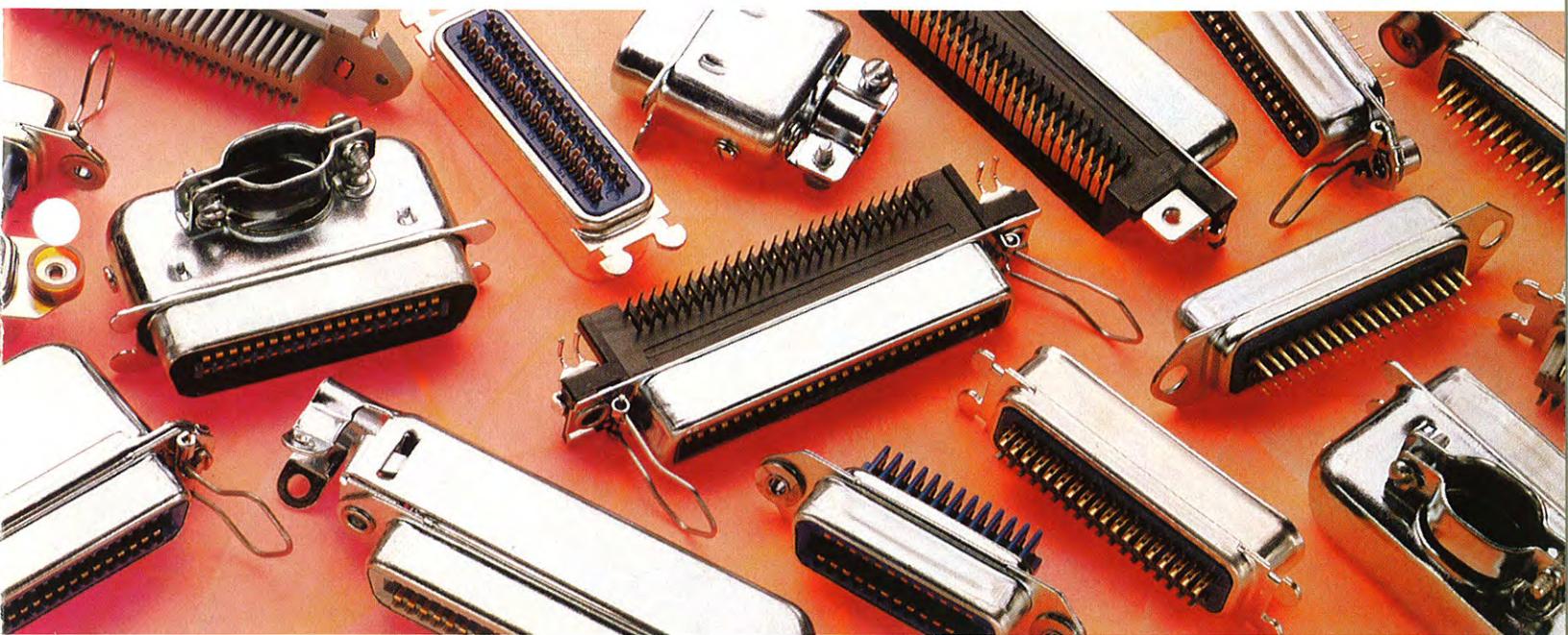


# Amphenol®

57, 157, 57LE  
series



**Amphenol miniature-ribbon connectors**

# introduction

Amphenol 57, 157, 57LE miniature-ribbon connectors — a family of connectors proven to meet the demands of today's multi-wire cable termination applications.

57, 157, 57LE miniature-ribbon connectors are ideally suited for use in modems, multi-plexers, computers and peripherals, medical equipment, PBX devices and scientific instrumentation. These connectors are used extensively in the connection of conventional telephone equipment. And they contribute to the reliable, cost-effective termination of cash registers, vending machines and similar equipment.

## interchangeable/intermateable

Mating surfaces of both solder-type 57 series and solderless 157 series connectors are compatible. This provides an intermate/intermount capability allowing you to interconnect new equipment without disturbing or rewiring existing connectors.

## engineered performance

57, 157, 57LE series connectors feature gold plating selectively applied to significant areas. Contacts are designed to mate easily and firmly — virtually eliminating the possibility of bent pins or misalignment. The two wide, flat surfaces making electrical contact are compressed tightly by the flexing action of both members. Contacts are self-cleaning, self-wiping — contact surfaces are kept clear of corrosion and foreign matter, the result being highly reliable electrical continuity and low contact resistance.

## low cost and efficient

With their long life and reliability, Amphenol 57, 157, 57LE miniature-ribbon connectors actually cost less than most other types. Low cost, efficient 57, 157, 57LE series connectors are easily terminated — either in the field, or in-plant. And special accessories available from Amphenol can help bring installed cost even lower. A large variety of connector sizes, configurations and optional features are available to suit the most exacting requirements.

The following pages detail our standard 57, 157, 57LE miniature-ribbon connectors, compatible accessories and termination tooling.

## table of contents

<b>introduction</b> .....	1
<b>Micro-Ribbon® connectors — 57 series</b>	
general configuration .....	2
rack-and-panel type .....	3
cable-to-panel type .....	4 - 5
cable-to-cable type .....	6
printed circuit type .....	7 - 12
<b>Micro-Pierce® connectors — 157 series</b>	
general configuration and description .....	13
rack-and-panel type .....	14
cable-to-panel type .....	14 - 15
cable-to-cable type .....	16 - 17
all-plastic type .....	18 - 19
<b>connectors for small computer system interface (SCSI) applications — 57 and 157 series</b>	
description and applications .....	20
board mount type .....	21
solder type .....	21 - 22
overmold type .....	22 - 24
overmold hood kit .....	24
<b>57LE series connectors</b>	
general configuration and description .....	25
57LE right angle, metal front shell .....	25 - 26
<b>termination tooling</b> .....	27 - 28
<b>connector hardware and accessories</b> .....	29
<b>part number / page number index</b> .....	30 - 31

# general configuration — 57 series solder termination

## description

Micro-Ribbon connectors offer a fast, economical and distinctively different method of achieving electrical interconnection.

The heart of the connector is the ribbon contact, selectively plated gold over nickel on a copper alloy base.

With contacts designed to mate easily and positively, the 57 series Micro-Ribbon connector delivers electrically and mechanically sound interconnections time after time.

Exceptionally versatile, 57 series Micro-Ribbon connectors are available in rack and panel, cable to panel, cable to cable and printed circuit types.

## general specifications

Current Capacity .....	5 amps per contact
Voltage Rating .....	700 volts D.C. at sea level 200 volts D.C. at 70,000 ft.
Operating Temperature .....	-55°C to +105°C -67°F to +221°F
Wire Sizes .....	Solid: 22-gauge maximum Stranded: 24-gauge maximum
Contacts .....	Selectively plated 20 microinches gold over 50 microinches nickel on a copper alloy base
Dielectric .....	Diallyl phthalate per MIL-M-14G Type MDG
Shells .....	Zinc-plated steel with clear chromate coating; trapezoidal shape for polarization.

## features

- Copper alloy contacts, selectively plated gold-over-nickel for excellent current-carrying characteristics.
- UL 94 VO rated diallyl phthalate dielectric per MIL-M-14G Type MDG, for operation at up to 700 volts D.C. (sea level) without shorting or flashover. Resists cracking or chipping and has low moisture absorption.
- Float bushings on receptacles allow .020" radial float, for easy mating.
- Zinc-plated steel outer shell, with clear chromate finish, for corrosion resistance.
- Wide, flat mating surfaces, pressed tightly together by flexing action of both contacts, for electrical continuity.
- Positive mating action that wipes contacts clean, removing film or foreign matter, for low contact resistance.
- Solder cup type contact tails (for easy wire attachment) and pin style tails (for printed circuit board attachment) both are available. A high barrier between contact rows also is available.
- A trapezoidal-shape shell that assures correct polarity.

## connector deviations (1,000 piece m.o.q)

Deviation Number	Deviation Description for 57/157 Series Connectors
(398)	Connector shells and steel hardware nickel plated
(424)	Contacts fully plated, 30 microinches gold select over 50 microinches nickel.
(438) :	Gold flashed contacts on mating area, 50 microinches min. nickel underplate.
(441)	Tin plated shells
(448)	Contacts selectively plated, 30 microinches min. gold on mating area, 50 microinches min. nickel underplate
(450)	Contacts selectively plated, 50 microinches min. gold on mating area, 50 microinches min. nickel underplate

NOTE: Not all part numbers are available in all deviations. To verify availability contact the factory directly, or your local manufacturer's representative or distributor. Check with factory for other deviations not listed above.

## connector deviation ordering information

To order a deviation of a catalog miniature-ribbon connector, add one of the listed deviation numbers in parenthesis to the catalog part number. Example: To order 57-10500 with tin plated shells, request 57-10500 (441).

NOTE: Only one deviation number can be applied to a catalog part number at a time.

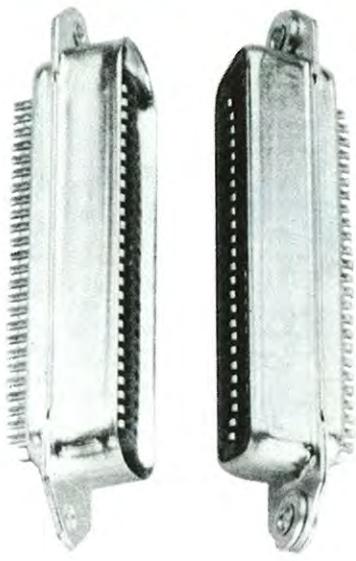


UL  
Component  
Recognition

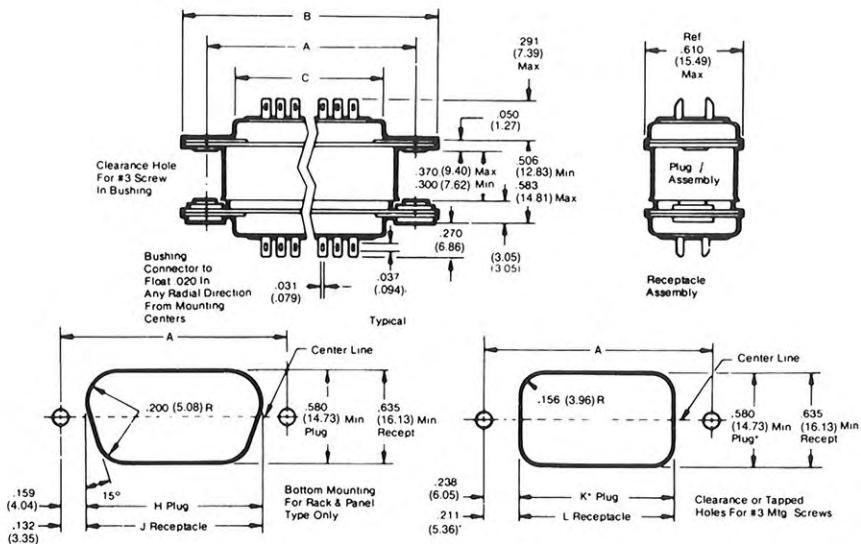


Canadian  
Standards  
Association

## 57 series rack-and-panel connectors



dimensions



	14 Contacts		24 Contacts		36 Contacts		50 Contacts		64 Contacts		
	in.	mm									
A	1.417	35.99	1.842	46.79	2.352	59.74	2.947	74.85	3.542	89.97	
B	1.750	44.45	2.175	55.25	2.685	68.20	3.280	83.31	3.875	98.43	
C	.910	23.11	1.335	33.91	1.845	46.86	2.440	61.98	3.035	77.09	
Bottom Mounting	H	1.099	27.92	1.524	38.71	2.034	51.66	2.629	66.78	3.224	81.89
	J	1.153	29.29	1.578	40.08	2.088	53.04	2.683	68.15	3.278	83.26
Top Mounting	K	.941	23.90	1.366	34.70	1.876	47.65	2.471	62.76	3.066	77.88
	L	.995	25.27	1.420	36.07	1.930	49.02	2.525	64.14	3.120	79.25

### order information

Contacts	Plugs: Fix-mounted*		Plugs: Fix-mounted**		Receptacles: Float-mounted*		Receptacles: Less Float Bushings**		Plugs: Fix-mounted*		Receptacles: Float-mounted*	
	Plugs: Fix-mounted*	Plugs: Fix-mounted**	Plugs: Fix-mounted*	Plugs: Fix-mounted**	Receptacles: Float-mounted*	Receptacles: Less Float Bushings**	Receptacles: Fix-mounted*	Receptacles: Less Float Bushings**	Plugs: Fix-mounted*	Plugs: Less Float Bushings**	Receptacles: Fix-mounted*	Receptacles: Less Float Bushings**
14	57-10140		consult sales office		57-20140		57-20140-4		N/A		N/A	
24	57-10240	57-10240-4***			57-20240	57-20240-2***			N/A		N/A	
36	57-10360	57-10360-22			57-20360	57-20360-3			57-10360-14		57-20360-10	
50	57-10500	57-10500-48			57-20500	57-20500-15			57-10500-6		57-20500-6	
64	—	—	—	—	—	—	—	—	57-10640		57-20640	

\*.103" Mounting Hole (accepts #3 screw — not included)

\*\*.185" Mounting Hole (accepts #8 screw — not included)

\*\*\*IEEE Type

### IEEE mounting hardware

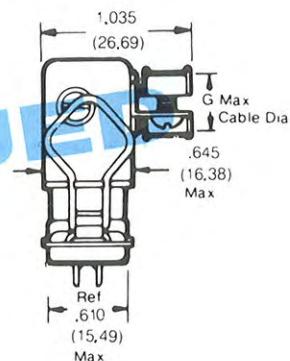
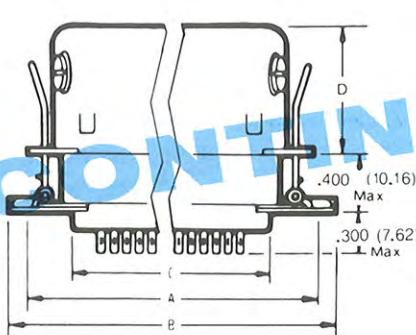
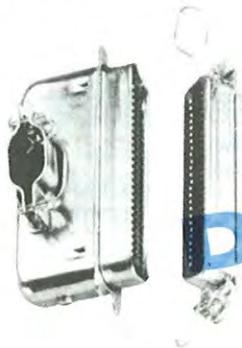
408-153819 Inside panel mount hardware includes two each studs, nuts, washers.

408-153818 Outside panel mount hardware includes two each studs, nuts, washers.

**PLEASE NOTE:** Amphenol rack and panel receptacle connectors have float bushings which allow .020" (0.008mm) radial float. Plugs and receptacles have solder cup tails and accept 22-gauge solid or 24-gauge (maximum) stranded wire. U.L. recognized.

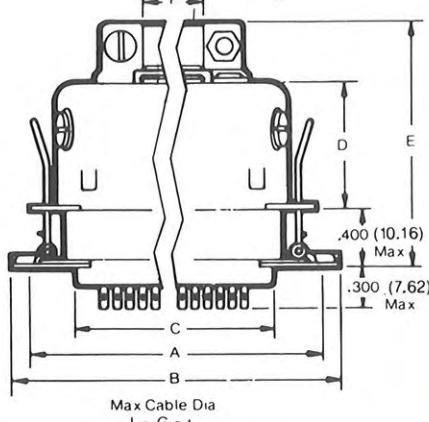
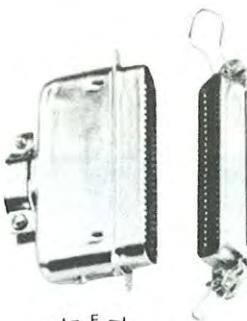
# 57 series cable-to-panel connectors

## side cable entry type



## top cable entry type

### dimensions

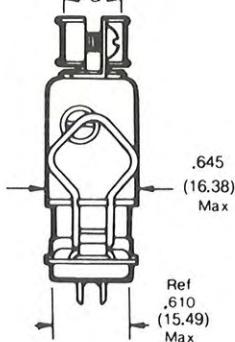


	14 Contacts In. mm	24 Contacts In. mm	36 Contacts In. mm	50 Contacts In. mm
A	1.417 35.992	1.842 46.787	2.352 59.741	2.947 74.854
B	1.770 44.958	2.195 55.753	2.705 68.707	3.300 83.820
C	.910 23.114	1.335 33.909	1.845 46.863	2.440 61.976
D	.850 21.59	.830 21.08	.910 23.11	1.000 2.54
E	1.665 42.29	1.645 41.78	1.725 43.82	1.815 46.10
F	.348 8.84	.473 12.01	.648 16.46	.772 19.61
G	.348 8.84	.473 12.01	.500 12.7	.500 12.7

NOTE: All dimensions are reference.

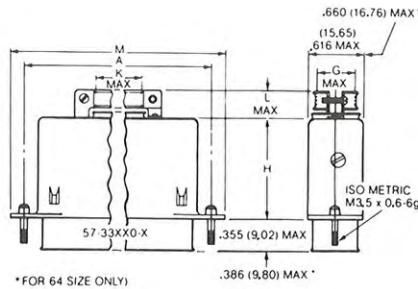
## order information

Contacts	Plugs: Top Cable Entry Part Number	Plugs: Side Cable Entry Part Number	Receptacle Mating Connection With Spring Latches Part Number
14	57-30140	57-50140	57-40140
24	57-30240	57-50240	57-40240
36	57-30360 (screwtype hood)	57-50360	57-40360
36	57-30360-18 (snap on hood)	—	—
36	—	—	57-40360-9 (high barrier)
50	57-30500	57-50500	57-40500
50	57-30500-3 (high barrier)	—	57-40500-4 (high barrier)



## 57 series cable-to-panel connectors

### top cable entry type for screw lock



### order information

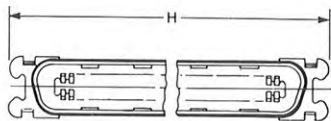
Contacts	Plug: Top Cable Entry With Zinc Plated Shells For Screw Locking Part Number	Plug: Top Cable Entry With Nickel Plated Shells For Screw Locking Part Number
14	57-33140-1	57-33140-2
24	57-33240-1	57-33240-2
36	57-33360-1	57-33360-2
50	57-33500-1	57-33500-2

NOTE: Top cable entry plugs for screw locking can be mated with rack and panel type connectors utilizing IEEE mounting hardware.

### dimensions

Size	14		24		36		50	
Dim.	Inch	mm	Inch	mm	Inch	mm	Inch	mm
A	1.417	35.99	1.842	46.79	2.352	59.74	2.947	74.85
G	.442	10.72	.468	11.89	.468	11.89	.468	11.89
H	.843	21.41	.825	20.96	.905	22.99	.995	25.27
K	.348	8.84	.473	12.01	.639	16.23	.766	19.46
L	.405	10.29	.400	10.16	.405	10.29	.405	10.29
M	1.729	43.92	2.154	54.71	2.664	67.67	3.259	82.78

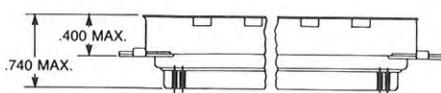
### top cable entry type for overmold cable assemblies



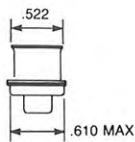
### dimensions

	36 Contacts In. mm	50 Contacts In. mm
H	2.431 61.75	3.030 76.96

NOTE: All dimensions are reference.



### order information



Contacts	Plugs: With Bail Latch Ears For Overmold Cable Assemblies (low barrier) Part Number	Plugs: With Bail Latch Ears For Overmold Cable Assemblies (high barrier) Part Number
36	57-10360-29 (441)	57-10360-28 (441)
50	—	57-10500-79 (441)

# 57 series cable-to-cable connectors

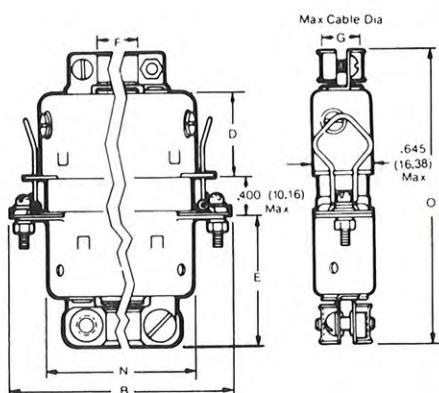
## top cable entry type



### dimensions

	14 Contacts in. mm	24 Contacts in. mm	36 Contacts in. mm	50 Contacts in. mm
B	1.770 44.958	2.195 55.753	2.705 68.707	3.300 83.820
D	.850 21.59	.830 21.08	.910 23.11	1.000 2.54
E	1.255 31.88	1.235 31.37	1.315 33.4	1.405 35.69
F	.348 8.84	.473 12.01	.648 16.46	.772 19.61
G	.348 8.84	.473 12.01	.500 12.7	.500 12.7
N	1.153 29.286	1.578 40.081	2.089 53.061	2.683 68.148
O	2.906 73.812	2.875 73.025	3.032 77.013	3.218 81.737

NOTE: All dimensions are reference.



### order information

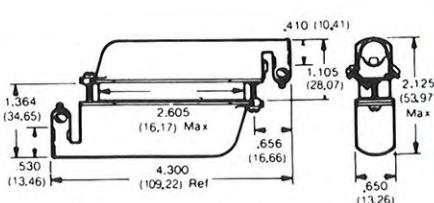
Contacts	Plugs: Top Cable Entry Part Number	Plugs: Side Cable Entry Part Number	Receptacle Mating Connection With Spring Latches Part Number
14	57-30140		57-60140
24	57-30240	57-50240	57-60240
36	57-30360	57-50360	57-60360
50	57-30500	57-50500	57-60500
50	57-30500-3 (high barrier)	—	—

## running cable type

NOTE: Only available in 50 contact size.



### order information

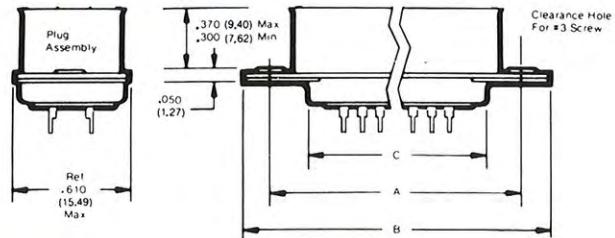
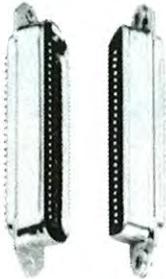


Low Profile Hood

50-Size Plug Connectors w/ Metal Hoods Part Number	
57-10500-7	(low hood)— $\frac{5}{8}$ "
57-10500-7 (402)	(low hood, bulk-packed, egg crating)— $\frac{5}{8}$ "
57-10500-14	(high hood)— $\frac{7}{8}$ "
50-Size Receptacle Connectors w/ Metal Hoods Part Number	
57-20500-7	(high hood)— $\frac{7}{8}$ "
57-20500-7 (402)	(high hood, egg crated)— $\frac{7}{8}$ "
57-20500-19	(low hood)— $\frac{5}{8}$ "

# 57 series printed circuit connectors

## straight tail without spring latch



### dimensions (See P.C. Board layout on page 8.)

	14 Contacts in. mm.	24 Contacts in. mm.	36 Contacts in. mm.	50 Contacts in. mm.
A	1.417 35.991	1.842 46.787	2.352 59.741	2.947 74.854
B	1.750 44.450	2.175 55.245	2.685 68.199	3.280 83.312
C	.910 23.114	1.335 33.909	1.845 46.863	2.440 61.976
D	.510 12.954	.935 22.749	1.445 36.703	2.040 51.816

### order information

#### Plugs/PC Contacts (.100" tail)\*.

Contacts	Part Number
14	57-10140-4
24	57-10240-3
36	57-10360-13
50	57-10500-27

#### Plugs/PC Contacts (.135" tail).

Contacts	Part Number
14	57-10140-5
24	57-10240-5
36	57-10360-17
50	57-10500-46

#### Plugs/PC Contacts (.156" tail).

Contacts	Part Number
14	N/A
24	57-10240-12
36	57-10360-25
50	57-10500-73

#### Receptacles/PC Contacts (.100" tail): Float-Mounted\*

Contacts	Part Number
14	57-20140-8
24	57-20240-8
36	57-20360-9
50	57-20500-31

#### Receptacles/PC Contacts (.100" tail): Without Float Bushings\*\*

Contacts	Part Number
14	57-20140-12
24	57-20240-14
36	57-20360-15
50	57-20500-65

#### Receptacles/PC Contacts (.135" tail): Without Float Bushings\*\*

Contacts	Part Number
14	57-20140-10
24	57-20240-11
36	57-20360-13
50	57-20500-58

#### Receptacles/PC Contacts (.156" tail): Without Float Bushings\*\*

Contacts	Part Number
14	N/A
24	57-20240-23
36	57-20360-19
50	57-20500-85

\* 103" Mounting Hole (accepts #3 screw — not included)

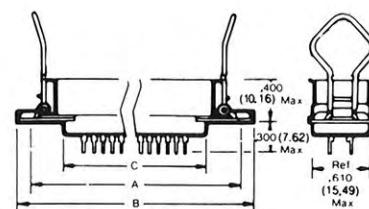
\*\* 185" Mounting Hole (accepts #8 screw — not included)

### straight tail with spring latch



### order information

Contacts	Receptacles/ PC Contacts With Spring Latch (.100" tail)	Receptacles/ PC Contacts With Spring Latch (.135" tail)	Receptacle PC Contacts With Spring Latch (.156" tail)
14	57-40140-8	57-40140-11	N/A
24	57-40240-9	57-40240-11	57-40240-14
36	57-40360-12	57-40360-16	57-40360-24
50	57-40500-9	57-40500-16	57-40500-24

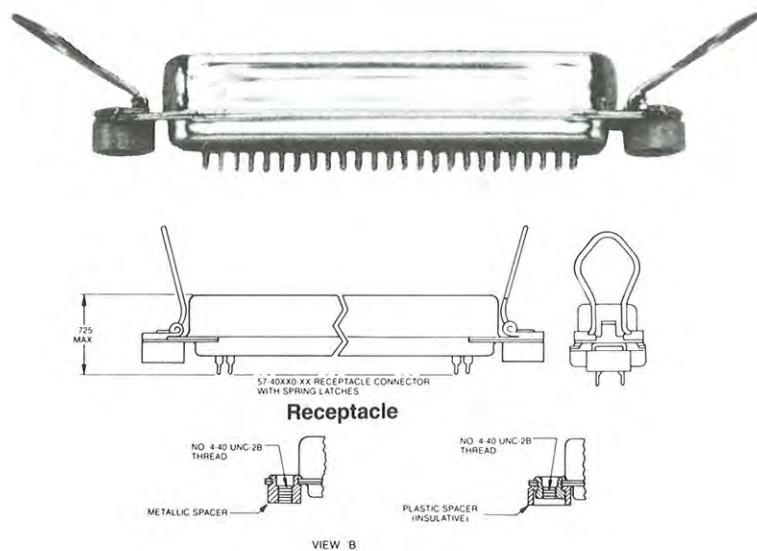
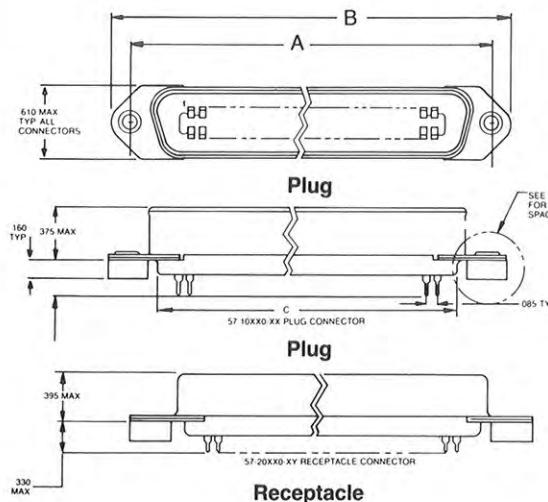


### dimensions

See dimensions table at top of page.  
(See P.C. Board layout on page 8.)

# 57 series printed circuit connectors (cont.)

## straight tail with standoff



## dimensions

See dimensions table at top of page 7.

## order information

### Plugs/PC Contacts (.156) Metallic Standoff

24	57-10240-14
36	57-10360-27
50	57-10500-77

### Receptacles/PC Contacts (.156) Metallic Standoff

24	57-20240-25
36	57-20360-21
50	57-20500-87

### Receptacles/PC Contacts (.156) And Spring Latches Metallic Standoff

24	57-40240-16
36	57-40360-23
50	57-40500-26

### Plugs/PC Contacts (.156) Insulative Standoff

24	57-10240-13
36	57-10360-26
50	57-10500-69

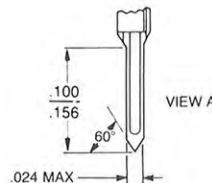
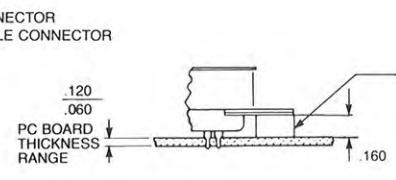
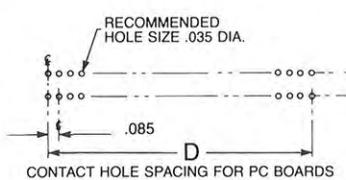
### Receptacles/PC Contacts (.156) Insulative Standoff

24	57-20240-24
36	57-20360-20
50	57-20500-79

### Receptacles/PC Contacts (.156) And Spring Latches Insulative Standoff

24	57-40240-15
36	57-40360-21
50	57-40500-23

## typical mounting, contact hole spacing and termination lengths for PC boards



See dimensions table at top of page 7.

TYPICAL CONNECTOR MOUNTING  
FOR PRINTED CIRCUIT BOARD

# 57 series right angle PCB mount receptacle

(see also page 25, 57LE right angle)



## specifications

<b>Current rating:</b>	5 amps/contact
<b>Voltage rating:</b>	700 VDC at sea level 200 VDC at 70,000 ft.
<b>Withstanding voltage:</b>	1,000 VAC
<b>Insulation resistance:</b>	1,000 Megaohms min.
<b>Contact resistance:</b>	15 Milliohms max.
<b>Operating temperature:</b>	–67 °F to +221 °F (-55 °C to +105 °C)

<b>Insulator material:</b>	Reinforced thermoplastic UL 94 V-O rated, black
<b>Contact material:</b>	Beryllium Copper
<b>Shell material:</b>	Steel, Aluminum killed, Zinc plated with clear chromate finish
<b>Ground bracket:</b>	Cold rolled Steel; bright Tin plated

Amphenol introduces a new low profile right angle printed circuit board receptacle for Host Adapter Accessory Cards. Developed in response to newly emerging SCSI applications, it is also an ideal choice for any application requiring a low-cost, right angle PC tail connector.

Available in either standard, or reverse polarization, these receptacles are completely interchangeable with standard Amphenol micro-ribbon® connectors. To accommodate PC panel or chassis thickness, the front shell has been lengthened 0.100". A 0.070" reduction in connector-to-board height, as measured from PCB surface to connector centerline, provides a lower profile to accommodate PC Host Adapter Card/IO Port configurations.

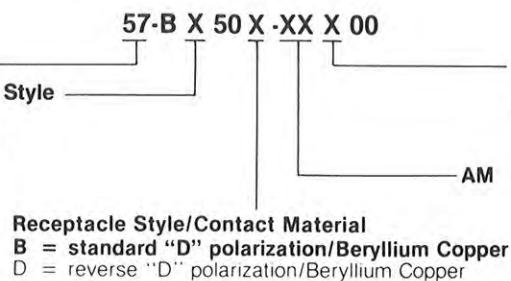
Beryllium copper contacts feature recessed "Closed Front Entry" design for improved ESD suppression. The positive mating action of these contacts is self-wiping and self-cleaning, resulting in highly reliable electrical continuity and low contact resistance. Spring clip or jack screw mounting hardware assures connectors remain tightly engaged.

<b>Contact plating:</b>	30 microinches Gold in mating area, 100 microinches Tin/Lead on tails, 50 microinches Nickel underplate
<b>Mounting plates:</b>	Cold rolled Steel; Zinc plated with clear chromate finish

## order information

### Series

Tail Length / Mtg. Thd. Size / Connection Style
A = 0.125" / #6-32 thd. /spring latch
C = 0.125" / #4-40 thd. /spring latch
E = 0.125" / #6-32 thd. /jackscrew
G = 0.125" / #4-40 thd. /jackscrew



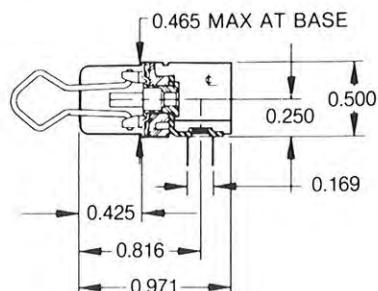
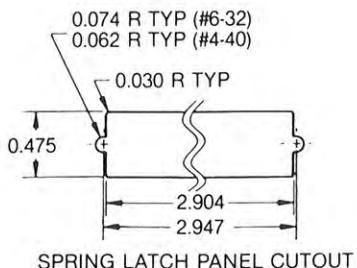
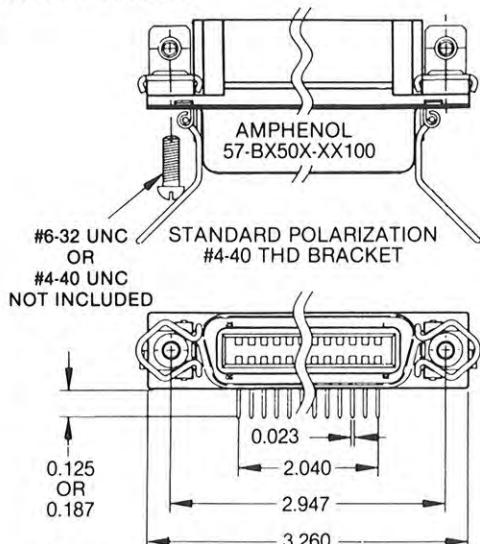
**Receptacle Style/Contact Material**  
**B** = standard "D" polarization/Beryllium Copper

**AM** = 30 micro in. min Gold on mating area; 100 micro in. Tin/Lead on tails; 50 micro-in min Nickel underplate.

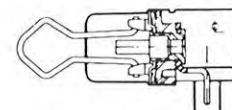
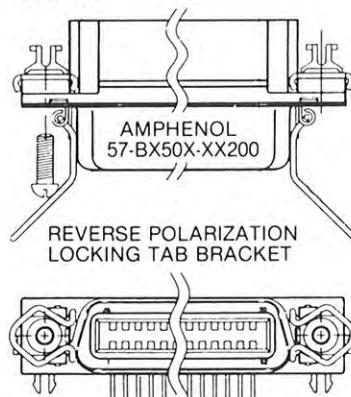
# 57 series right angle PCB mount receptacle (cont.)

## receptacle with spring latch

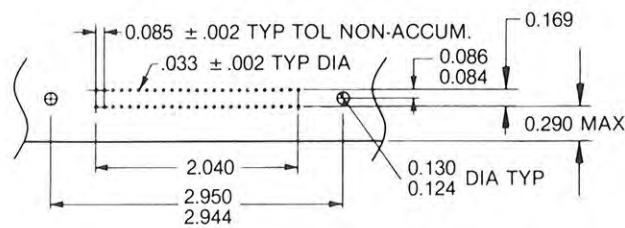
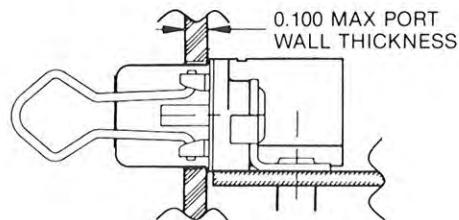
### Standard Polarization



### Reverse Polarization



## mounting specifications



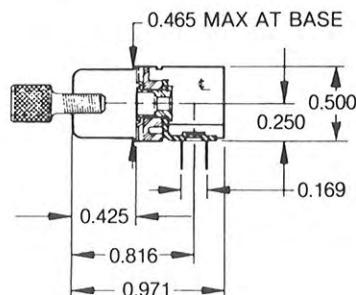
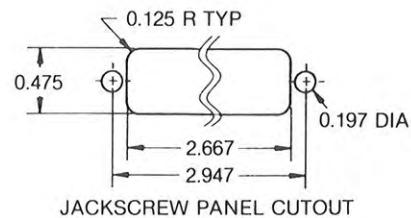
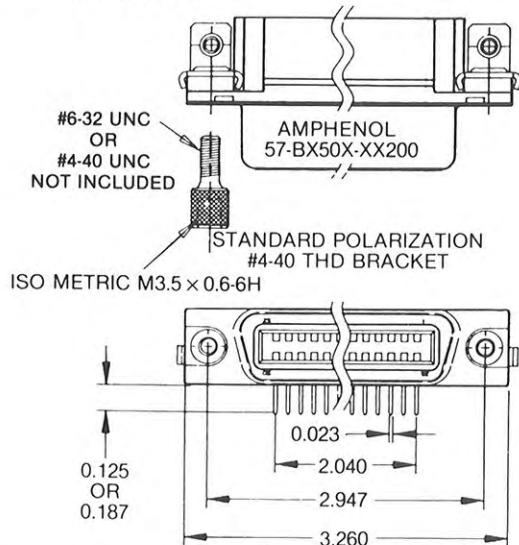
**Mounting Hardware Supplied Separately**  
(20 screws per package—order by number of packages)

Hardware Description	Part Number For Screw With #6-32 External Thread	Part Number For Screw With #4-40 External Thread
Screw For Spring Latch Receptacle	57-1911-01	57-2030
Jackscrews (Internal Thread Size)	M3.5 × 0.6-6H #4-40 UNC-2B	57-1912-02 57-2031 57-2054

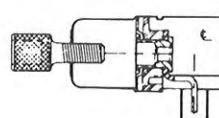
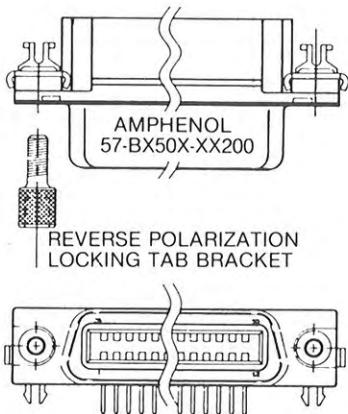
# 57 series right angle PCB mount receptacle (cont.)

## receptacle with jack screw

### Standard Polarization



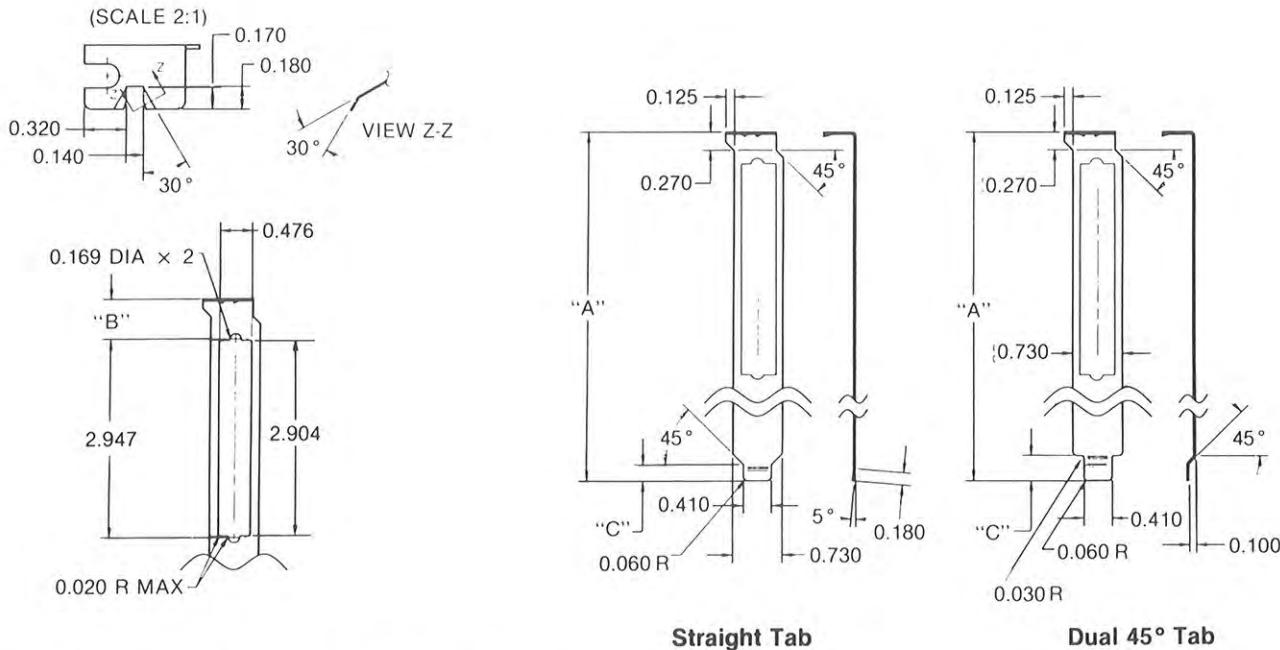
### Reverse Polarization



Item	Material	Standard Plating
Housing	Reinforced thermoplastic UL rated 94V-0, black	
Contacts	0.008" Beryllium Copper	30 microinches Gold mating area; 100 microinches Tin/Lead on tails; 50 microinches Nickel underplating
Shell	Cold rolled Steel Aluminum killed, deep draw quality	.0002-.0004" electrodeposited clear chromate over .0002-.0004" electrodeposited Zinc per spec. QQ-Z-325, Class 3, Type II
Ground bracket	Cold rolled Steel	.0002-.0004" bright Tin plating
Rivets	SAE C-1006 Steel	.0002-.0004" electrodeposited clear chromate over .0002-.0004" electrodeposited Zinc per spec QQ-Z-325, Class 3, Type II
Spring latch	0.038" dia. Stainless Steel wire	

# 57 series right angle PCB mount receptacle (cont.)

## host adapter card mounting plates for 50 position receptacle



Straight Tab

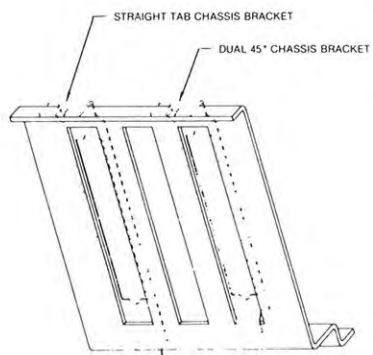
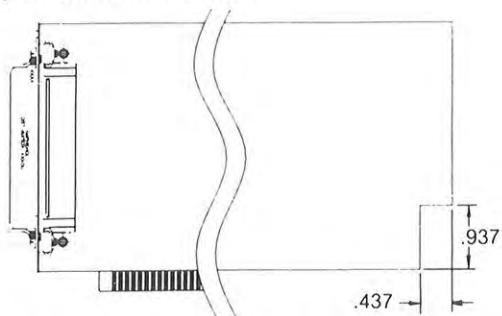
Dual 45° Tab

## dimensions/order information (10 000 pc. MOQ)

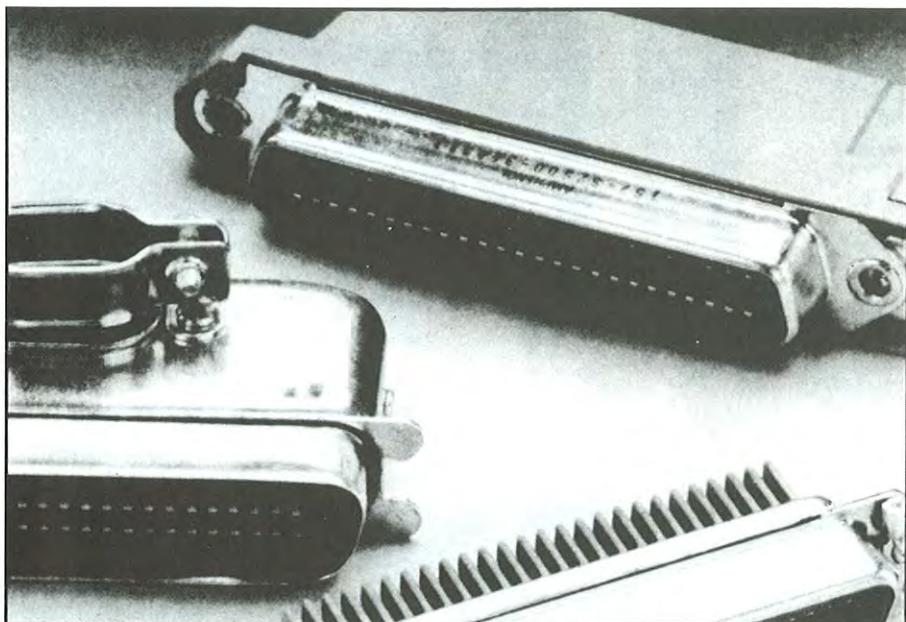
Tab Style	Amphenol Part Number	Dimensions		
		A	B	C
Straight	57-2039-802	4.750	0.562	0.240
Dual 45°	57-2039-902	4.150	0.630	0.346

## applications

### Host Adapter Card Accessories



# general configuration – 157 series I.D.C. termination



## features

- Glass-filled polyester dielectric permits operation to 700 VDC at sea level without shorting or flashover. Dielectric resists cracking or chipping — has high mechanical strength. Also low moisture absorption.
- Iron-copper contacts with plated gold over nickel for excellent current-carrying characteristics up to 5 amps.
- Terminal area provides positive insulation-piercing, excellent electrical continuity as wiped-clean conductor cold-flows around engaging surface to form large contact area.
- Float-bushing mounting permits .020 radial float for easy mating.
- Zinc-plated steel outer shell with clear chromate finish resists corrosion.
- Wide, flat mating surfaces are pressed tightly together by the flexing action of both contacts for protection against "opens".
- Positive mating action wipes contacts clean, removes film or foreign material for low contact resistance.
- Trapezoidal shell assures correct polarity.



FILE E64911



Canadian Standards Association

FILE LR 45516-14

## description

Amphenol 157 Micro-Pierce connectors combine the field-proven features and reliability of 57 series micro-ribbon solder-type connectors with the speed and convenience of solderless termination.

These versatile rack and panel, cable to panel, and cable to cable connectors are available in 14-, 24-, 36-, 50- and 64-contact configurations (see factory for 64-pin option).

Solderless termination, as accomplished using either hand or automatic termination equipment is fast, requires no special skill, yet results in reliable, virtually mistake-proof termination because individual conductor preparation is not necessary.

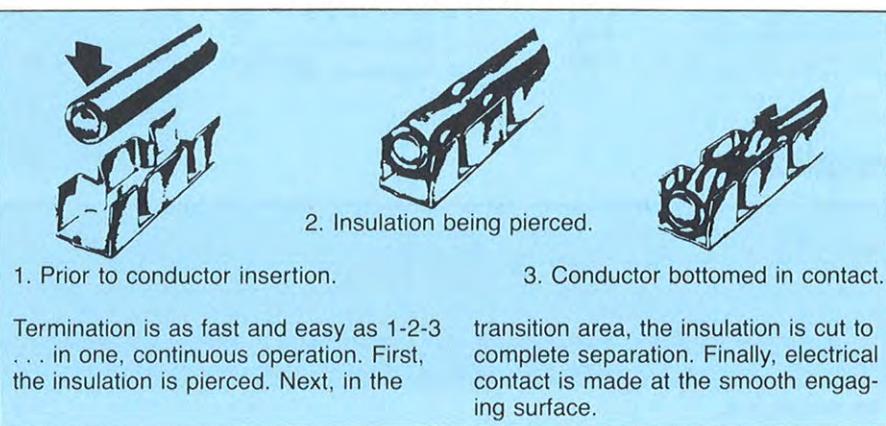
## general specifications

### All Micro-Pierce Connectors

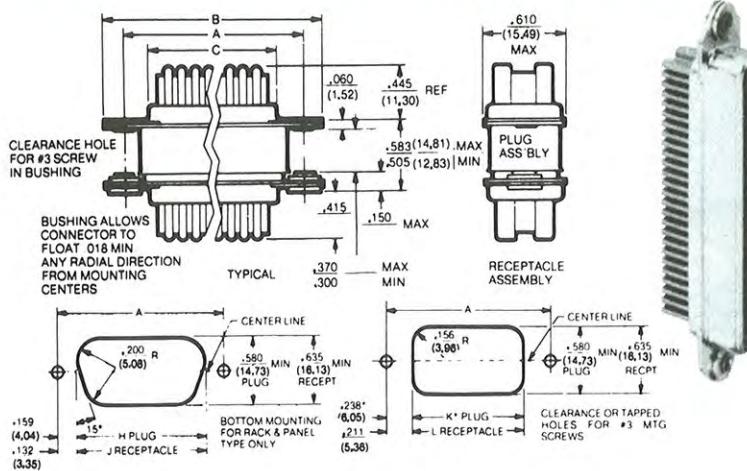
Current capacity	5 amp per contact
Voltage rating	700 VDC at sea level 200 VDC at 70,000 ft.
Operating temperature	-67°F to +221°F -55°C to +105°C
Wire sizes	22 and 26 AWG, solid conductor* 26 and 28 AWG, stranded conductor
Contacts	Selectively plated 20 microinches gold over 50 microinches nickel on a copper alloy base
Dielectric	DPT UL94V-0
Shells	Zinc-plated steel with clear chromate coating. Trapezoidal shape assure positive polarization.

\*see factory for further information

### 3-Step Insulation Displacement



## 157 series rack-and-panel connectors



### order information

Contacts	Plug	Receptacle
14	157-12140	157-22140
24	157-12240***	157-22240***
36	157-12360	157-22360
50	157-12500	157-22500
50	157-12500-3*	157-22500-3**
64	157-12640	157-22640

\*IEEE type with .185 mounting hole.

\*\*IEEE type with .185 mounting hole less float bushing.

\*\*\*IEEE type.

### IEEE mounting hardware

408-153819 Inside panel mount hardware includes two each studs, nuts, washers.

408-153818 Outside panel mount hardware includes two each studs, nuts, washers.

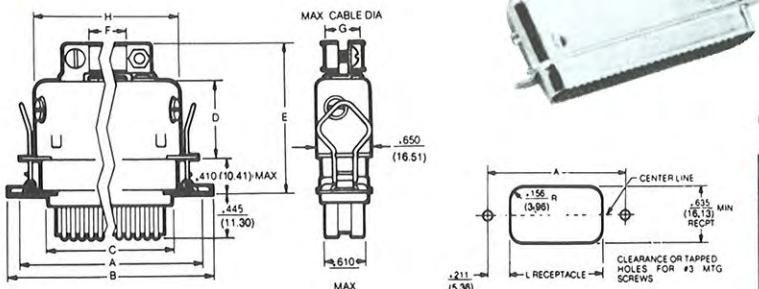
### dimensions

Contacts	A		B		C		Bottom Mounting		Top Mounting	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
14	1.417	35.99	1.750	44.45	.910	23.11	1.099	27.92	1.153	29.29
24	1.842	46.79	2.175	55.25	1.335	33.91	1.524	38.71	1.578	40.08
36	2.352	59.74	2.685	68.20	1.845	46.86	2.034	51.66	2.088	53.04
50	2.947	74.85	3.280	83.31	2.440	61.98	2.629	66.78	2.683	68.15
64	3.542	89.97	.875	98.43	3.035	77.09	3.224	81.89	3.278	83.26
									3.066	77.88
									3.120	79.25

NOTE: All rack and panel receptacle connectors have a float-bushing mount that permits .020" (.51mm) radial float for ease of mounting and connection. Connectors may be mounted above or below panels (see cut-out drawings above) using #3 mounting screws.

## 157 series cable-to-panel connectors

### top cable entry type



### order information

Contacts	Plug (screw type hood)	Receptacle
14	157-32140	157-42140
24	157-32240	157-42240
36	157-32360	157-42360
50	157-32500	157-42500

### dimensions

Contacts	A		B		C		D		E		F		G		H		L	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm								
14	1.417	35.99	1.77	44.96	.910	23.11	.850	21.59	1.665	42.29	.348	8.84	.348	8.84	1.153	29.29	.995	25.27
24	1.842	46.79	2.195	55.75	1.335	33.91	.830	21.08	1.645	41.78	.473	12.01	.473	12.01	1.578	40.08	1.420	36.07
36	2.352	59.74	2.705	68.70	1.845	46.86	.910	23.11	1.725	43.82	.648	16.46	.500	12.7	2.089	53.06	1.930	46.02
50	2.947	74.85	3.300	83.82	2.440	61.98	1.000	25.4	1.815	46.1	.772	19.61	.500	12.7	2.683	68.15	2.525	64.14

\*Has .185 mounting hole.

## 157 series cable-to-panel connectors (cont.)

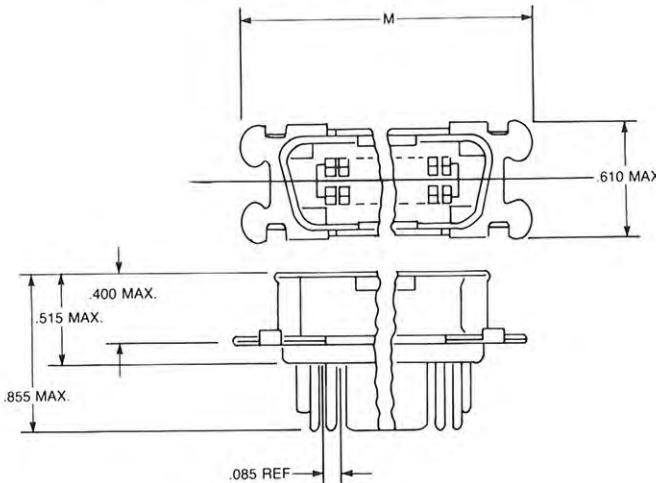
### top cable entry type (for overmold cable assemblies)

#### order information

Contacts	Plugs: with bail latch ears for overmold cable assemblies
	Part Number
36	157-12360-5 (441)
50	157-12500-10 (441)

#### dimensions

	36 Contacts	50 Contacts
	In.	mm
M	2.431	61.75
	3.025	76.84

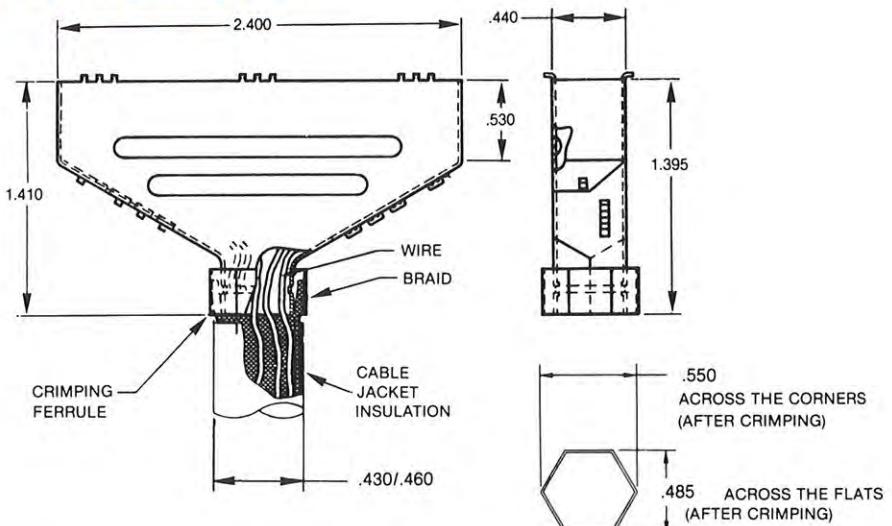


## SCSI overmold hood kit for 50 position connectors

This kit, including two hermaphroditic hood shells and a ferrule, reduces user pre-mold operations thus lowering labor costs. Also, the single crimp ferrule eliminates the need for an inner/outer crimp typical of other product offerings.

#### applications

For use with the following Amphenol connectors:  
157-12500-10 (441) 157-12500-14 (441)  
157-22500-14 (441) 157-42500 (441)  
Use suffix "508" for connector & overmold hood combination kit,  
i.e., 157-12500-10-(508)



#### order information

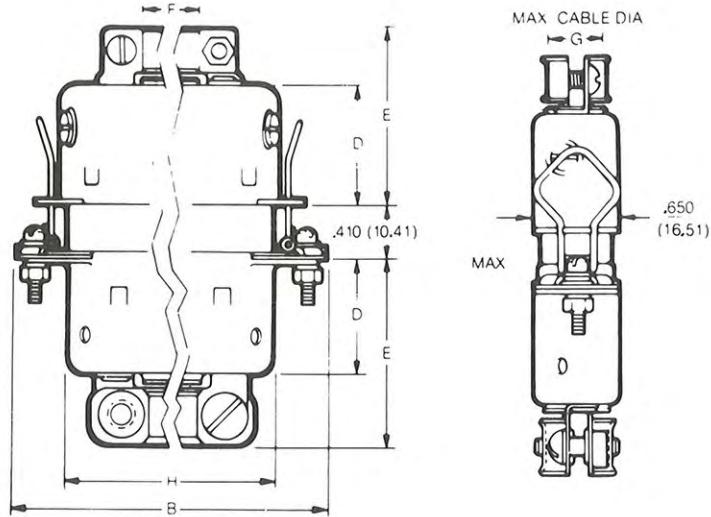
Part Number: 157-1869-501

#### Assembly Instructions:

- 1.) Slide ferrule over the cable.
- 2.) Remove jacket insulation to appropriate length.
- 3.) Remove braid to appropriate length.
- 4.) Roll back braid over the jacket insulation.
- 5.) Terminate the connector.
- 6.) Assemble the overmold hoods.
- 7.) Roll back braid over the hoods.
- 8.) Slide ferrule over the braid such that the braid is sandwiched between the hood and ferrule.
- 9.) Crimp the ferrule.

# 157 series cable-to-cable connectors

## top cable entry type



## dimensions

Contacts	B MAX		D MAX		E MAX		F MAX		G		H MAX	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
14	1.770	44.96	.850	21.59	1.255	31.88	.348	8.84	.348	8.84	1.153	29.29
24	2.195	55.75	.830	21.08	1.235	31.37	.473	12.01	.473	12.01	1.578	40.08
36	2.705	68.70	.910	23.11	1.315	33.4	.648	16.46	.500	12.7	2.089	53.06
50	3.30	83.82	1.000	25.4	1.405	35.69	.772	19.61	.500	12.7	2.683	68.15

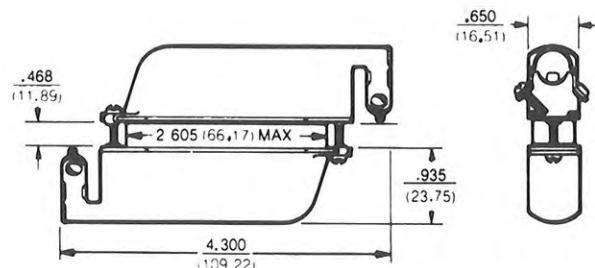
## order information

Contacts	Top Cable Entry	
	Plug	Receptacle
14	157-32140	157-62140
24	157-32240	157-62240
36	157-32360	157-62360
50	157-32500	157-62500

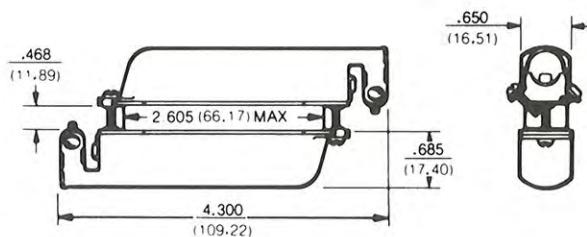
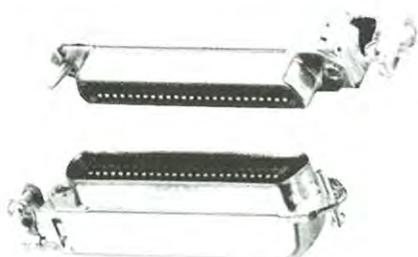
## 157 series cable-to-cable connectors (cont.)

### end cable entry type

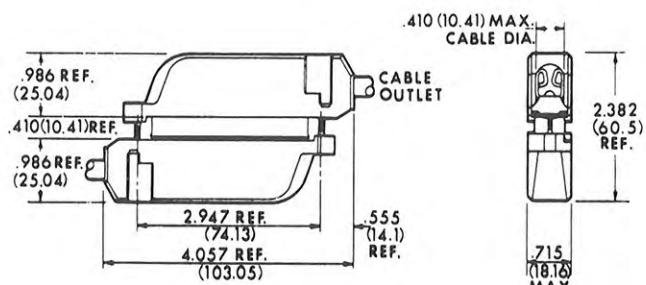
#### low profile steel hood



#### ultra-low profile steel hood



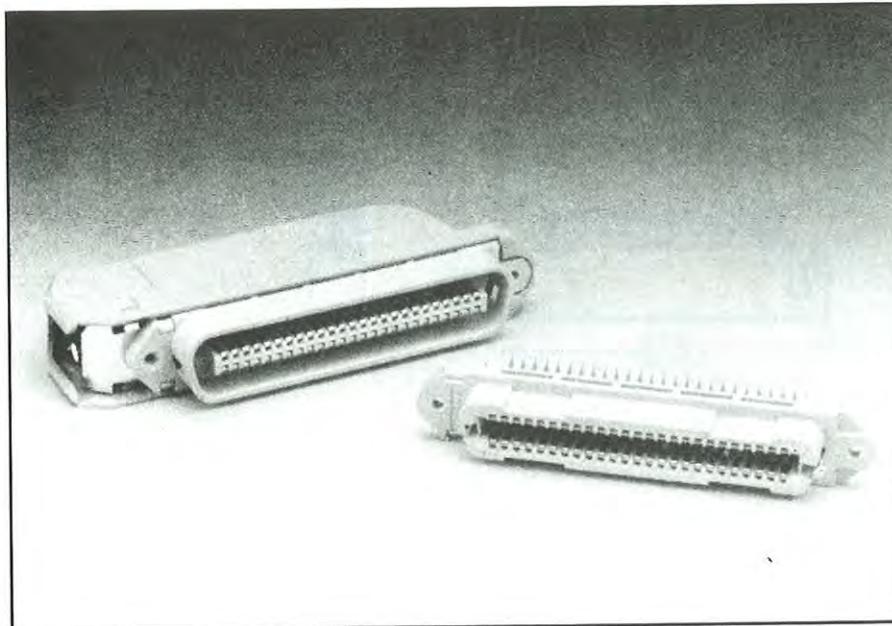
#### low profile plastic hood



### order information

	Low-Profile Steel Hood		Ultra-Low Profile Steel Hood		All-Plastic Hood	
Contacts	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle
50	157-72500-3	157-82500-3	157-72500-18	157-82500-18	157-72500-3(431)	157-82500-3(431)

# 157 series all-plastic Micro-Pierce® connectors



## features

- Glass-filled polyester dielectric permits operation to 700 VDC at sea level without shorting or flashover. Dielectric resists cracking or chipping — has high mechanical strength. Also low moisture absorption.
- Iron-copper contacts with plated gold over nickel for excellent current-carrying characteristics up to 5 amps.
- Terminal area provides positive insulation-piercing, excellent electrical continuity as wiped-clean conductor cold-flows around engaging surface to form large contact area.
- Float-bushing mounting permits .020 radial float for easy mating.
- Zinc-plated steel outer shell with clear chromate finish resists corrosion.
- Wide, flat mating surfaces are pressed tightly together by the flexing action of both contacts for protection against "opens".
- Positive mating action wipes contacts clean, removes film or foreign material for low contact resistance.
- Trapezoidal shell assures correct polarity.



UL

Component  
RecognitionCanadian  
Standards  
Association

FILE E64911

FILE LR 45516-14

- 90° plastic hoods are separate from the cable clamp device which is attached directly to the connector body. The hood snaps on and off easily.
- The mated connectors may be locked together with either spring clips, provided on the receptacle, or a captivated screw. With the spring clip locking device there is no need for additional hardware. The spring clips engage the windows provided in the plug body.

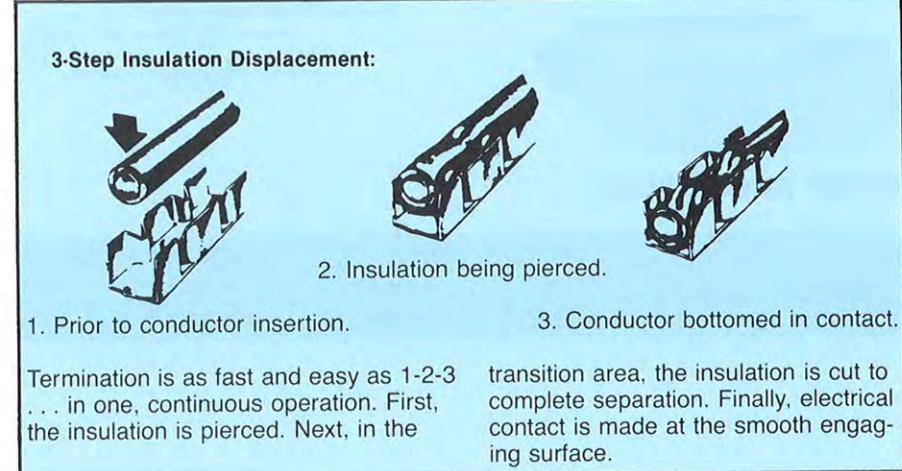
## description

Amphenol 157 Micro-Pierce connectors combine the field-proven features and reliability of 57 series micro-ribbon solder-type connectors with the speed and convenience of solderless termination.

Solderless termination, as accomplished using either hand or automatic termination equipment, is fast, requires no special skill, yet results in reliable, virtually mistake-proof termination because individual conductor preparation is not necessary.

## specifications

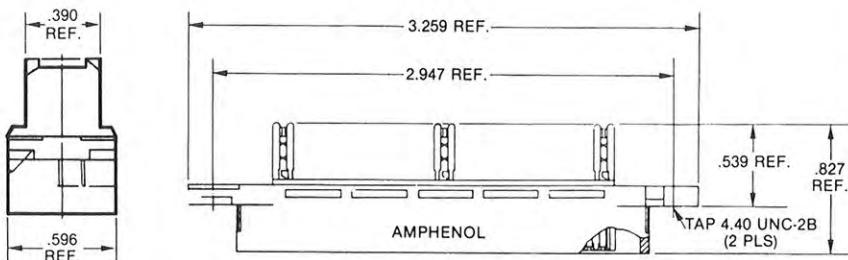
Current capacity:	5 amp per contact
Voltage rating:	700 VDC at sea level 200 VDC at 70,000 ft.
Operating temperature:	-67°F to +221°F -55°C to +105°C
Wire sizes	24 and 26 AWG, solid conductor; 26 and 28 AWG, stranded conductor
Contacts	Selectively plated 20 microinches gold over 50 microinches nickel on a copper alloy base
Dielectric	Fiberglass-filled polyester



# 157 series all-plastic Micro-Pierce® connectors (cont.)

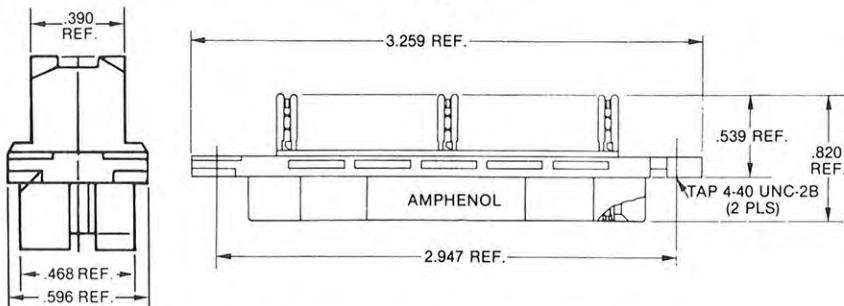
## dimensions and order information

**Plug**



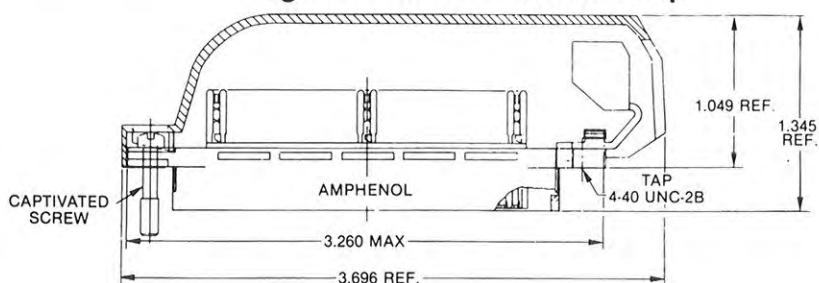
Mounting Arrangement	Amphenol Part Number
4-40 tapped 2 pls.	157-19500-01
.125" thru holes	157-19500-02

**Receptacle**



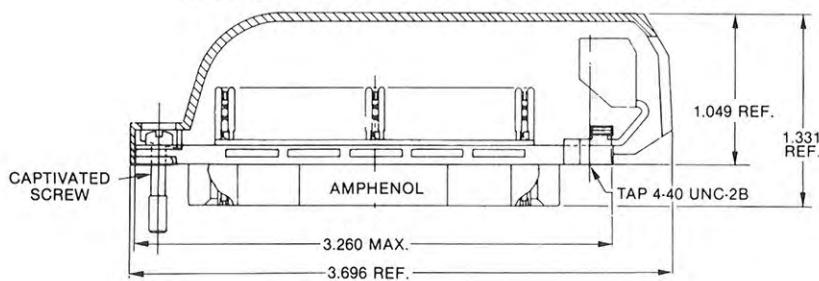
Mounting Arrangement	Amphenol Part Number
4-40 tapped 2 pls.	157-29500-01
.125" thru holes	157-29500-02
4-40 tapped 2 pls. with spring clips	157-29500-03
.125" thru holes with spring clips	157-29500-04

**Plug with hood and cable clamp**



Mounting Arrangement	Amphenol Part Number
4-40 captivated screw, tapped hole and cable clamp	<b>157-79500-01</b>
4-40 tapped 2 pls. and cable clamp	157-79500-02

**Receptacle with hood and cable clamp**



Mounting Arrangement	Amphenol Part Number
4-40 captivated screw, tapped hole and cable clamp	<b>157-89500-01</b>
4-40 tapped 2 pls. with spring clips and cable clamp	157-89500-02

# connectors for small computer system interface (SCSI) applications

## description

Amphenol 57 and 157 series connectors are ideally suited for small computer system interface (SCSI), given their compact design and versatility.

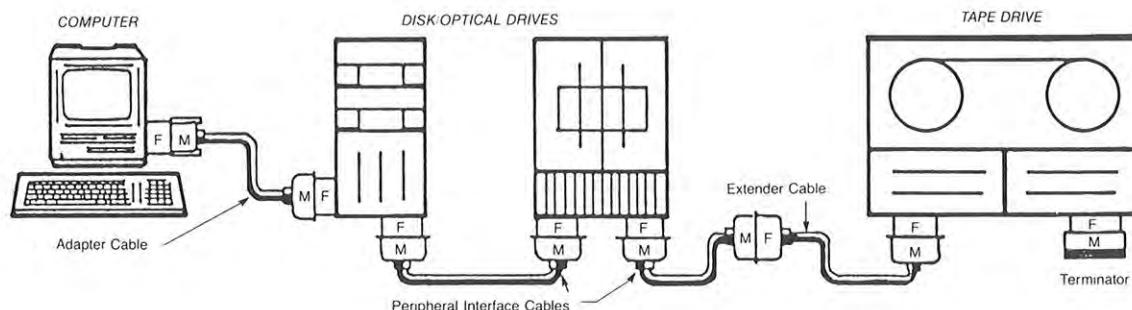
These connectors provide the internal and external interconnections between host computers and various types of peripheral devices including: disk drives; tape drives; printers; and optical disk storage units.

Amphenol 57 and 157 series connectors for SCSI applications provide plugs incorporating grounding indents for maximum EMI/RFI protection, in addition to tin plated shells for solderability.

An overmold can is available for the 157 series 50 contact connector. Also available is a low profile right angle printed circuit board connector for host adapter accessory cards.

## applications

The schematic diagram shown on this page illustrates a typical interconnect configuration as defined by ANSI X3T9.2. While this may vary by manufacturer and equipment design, it serves to demonstrate the SCSI interconnect system and connectors offered by Amphenol.

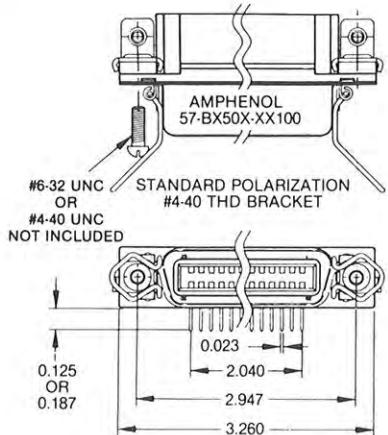


## SCSI board mount type 50 position receptacle

### order information

Part Number: 57-BX50X-XXX00 & 57LE-40XX0-X70XX (drawing not shown)

NOTE: See pages 9 & 26 for specifications and order information for this connector.



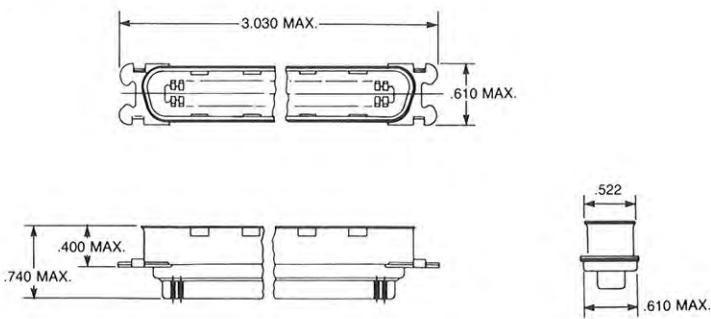
## SCSI solder type 50 position plug for spring latch

Applications: Terminators and Feed-through Adapters

### order information

Part Number: 57-10500-79 (441)

NOTE: See page 5 for specifications and order information for this connector.



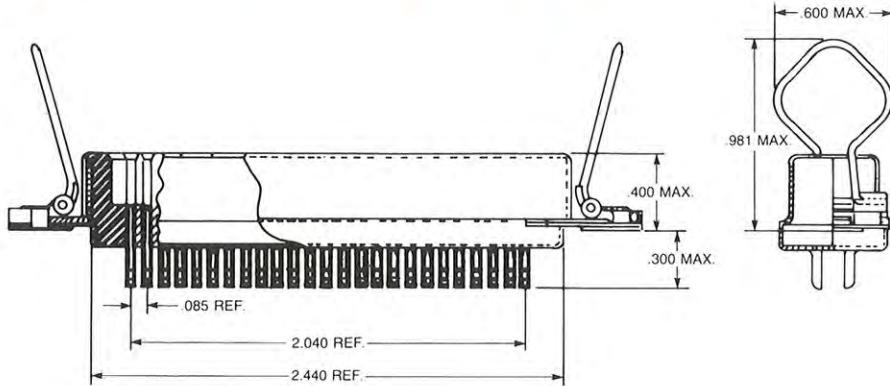
## SCSI solder type 50 position receptacle with spring latch

Applications: Feed-through Adapters

### order information

Part Number: 57-40500 (441)

NOTE: See page 4 for specifications and order information for this connector.



## SCSI overmold cable connectors (IDC)

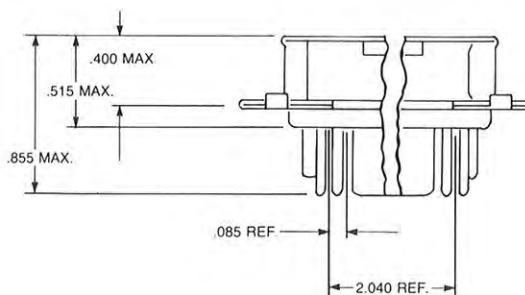
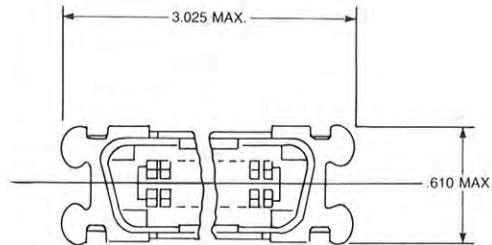
### 50 position plug for spring latching

Applications: Adapters, Peripheral Interface and Extended Cables

### order information

Part Number: 157-12500-10 (441)

NOTE: See page 15 for specifications and order information for this connector.



## SCSI overmold cable connectors (IDC)

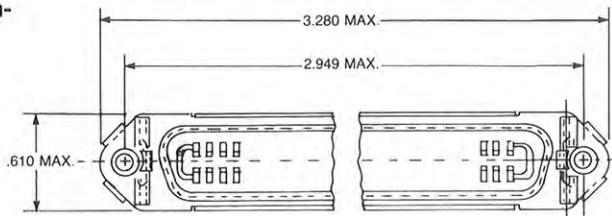
### 50 position receptacle with spring latch

Applications: Adapters; Peripheral Interface; and Extended Cables

#### order information

Part Number: 157-42500 (441)

NOTE: See page 15 for specifications and order information for this connector.



## SCSI overmold cable connectors (IDC)

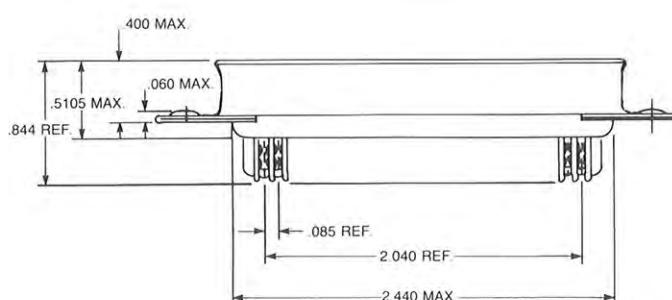
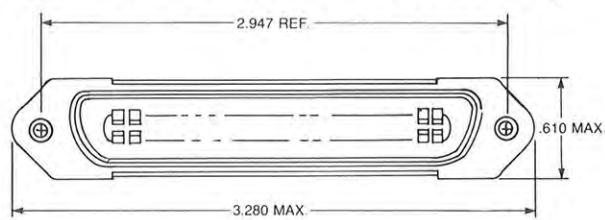
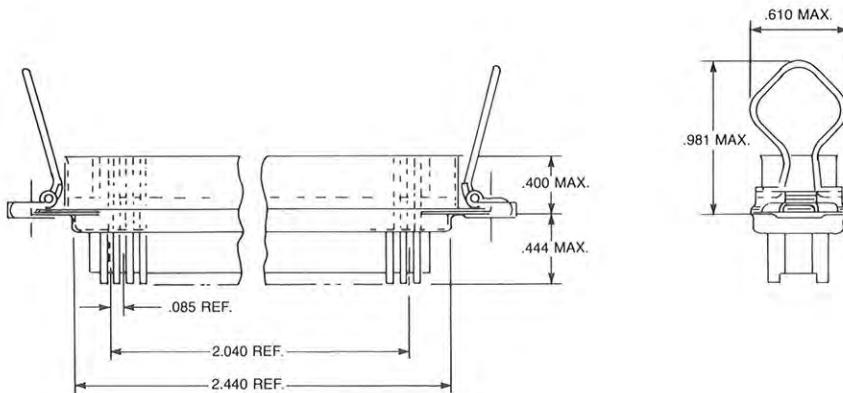
### 50 position plug for 4-40 mounting screws (not included)

Applications: Adapters, Peripheral Interface or Extended Cables

#### order information

Part Number: 157-12500-14 (441)

NOTE: See page 14 for specifications and order information for this connector.



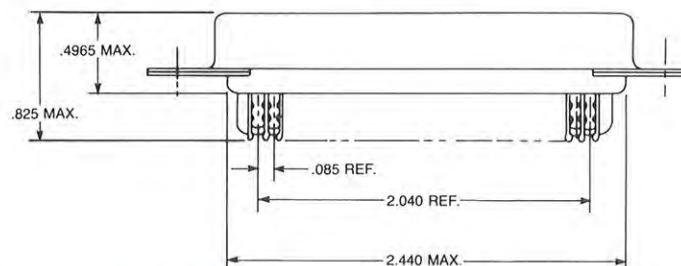
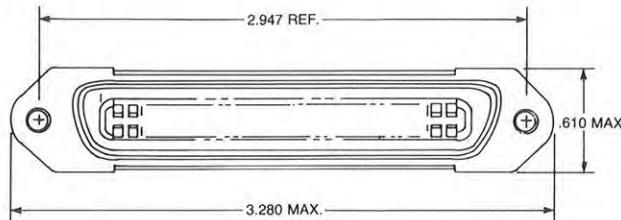
# SCSI overmold cable connectors (IDC)

## 50 position receptacle for 4-40 screws (not included)

**Applications:** Adapters; Peripheral Interface; and Extended Cables

### order information

Part Number: 157-22500-14 (441)



# SCSI overmold hood kit for 50 position connectors

This kit, including two hermaphroditic hood shells and a ferrule, reduces user pre-mold operations thus lowering labor costs. Also, the single crimp ferrule eliminates the need for an inner/outer crimp typical of other product offerings.

### applications

For use with the following

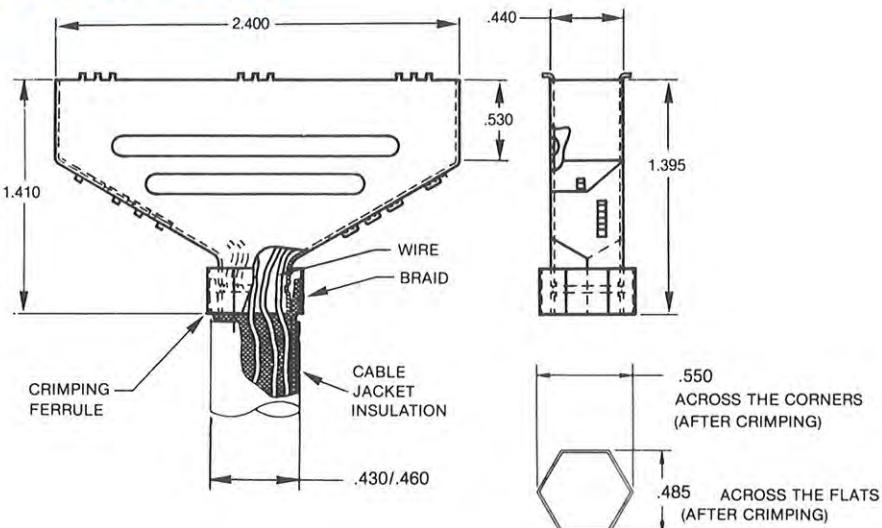
Amphenol connectors:

157-12500-10 (441) 157-12500-14 (441)  
157-22500-14 (441) 157-42500 (441)

Use suffix "508" for connector & overmold hood combination kit, i.e., 157-12500-10-(508)

### order information

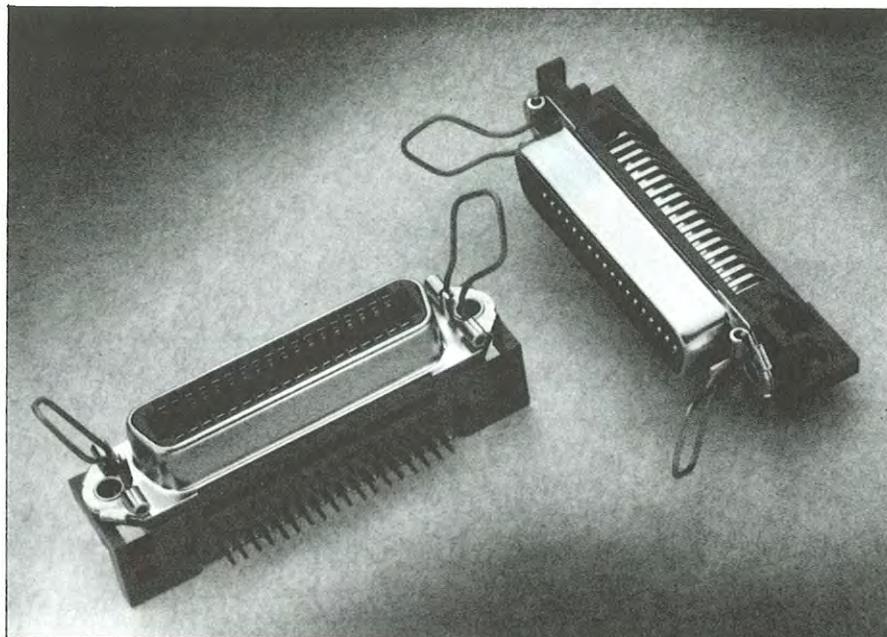
Part Number: 157-1869-501



#### Assembly Instructions:

- 1.) Slide ferrule over the cable.
- 2.) Remove jacket insulation to appropriate length.
- 3.) Remove braid to appropriate length.
- 4.) Roll back braid over the jacket insulation.
- 5.) Terminate the connector.
- 6.) Assemble the overmold hoods.
- 7.) Roll back braid over the hoods.
- 8.) Slide ferrule over the braid such that the braid is sandwiched between the hood and ferrule.
- 9.) Crimp the ferrule.

# general configuration 57LE series, right angle PC mount



## features

- Intermateable with Amphenol 57 series (solder termination) and 157 series Micro-Pierce® (solderless termination) connectors.
- Ribbon contacts are captivated in the connector housing to provide repeated mating and unmating without displacement of contacts.
- Availability of right angle header allows use of mass termination technology from P/C board to equipment panels.
- UL94V-O flammability rated material.
- Alternative plating for application flexibility.

## description

Compatible with both Amphenol 57 series solder-type and 157 series insulation displacement-type connectors, the Amphenol 57LE series comprises a family of all-plastic Micro-Ribbon connectors unique in its versatility. Versatility that results, in part, from a flexibility of configuration that enables you to obtain an EMI/RFI shielding capability through use of metal front shells.

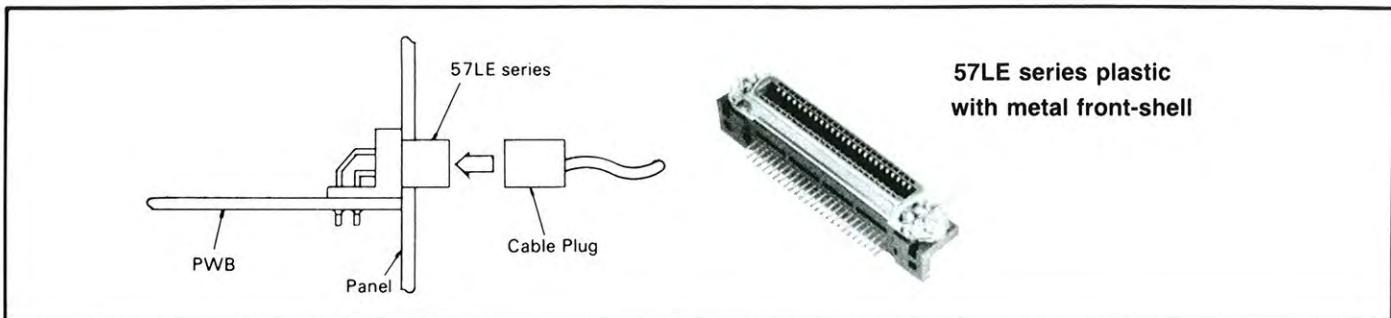
## general specifications

### 57LE

Current capacity	3 amp per contact
Voltage rating	500V AC (RMS)
Operating temperature	-55°C to +105°C
Contact resistance	35 MΩ max. at 1A DC
Insulation resistance	1000 MΩ min. at 500V DC
Dielectric withstanding voltage	1200V AC (RMS) at sea level
Contacts	Selectively gold plated
Dielectric	Polyester resin (UL 94V-0)
Front Shell (57LE)	Steel/nickel plating
Spring latch	Stainless steel

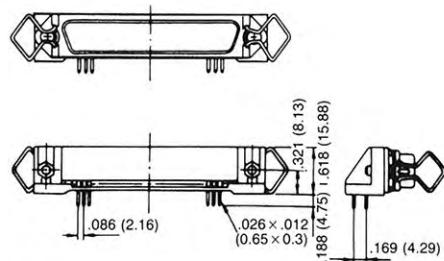
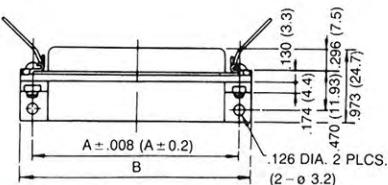
# right angle connectors

## 57LE series metal front shell



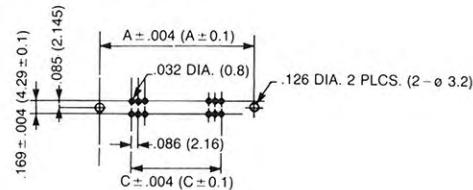
### dimensions

57LE series



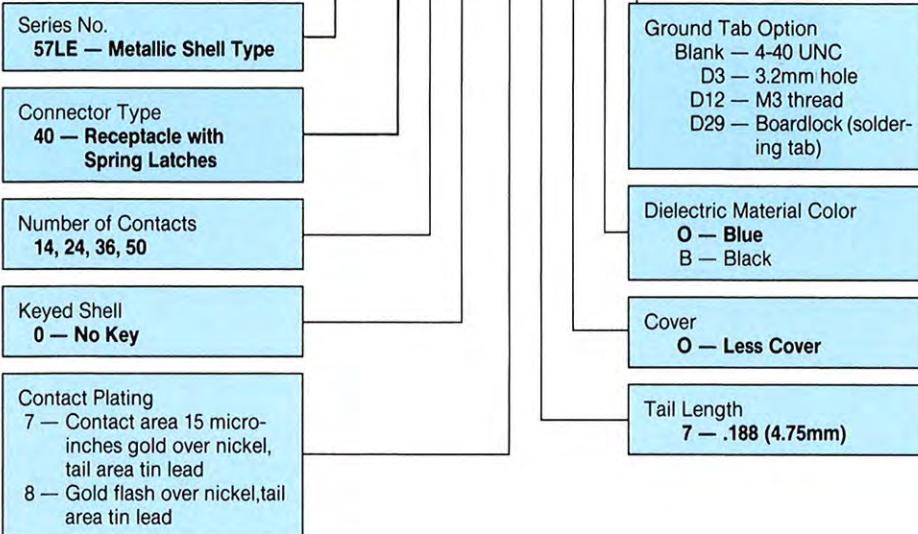
Number of Contacts	In.	A mm	In.	B mm	In.	C mm	In.	D mm
14	1.42	36.00	1.73	44.00	.510	12.96	1.40	35.5
24	1.84	46.78	2.16	54.78	.935	23.76	1.82	46.3
36	2.35	59.74	2.67	67.74	1.446	36.72	2.33	59.2
50	2.95	74.85	3.26	82.85	2.041	51.84	2.93	74.4

### PC board layout

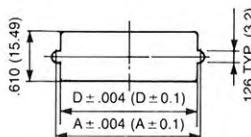


### order information

57LE - 40 XX 0 - X 7 O X X



### Panel cut-out

Panel Cut Out, Bottom Mounting  
(Thickness 1.6 MAX.)

## termination tooling

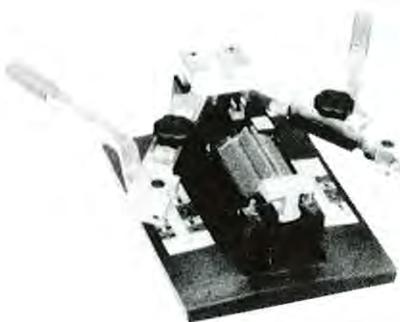
### Insertion Tool No. 356-251

The hand insertion/repair tool is designed for single wire termination into Amphenol 157 series connectors as well as for the opening and closing of cable clamps.



### Tele-Pierce® Hand Tool No. 356-246

This versatile bench mount tool is complete and ready for in-the-field termination of all types of running cable. It can be used as a low-volume production tool. Carrying case included.



### Adapter Kit No. 356-247

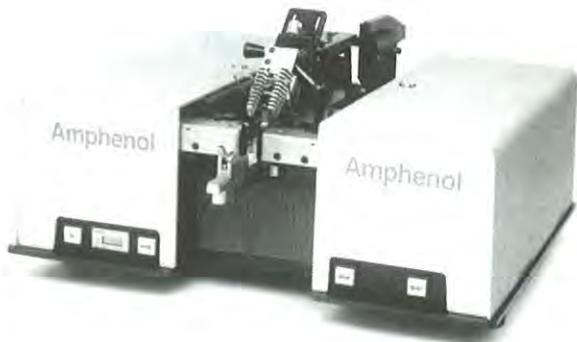
For use with No. 356-246 Tele-Pierce Hand Tool, this adapter kit allows termination of all types and sizes of top and side cable entry connectors as well as rack and panel connectors.

## termination tooling

### Electro-Pierce® Mark V Machine No. 359-429

The Electro-Pierce Mark V is a semi-automatic production tool for positioning and inserting cable one-pair-at-a-time into 157 series connectors. It features an internal micro-processor which controls all machine functions eliminating interconnecting cabling associated with external control units. Modularized design results in increased performance reliability and ease of maintenance. The Electro-Pierce Mark V can be programmed for termination of the complete line of 157 series connectors including 7, 12, 18, 25 and 32 wire pairs.

Also available for model "ACCU-PIERCE II"  
P/N 359-8157 for high volume manufacturing.



P/N 359-8157



P/N 359-429

### Pneumatic Crimp Tool (for overmold can) No. 358-408

Low cost pneumatic tool for hexagonal ferrule crimp. Lowers user installed cost on higher production applications. Crimp die No. 357-315-04 purchased separately.



### Hand Crimp Tool (for overmold can) No. 357-315

Economical hand tool for hexagonal ferrule crimp to cable and hood. Crimp die (No. 357-315-04) purchased separately.



### Crimp Die No. 357-315-04

Hexagonal crimp die for use with either hand crimp tool No. 357-315 or pneumatic crimp tool No. 358-408.



# connector hardware and accessories

## screws/nut

**57-1523-02** #4-40 x 3/8" long slotted round head taptite screw for use on cable clamp assembly.

**37-788-04** #2-56 NC-2A x 5/32" binding head machine screw with internal tooth lockwasher. Used to secure front and back shell on top and side cable entry connectors.

**57-1815-02** #4-40 x 5/8" long NC-2A fillister head screw, rolled head. Long screw used to lock mated pairs of running cable connectors such as: 57-10500-7; 57-20500-7; 157-72500-3; and 57-82500-3.

**34-1120** #3-48 NC2A x 5/16" long special screw for 57-60XXX connectors.

**41-333-3** #3-48 Elastic nut and washer for 57-60XXX connectors.

**57-1523-2P** Short screw for end cable entry type (pg. 17 & 19)

**57-1815-2P** Long screw for end cable entry type (pg. 17 & 19)

## latch

**57-1002-02** Spring latch. Wire locking device used on female connectors such as 57-40XXX and 57-60XXX connectors.

**57-1001-2** End disc. Retaining bracket for spring latch 57-1002-02.

**57-2035-2P** Spring latch for 57B series (pg. 9)

## hoods

**57-1030-2** Low profile hood (large 7/8" high) used on 57-10500-14 and 57-20500-7 connectors.

**57-1031-2** Low profile hood (small 5/8" high) used on 57-10500-7 and 57-20500-19 connectors.

**157-1836** Low profile plastic hood used on 157-79500-X and 157-89500-1 connectors, and connectors with deviation (431)

## dust cover

**57-1763** Dust cover for 50 contact male or female connectors.

## part number/page number index

Part Number	Page	Part Number	Page	Part Number	Page
34-0788-04	29	57-20140-04	3	57-40240-09	7
34-1120	29	57-20140-08	7	57-40240-11	7
41-0333-03	29	57-20140-10	7	57-40240-14	7
57-1001-02	29	57-20140-12	7	57-40240-15	8
57-1002-02	29	57-20240	3	57-40240-16	8
57-1030-02	29	57-20240-02	3	57-40360	4
57-1031-02	29	57-20240-08	7	57-40360-09	4
57-1523-02	29	57-20240-11	7	57-40360-12	7
57-1763	29	57-20240-14	7	57-40360-16	7
57-1815-02	29	57-20240-23	7	57-40360-21	8
57-1911-01	10	57-20240-24	8	57-40360-23	8
57-1912-02	10	57-20240-25	8	57-40360-24	7
57-2030	10	57-20360	3	57-40500	4
57-2031	10	57-20360-03	3	57-40500(441)	22
57-2039-802	12	57-20360-09	7	57-40500-04	4
57-2039-902	12	57-20360-10	3	57-40500-09	7
57-2054	10	57-20360-13	7	57-40500-16	7
57-10140	3	57-20360-15	7	57-40500-23	8
57-10140-04	7	57-20360-19	7	57-40500-24	7
57-10140-05	7	57-20360-20	8	57-40500-26	8
57-10240	3	57-20360-21	8	57-50140	4,6
57-10240-03	7	57-20500	3	57-50240	4,6
57-10240-04	3	57-20500-06	3	57-50360	4,6
57-10240-05	7	57-20500-07	6	57-50500	4,6
57-10240-12	7	57-20500-07(402)	6	57-60140	6
57-10240-13	8	57-20500-15	3	57-60240	6
57-10240-14	8	57-20500-19	6	57-60360	6
57-10360	3	57-20500-31	7	57-60500	6
57-10360-13	7	57-20500-58	7	57-BX50X-XXX00	9,21
57-10360-14	3	57-20500-65	7	157-1836	29
57-10360-17	7	57-20500-79	8	157-1869-501	24
57-10360-22	3	57-20500-85	7	157-12140	14
57-10360-25	7	57-20500-87	8	157-12240	14
57-10360-26	8	57-20640	3	157-12360	14
57-10360-27	8	57-30140	4,6	157-12360-05 (441)	15
57-10360-28 (441)	5	57-30240	4,6	157-12500	14
57-10360-29 (441)	5	57-30360	4,6	157-12500-03	14
57-10500	3	57-30360-18	4	157-12500-10(441)	15,22
57-10500-06	3	57-30500	6	157-12500-14(441)	23
57-10500-07	6	57-30500-03	4,6	157-12640	14
57-10500-07(402)	6	57-33140-01	5	157-19500-01	19
57-10500-14	6	57-33140-02	5	157-19500-02	19
57-10500-14(402)	6	57-33240-01	5	157-22140	14
57-10500-27	7	57-33240-02	5	157-22240	14
57-10500-46	7	57-33360-01	5	157-22360	14
57-10500-48	3	57-33360-02	5	157-22500	14
57-10500-69	8	57-33500-01	5	157-22500-03	14
57-10500-73	7	57-33500-02	5	157-22500-14(441)	24
57-10500-77	8	57-40140	4	157-22640	14
57-10500-79(441)	5,21	57-40140-8	7	157-29500-01	19
57-10640	3	57-40140-11	7	157-29500-02	19
57-20140	3	57-40240	4	157-29500-03	19

# part number/page number index

Part Number	Page
-------------	------

157-29500-04	19
157-32140	14,16
157-32240	14,16
157-32360	14,16
157-32360-03	14
157-32500	14,16
157-42140	14,15
157-42240	14,15
157-42360	14,15
157-42500	14,15
157-42500(441)	23
157-52140	15
157-52240	15
157-52360	15
157-52500	15
157-62140	16
157-62240	16
157-62360	16
157-62500	16
157-72500-03	17
157-72500-03(431)	17
157-72500-18	17
157-79500-01	19
157-79500-02	19
157-82500-03	17
157-82500-03(431)	17
157-82500-18	17
157-89500-01	19
157-89500-02	19
356-246	27
356-247	27
356-251	27
356-265	27
356-265-80	27
356-265-81	27
356-265-91	27
356-268	27
357-315	28
357-315-04	28
358-408	28
359-429	28
408-153818	3,14
408-153819	3,14
57LE-40XX0-X70X (X)	26

**Amphenol®**



COMMERCIAL D-SUBMINIATURE CONNECTORS

### D-Subminiature Connectors

**Amphenol®**



MODULAR JACKS

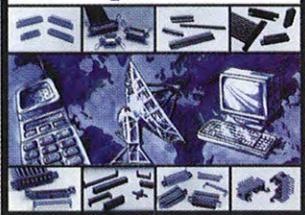
### RJ Modular Jacks



Amphenol®  
Filter Products

### FCC Filtered Connectors

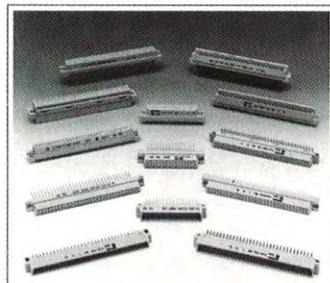
**Amphenol®**



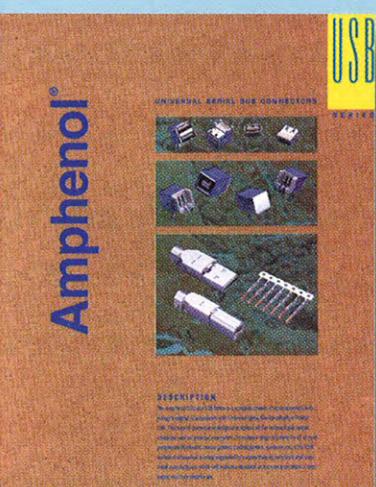
HEADERS & SOCKETS  
AND  
MASS TERMINATED  
IDC CONNECTORS

### Mass Terminated IDC Connections

AMPHENOL® DIN 41612 TWO-PIECE  
PRINTED CIRCUIT BOARD CONNECTORS  
SHORT FORM CATALOG



### DIN 41612 Circuit Board Connectors



### Universal Serial Bus Connectors

# Amphenol®

*Data / Telecom Products*

20 Melford Drive  
Scarborough, Ontario  
Canada M1B 2X6

Telephone: (416) 754-5656  
Facsimile: (416) 754-8668  
E-mail: sales@amphenolcanada.com

© Amphenol Canada Corp.  
Specifications subject to change without notice.  
Printed in Canada

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for I/O Connectors category:***

***Click to view products by Amphenol manufacturer:***

Other Similar products are found below :

[571763P](#) [58098-0628](#) [61-168618-12P](#) [D38999/20FJ29SB L/C](#) [72.250.1628.2](#) [72.250.2428.2](#) [74720-0505](#) [747680210](#) [76.350.0729.0](#) [76871-1403](#) [FCN-244F080-G/1](#) [FCN-260A9920](#) [FCN-268D024-G/2F#10X-R10](#) [MP-5T180MUNNA-005](#) [MP-5XRJ45UNNB-003](#) [PCS-E50FA](#) [PCS-XE26LKA](#) [PCS-XE26MA+](#) [PCS-XES68MS+](#) [G38A71314B](#) [91-569719-35R](#) [9776-18-6](#) [DX40-50P\(55\)](#) [1571250010](#) [157-22500-3](#) [MS3471L14-19P L/C](#) [171224-6031](#) [1888020-8](#) [91-569786-35H](#) [91-569786-35M](#) [91-644626-35P](#) [172501-4002](#) [172501-6002](#) [FCN-260C008-A/L0](#) [FCN-260C024-AL0](#) [FCN-261Z008](#) [FCN-268D008-G/1K](#) [2000314-1](#) [200331-1](#) [2007498-2](#) [PCR-E28LMDAG1+](#) [PCR-E36FC+](#) [PCS-E28FS+](#) [PCS-XE26SLFD+](#) [PCS-XE26SLFDT+](#) [G38A71214B](#) [HDRA-E68W1LFDT-SL](#) [HDR-E14MSG1+](#) [R88A-CNK81S](#) [CRT1-ATT02](#)