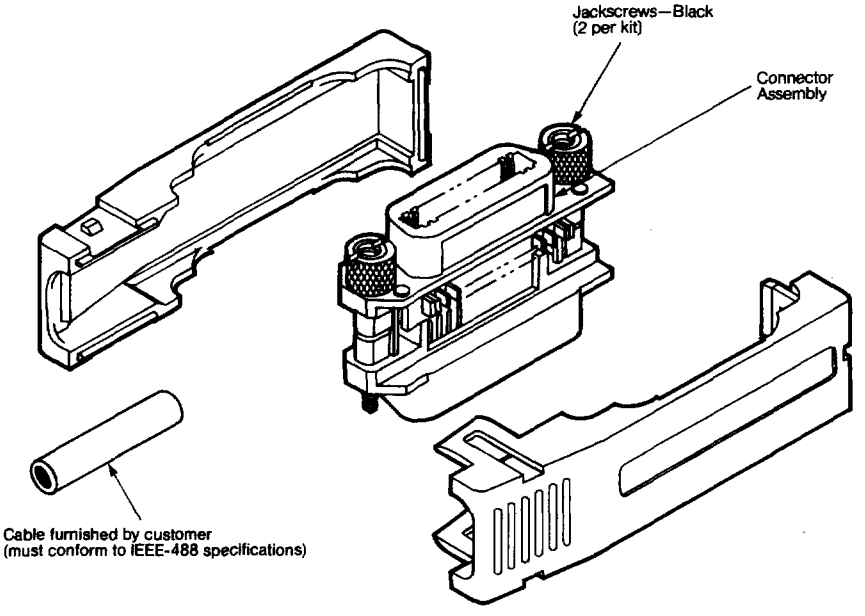
For additional information, contact AMP.

Special Application Connectors
(Continued)

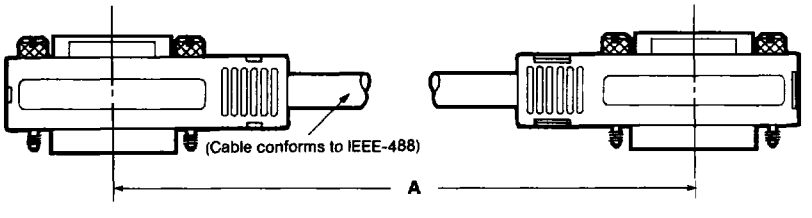
Connectors for Interface Bus Applications per IEEE Std 488
(Continued)

CHAMP 24 Position Interface Bus Connector
Part No. 554815-1

Snap-on Covers
Part No. 554831-1



CHAMP 24 Position Interface Bus Cable Assemblies



Dimension A		Part Number
ft.	m	
3	.914	552700-1

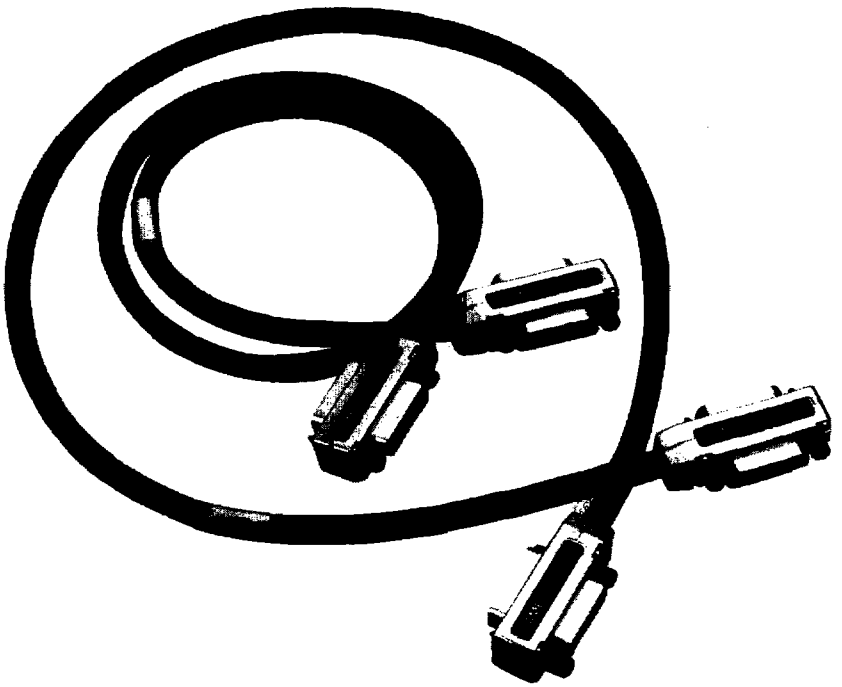
Note: Cable assemblies are available in special lengths.
For further information, contact AMP.

Special Application Connectors
(Continued)

Shielded Cable Assemblies per IEEE Std 488

Product Facts

- **Conforms to IEEE-488 specifications**
- **Optimum shielding effectiveness**
- **Extremely reliable strain relief design**
- **Dual braid/dual foil cable**
- **Fully intermateable and compatible with all other IEEE-488 interfaces**
- **Cable assemblies available in double-ended version in a variety of popular lengths**
- **Connector kits and applicator tooling also available for assembly fabrication**
- **Consists of two rack-and-panel type connectors designed to comply with IEEE-488 specifications**
- **Design includes a two-piece, die-cast metal RF shield enclosing the 24-position back-to-back CHAMP connectors**
- **Includes integral ground bus, where required and a shield termination and strain relief**



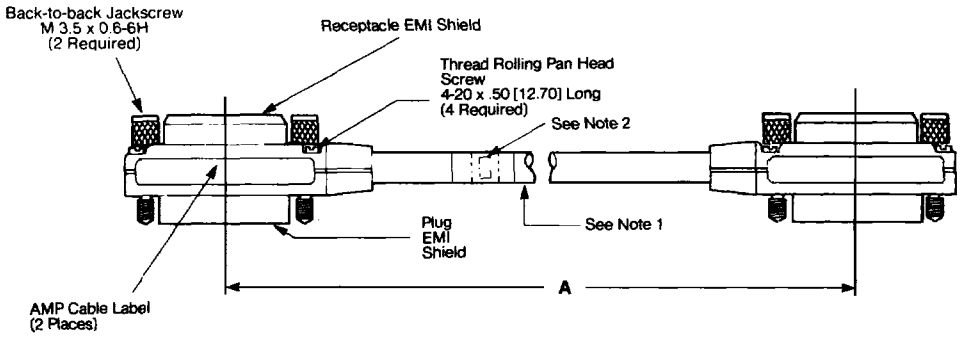
AMP Shielded CHAMP IEEE-488 Cable Assemblies consist of two rack-and-panel type connectors that are designed to comply with IEEE-488 specifications. The design includes a two-piece, die-cast metal RF shield enclosing the precommoned 24-position back-to-back CHAMP connectors, an integral ground bus, where required, a shield termination and strain relief plus twenty-four (24) 26 AWG [0.12-0.15 mm²] stranded conductors and two (2) 24 AWG [0.2 mm²] stranded shield drain wires. Preassembled and pretested double-ended cable assemblies are available ready to use.

For high volume users or cable assembly fabricators, connector kits with everything necessary (except the cable) to produce Shielded IEEE-488 cable assemblies are available. The basic AMP-O-LECTRIC Model "K" Terminating Machine and appropriate die set applies the ferrule to the prepped cable prior to connector termination. Upon termination, a special CHAMPOMATOR applicator module and control module is employed to terminate the cable to the preassembled, precommoned back-to-back connector inserts. This type of equipment is conducive to high volume applications.

Special Application Connectors
(Continued)

Shielded Cable Assemblies and Back-to-Back Connector Kits per IEEE Std 488

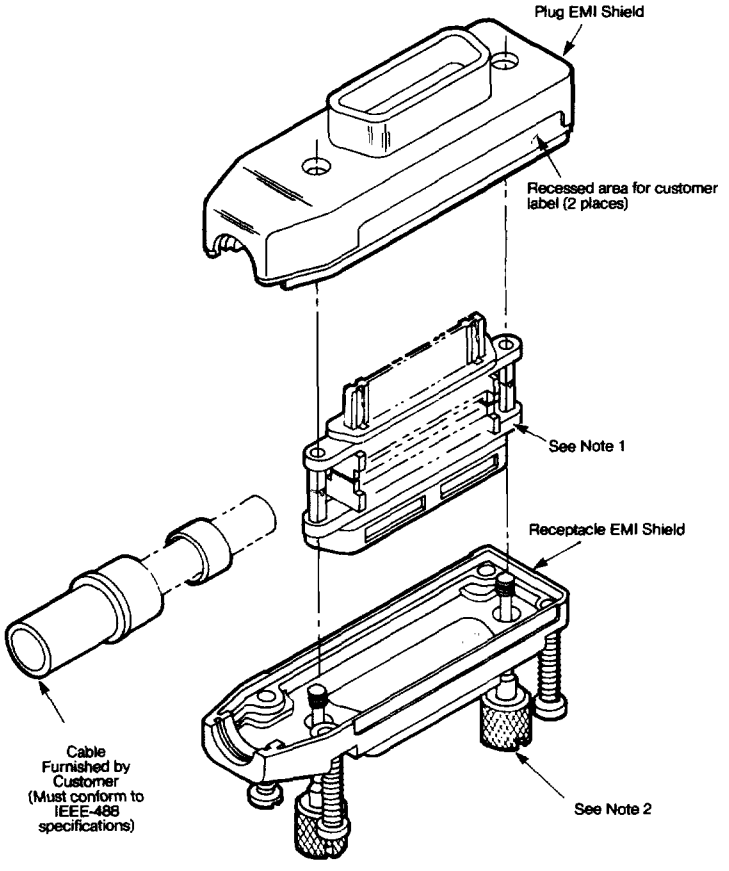
24 Position Shielded CHAMP IEEE-488 Cable Assemblies



Notes:
1. Cable (24) conductors 26 AWG [0.12-0.15 mm²], (2) 24 AWG [0.20 mm²] drain wires with double foil and braided shields.
2. Manufacturer's data code.
3. Cable assemblies are available in special lengths. For further information contact AMP.

Dimension A		Part Numbers
in.	m	
19.68	0.5	553577-1
39.37	1	553577-2
78.74	2	553577-3
118.11	3	553577-4
157.48	4	553577-5
236.22	6	553577-6
314.96	8	553577-7

Shielded CHAMP 24 Position Back-to-Back Connector Kit Part No. 553576-1



Notes:
1. Like-numbered contacts on both connectors are electrically common (1-1, 2-2, etc.).
2. Jackscrew shall be assembled from receptacle side of shield, as shown.
3. Jackscrews and EMI Shield to be assembled after cable is terminated to back-to-back assembly.

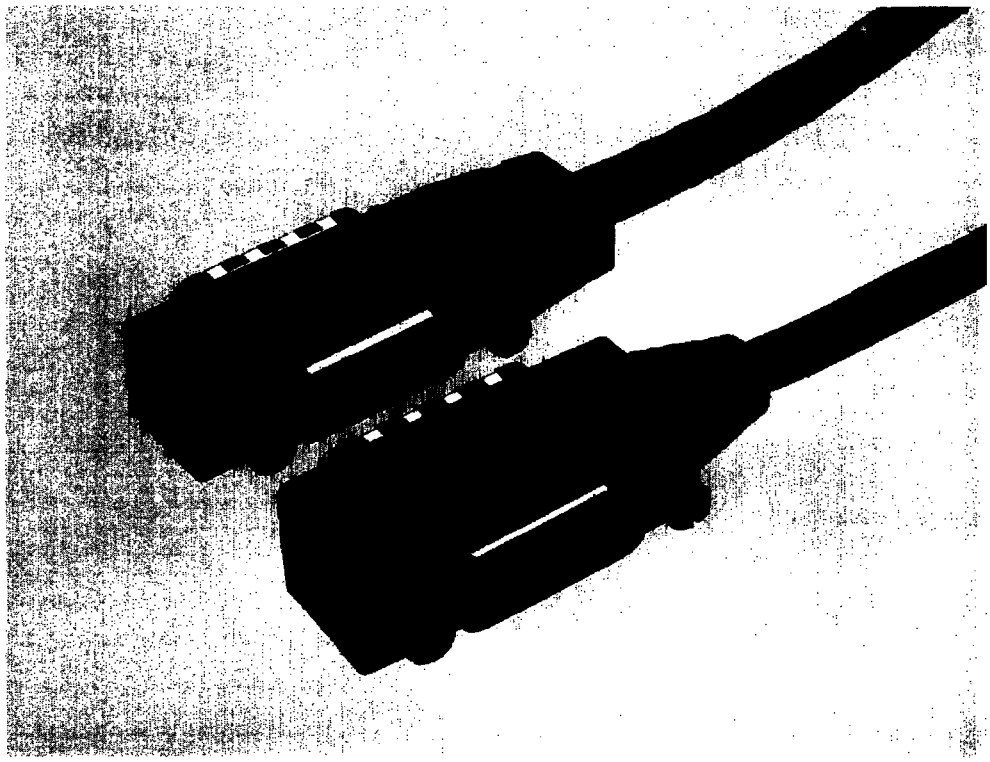
SOURCE: Catalog 82008

Special Application Connectors
(Continued)

Shielded Back-to-Back Cable Connectors

Product Facts

- **Conforms to IEEE-488 specifications**
- **Superior shielding effectiveness**
- **Fully intermateable and compatible with all other IEEE-488 interfaces**
- **Conducive to post molding techniques**
- **Available in back-to-back configuration**
- **Design includes a two-piece, precision stamped metal shell that encloses the 24 position back-to-back connector**
- **Connector design allows shields to accept a cable range of .300 to .450 [7.62 to 11.43] diameter**
- **Acceptable wire sizes of 26, 27 and 28 AWG [0.12, 0.10 and 0.09 mm²] 7 strand**



The Shielded CHAMP Connector

Back-to-Back Cable Connector Kit is currently available in a true 24 position IEEE-488 configuration.

The IEEE-488 Kit consists of a 24 position back-to-back connector assembly, a plug shield, a receptacle shield and two jackscrews. By ordering different dash numbers of the ferrule, you may obtain the appropriate diameter inner ferrule to accommodate the particular size cable to be terminated.

A two-piece, snap-on strain relief cover kit is also available for those who do not wish to post mold the terminated assembly.

Wire termination of the back-to-back (plug-to-receptacle) connector assembly is facilitated by the unique, one-piece insulation displacement contact design. Applicator tooling is specifically designed to mass terminate unstripped wires into their respective slotted beams. Each wire is cut to length simultaneously as termination occurs, and 24 wires are terminated at the same time.

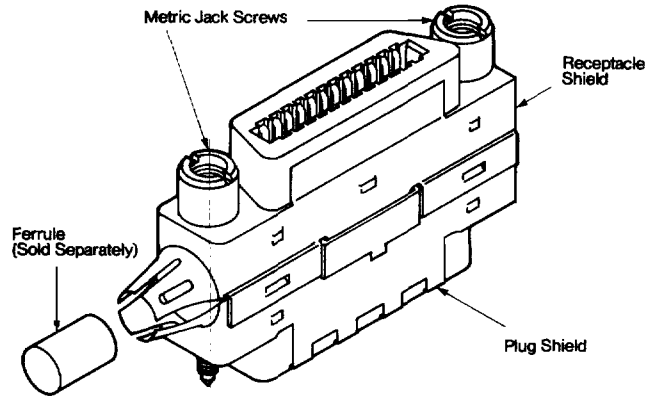
The two precision-stamped shields are then assembled over the terminated connector assembly. The spring fingers of these shield halves captivate and reliably maintain contact with the braid of the cable, previously positioned over the *inner ferrule prior to connector* assembly termination.

The spring fingers allow the shields to accept a cable range of .300 to .450 [7.62 to 11.43] in diameter, and due to their stored energy design, provide continuity of shield to braid regardless of temperature, shock, vibration and other external influence. Installation of the black, plated metric jackscrews in accordance with IEEE-488 specifications finalize the assembly.

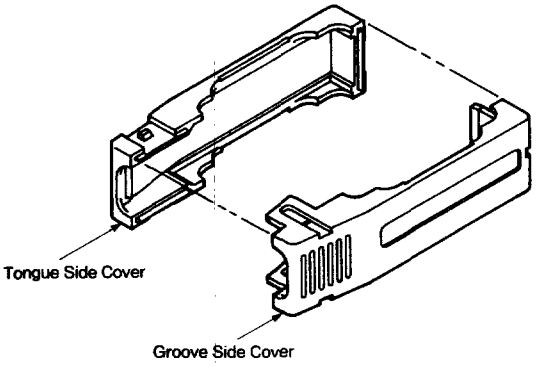
Special Application Connectors
(Continued)

Shielded Back-to-Back Cable Connectors
(Continued)

24-Position Back-to-Back Kit



24-Position Back-to-Back Cover Kit



Cable Connectors

Connector Styles	Cable Diameter Range	Post Moldable	Kit Part Number	Snap-on Cover Part Number
Back-to-Back	.300-.375 7.62-9.53	Yes	555182-1	554831-1

Inner Ferrules

Inside Diameter	Part Numbers
.300 7.62	554725-2
.350 8.89	554725-3
.400 10.16	554725-4

SOURCE: Catalog 82008

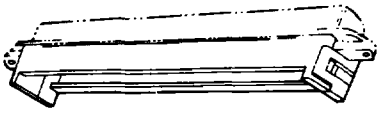
Special Application Connectors
(Continued)

Interface Bus IDC Connector Panel Mount Applications

Panel Mount Receptacle, 24 Position

Wire Size				Housing Color Dot Description	Contact Letter Code	Part Numbers (thin flange)
Solid		7-Strand				
AWG	mm	AWG	mm²			
22	0.64	22	0.40	Green	C	2-552322-1
24-26	0.51-0.40	24	0.20	Blue	B	2-552273-1
—	—	26-27-28	0.14-0.10-0.09	Yellow	E	2-552474-1

Snap-On Strain Relief, 24 Position (2 parts required per each assembly)



Low Profile
Part No. 1-552298-1

Panel Mount Metric Screw Lock Hardware Kits (one kit required per each assembly)

For Front Panel Mount
Part No. 552633-3

For Rear Panel Mount
Part No. 552633-4

Special Application Connectors
(Continued)

Interface Bus Pc Board Connector Applications

Edge Mount Style RE, 24 Position Receptacle Part No. 552230-1
(See Page 8074)

Vertical Mount Style RV, 24 Position Receptacle Part No. 552224-1
(See Page 8074)

Right-Angle Mount, 24 Position Receptacles

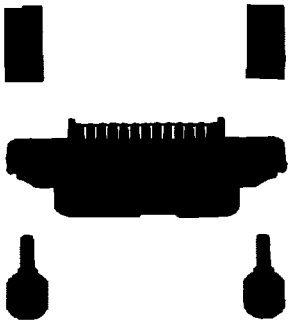
Part No. 552791-1 (Standard Orientation,
See Page 8072)

Part No. 552791-2 (Reverse Orientation,
See Page 8072)

Edge Mount Screw Lock Hardware Kits (one kit required per assembly)

Metric Standoff Stud
Part No. 552634-3

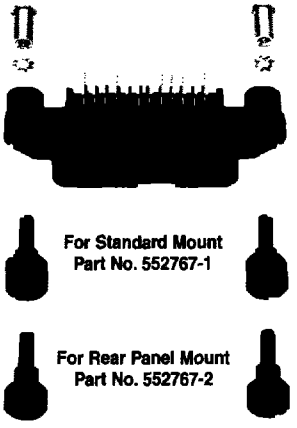
Metric Standoff Stud for Rear Panel Mount
Part No. 552634-4



For Standard Mount
Part No. 552674-1

Vertical Mount Screw Lock Hardware Kits (one kit required per assembly)

Order all hardware separately



Right-Angle Mount Hardware Kit

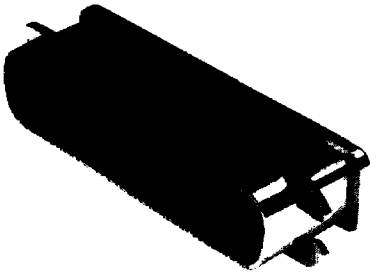
Only fastening hardware supplied, other items shown for reference purposes

Special Application Connectors
(Continued)

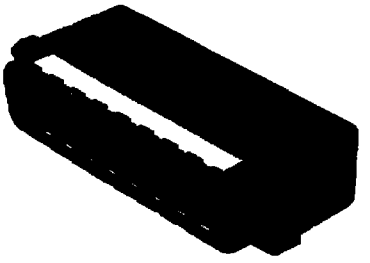
CHAMP SCSI Terminator Connectors

Product Facts

- **Dead-end configuration for terminating an open port**
- **Compatible with SCSI Specification ANSI X3.131-1986**
- **Single-ended and differential versions**
- **Laser-trimmed screened resistor network for close resistance tolerances of ±5%**
- **Soldered connection points for reliability**
- ***Bail lock plug connector for* SCSI mating compatibility**



Die-Cast Connector



Post Molded Connector

CHAMP SCSI Terminator connectors provide a dead-end impedance-matching termination of the Small Computer System Interface (SCSI). The connectors conform to all applicable requirements of ANSI X3.131-1986. Versions are available for either single-ended or *differential transmission modes.*

These 50-position plug connectors use an integral screened thick-film resistor network on an alumina substrate. The network is laser trimmed to provide a tight tolerance of ±5% on resistance values. The result is excellent stability over the entire SCSI operating range.

The rugged die-cast zinc body or post molded assembly combines durability, shielding effectiveness and handy gripping surfaces for easy use. The nickel plating provides an attractive tarnish-resistant finish. The connectors use a tough, thermoplastic insert and gold over nickel plated phosphor bronze contacts.

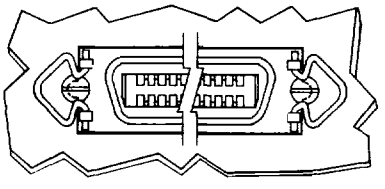
The connector's slots are compatible with SCSI-specified bail lock hardware.

Configuration	Part No.
Die Cast Single-Ended	868875-1
Die Cast Differential	868875-2
Post Molded Single-Ended	556578-1
Post Molded Differential	555867-1

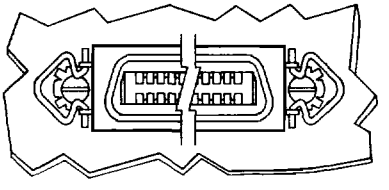
Note: Order customer drawing for Single-Ended and Differential Schematics.

Connector Panel Cutouts for SCSI Applications

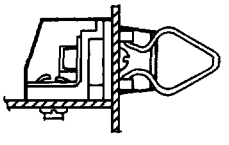
Methods of panel mounting the Small Computer System Interface (SCSI) 50 Position Connectors.



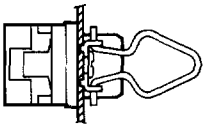
Connector Position from Front of Panel



Connector Position from Front of Panel



SCSI Mounted Preassembled Screw Lock Connector



SCSI Mounted Preassembled Bail Lock Connector

Loose Piece Shielded Connectors (Rear Mount of Bails)[1]

Connector Type	Applicable Base Part Number
CHAMP Latch	554350[2]

Preassembled Shielded Bail Lock Connectors[1]

CHAMP Latch	554902
Vertical Mount	554216
Right-Angle	554901 555057

Loose Piece Shielded Connectors (Front Mount of Bails)

Connector Type	Applicable Base Part Number
CHAMP Latch	554350[2]

Preassembled Shielded Screw Lock Connectors (Front Mount of Bail Clips by Use of Hardware Kit No. 554818-2)

CHAMP Latch	554436
Right-Angle	553813
Vertical Mount	554217

[1]Panel thickness: .062 [1.57] max.
[2]For SCSI mount of bails, two 4-40 screws .750 [19.05] long and two 4-40 hex nuts are required.

Miscellaneous Mounting Hardware

Standoff Mounting Screw Part No. 552657-1

Standoff Mounting Studs

Screw Size	Part Number
4-40	229995-1
	229995-2
	552113-1
M 3.5 x .6	552634-3
	552634-4
	552634-7
	552634-9

Note: Thread Size 4-40

Standoff Mounting Stud Part No. 554043-1 (Screw Size M 3.5 x .6, Thread Size 6-32)

Metric Jackscrew per IEEE-488 Part No. 553489-1 (Screw Size M 3.5 x .6)

Standoff Shoulder Screw

Part Number
552102-7
552102-2
552102-1

Captive Pan Head Screw

Part Number
229911-1
229911-2
229911-3
229996-2
229996-3

4-40 Hex Nut Part No. 21068-4

No. 4 Spring Lock Washer Part No. 21074-2

Mounting Bracket Part No. 552656-1

J-Hook Latch for Panel Mount Receptacle to 90° Cable Exit Plug Part No. 552655-1

SOURCE: Catalog 82008