



WINCHESTER ELECTRONICS

QUICK REFERENCE CATALOG

**RACK & PANEL
CONNECTORS**

**PRINTED CIRCUIT
CONNECTORS**

DEVERELL ASSOCIATES
WELLINGTON
REC. 24 MAR 1980

ANSS



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Rack & Panel Connectors

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Quick Reference Information backed by Detail Response

Winchester Electronics connector engineering is the outgrowth of the company's long-standing, prolific, technical expertise in today's interconnections state-of-the-art. With more than 3 decades of innovative leadership in meeting the challenges designers face in the evolving arts of electronic packaging, Winchester Electronics is one of the most viable and ready resources for interconnection solutions, today.

This Quick Reference Catalog provides ready, highlight information on several of the most-frequently specified Winchester Electronics connector lines. For each connector series covered, basic descriptions, important features and applications are included. In addition, specifications, tabular notes on contacts and tools, as well as ordering guides are furnished.

Outline drawings on moldings, contacts, specifics on hardware and other accessories plus information on Winchester Electronics' entire line of interconnection products are available on request. Authorized Winchester Electronics Distributors, Winchester Electronics regional offices or the factory in Oakville, Connecticut will be happy to handle any requests promptly and answer any questions you may have.

WIN-COM™ 56 & 59 Series Low Cost Rack & Panel Connectors

Widely-used in mass production commercial and consumer electronics ranging from televisions, appliances, business and vending machines to automotive, computer and peripheral devices, WIN-COM crimp removable contact commercial connectors offer OEM specifiers two comprehensive lines of interconnections (in over 800 configurations each) to meet today's tighter design criteria: lowest cost; high performance, reliability, durability; producibility and fast availability.

WIN-COM 56 Series (.062" diameter contacts) and 59 Series (.093" diameter contacts), intermatable with similar competitive lines, offer unique advantages. Advanced-design, precision nylon plugs and receptacles snap into panels solidly, without mounting ear breakage. Pre-tin-plated pin and socket contacts (dip solder also available) lock securely in moldings. won't back out. Higher pin/socket withdrawal forces prevent accidental disconnects . . . fire hazards.

These and more features make WIN-COM 56 & 59 Series commercial connectors the answer to today's tighter cost/performance targets. Available off-the-shelf from Authorized Winchester Electronics Distributors worldwide.



WIN-COM 56 & 59 Series General Specifications

UL Approved and CSA Listed

Insulator Moldings

Material: General purpose nylon

Design: Precision-molded, polarized plug and receptacle housings snap and lock together for positive interface to resist shock, vibration and accidental disconnect. Pin and socket contacts intermixable in same molding for additional polarization.

Intermatability: Connectors intermate with comparable commercial connectors on the market.

Configurations:

56 Series: in 1, 3, 4, 5, 6, 8, 9, 12, 15, 24 and 36 circuit sizes.

59 Series: in 1, 2, 3, 4, 5, 6, 9, 12 and 15 circuit sizes.

Colors: Standard, Natural White. Optional, extra cost: Amber, Blue, Red, Brown, Yellow, Green, Orange, Gray and Black.

Holding Tabs: Standard. Moldings without tabs, optional.

Mounting:

56 Series: panel mounts for .060" thick panels available.

59 Series: panel mounts for .093" thick panels available. Panel mounts not available for 1 circuit plug or receptacle moldings.

Strain Relief: Available optionally for plugs and receptacles as follows: 56 Series, 15, 24 and 36 sizes only. 59 Series, 15 circuit size only.

Contacts

Contact Material: Brass

Plating: Tin-Plating for durability and corrosion resistance. See Ordering Guides at right for options.

Design: .062" dia. (156 Series) and .093" dia. (159 Series) pin and socket contacts precision-stamped and formed for excellent electromechanical interface. Crimp-type terminations (solder tail configuration also available, loose contacts only).

Retaining fingers in contacts lock positively into moldings, prevent back-outs, increase reliability.

Interface: Pin and socket contacts mate securely.

Electrical

Electrical Rating, 156 Series: CSA listed, Card No. 34182, UL approved, Card No. E31650

5 amps per circuit, 1 to 15 circuit sizes

4 amps per circuit, 24 and 36 circuit sizes

Electrical Rating, 159 Series: CSA listed, Card No. 34182, UL approved, Card No. E31650

12 amps per circuit, 1 to 3 circuits

9 amps per circuit, 4 to 9 circuits

7.5 amps per circuit, 12 and 15 circuits

Operating Temperatures: Temperature range to 105 degrees C.

56 Series Moldings Ordering Guide

56-	09	S	2	0	0	0
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Series designations for .062" dia. contacts

No. of circuits
01, 03, 04, 05, 06, 08,
09, 12, 15, 24 and 36

Molding type
P-Plug molding for male contacts
S-Receptacle molding for socket contacts

Mounting Feature
1-No panel mounts.
2-With panel mount.

Holding tabs
0-standard tabs
1-without tabs

Strain relief
0-No strain relief
R-with strain relief, but
for size 15, 24 or 36 only.
Consult factory for
availability.

Colors
0-Natural White standard*
1-Amber
2-Blue
3-Red
4-Brown
5-Yellow
6-Green
7-Orange
8-Gray
9-Black

*All other colors available at extra cost.

Ordering Guide .062" Dia. Contacts**

156-	10	18	S	-
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Series designation for .062" dia. contacts

10-single contacts
09-contacts on reel

No number -
pre-tin brass - standard
0-phosphor bronze, gold plated.
9-CA-725 alloy with gold stripe

Contact type
P-pin
S-socket

Wire size/type
18-for wire sizes 18, 20, 22 AWG
24-for wire sizes 24, 26, 28, 30 AWG
33-designates dip solder tail. (.025 x .030 Chevron)

When ordering contacts, always state **total number of contacts desired . . . **not** number of reels.

59 Series Moldings Ordering Guide

59-	04	S	2	0	0	0
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Series designation for .093" dia. contacts

No. of circuits
01, 02, 03, 04, 05,
06, 09, 12 and 15

Molding type
P-Plug molding for male contacts
S-Receptacle molding for socket contacts

Mounting feature
1-No panel mount
2-With panel mount*

Holding tabs
0-Standard, tabs
1-Without tabs

Strain relief
0-No strain relief
R-With strain relief, for size 15 only. Consult factory for availability.

Color
0-Natural white standard†
1-Amber
2-Blue
3-Red
4-Brown
5-Yellow
6-Green
7-Orange
8-Gray
9-Black

†All other colors available at extra cost.

*Panel mounts not available for 1 circuit plug or receptacle moldings.

Ordering Guide .093" dia. contacts**

159-	09	18	P	-
.093" dia. contacts		Contact type		
10-single contacts		P-pin		
09-contacts on reel		S-socket		
Wire size/type		No number -		
14-for wire 14, 16 AWG		pre-tin brass - standard		
18-for wire 18, 20, 22 AWG		0-phosphor bronze, gold plated		
24-for wire 24, 26, 28 30 AWG		9-CA 725 alloy with gold stripe		
50-designates dip solder tail. (.050 x .023 Chevron)				

When ordering contacts, always state **total number of contacts desired . . . **not** number of reels.

CRIMP APPLICATION TOOLING

For 156 Series	Tool Catalog #	Wire Sizes
Automatic Crimp Machine	107-0760	18 - 30
Applicator	107-0761	18 - 30
Plier Crimp Tool	107-0656	18 - 30
Ratchet Crimp Tool	107-0655	18 - 30
Contact Insertion Tool	107-1015	-
Contact Removal Tool	107-10460	-
For 159 Series	Tool Catalog #	Wire Sizes
Automatic Crimp Machine	107-0760	14 - 30
Applicator	107-0762	14 - 30
Plier Crimp Tool	107-0658	14 - 24
Plier Crimp Tool	107-0656	24 - 30
Ratchet Crimp Tool	107-0657	14 - 24
Ratchet Crimp Tool	107-0655	24 - 30
Contact Insertion Tool	107-1015	-
Contact Removal Tool	107-10463	-

MAC-COM Series Crimp Removable Contact Rack & Panel Connectors

A broad, flexible line of quality rack and panel connectors at modest prices, the MAC-COM Series delivers excellent performance in 90% of industrial and commercial electronics, today. They are suitable for many uses, including: calculators, bank terminals, point-of-sale, home entertainment, computer and peripheral devices and more. Available in 8 sizes utilizing gold-plated phosphor bronze stamped and formed crimp removable contacts or dip solder contacts. Hardware includes jackscrews, guides, hoods, vibration locks and more. Available from Authorized Winchester Electronics Distributors.

MAC-COM Series General Specifications

Connector Moldings

Material: Black Phenolic type MFH per MIL-M-14

Contact Identification: Standard contact identification is alphabetical. To order numerical identification on sizes 34 or 50, use MNAFC or XNAFC in place of MRAFC or XAFC respectively.

Polarization: Gold plated guides provide positive polarization. Polarized jackscrews of passivated stainless steel with anodized aluminum knobs are available along with a wide array of plug and receptacle shells.

External Mounting: Various mounting plate styles are available for secure anchoring of either plug or receptacle configurations.

Contacts

Material: Phosphor Bronze.

Plating: Gold over Nickel. For special plating consult factory.

Retention in Moldings: 10 lbs. minimum per contact.

Engaging/Disengaging: 3 lbs. maximum engaging per contact pair. 1 lb. minimum disengaging per contact pair.

Wire Range: #18 - #30 AWG (two crimp ranges)

Electrical Rating: 156 Series CSA listed Card No. 34182, UL approved, Card No. E31650

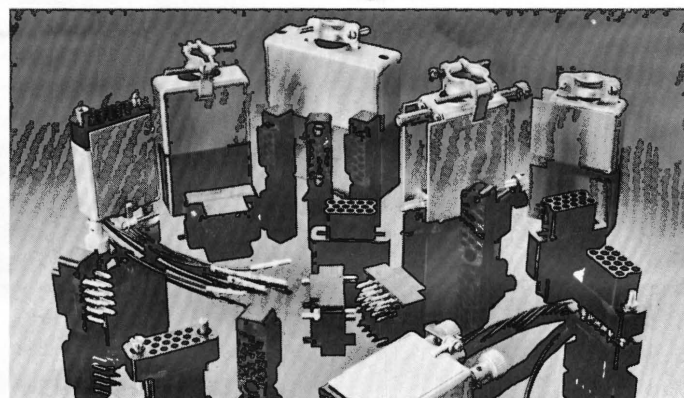
10 amps per circuit sizes 9 and 14.

7 amps per circuit sizes 18, 20, 26 and 34.

4 amps per circuit sizes 42 and 50.

CRIMP/APPLICATION TOOLING - 56 SERIES

Description	Tool Catalog #	Wire Sizes
Automatic Crimp Machine	107-0760	18-30
Applicator	107-0761	18-30
Plier Crimp Tool	107-0656	18-30
Ratchet Crimp Tool	107-0655	18-30
Contact Insertion Tool	107-1015	—
Contact Removal Tool	107-10460	—



Crimp Strength: Wire Size Min. Tensile [lbs.]

18	20
20	15
22	10
24	8
26	5
28	3
30	2

Electrical Characteristics

Insulation Resistance: 500 volts per MIL-C-28748

Hi-Potential: 2 KVA per MIL-C-28748

Thermal Shock: Per MIL-C-28748. Contact resistance at 11.5 amps - 45 millivolts maximum.

Humidity: Per MIL-C-28748

Insulation resistance - 500 volts

Hi-Potential - 2 KVA

Contact resistance at 5 amps - 20 millivolts maximum

Contact resistance at 11.5 amps - 45 millivolts maximum

Durability: After (25) cycles

Contact resistance at 5 amps - 20 millivolts maximum

Contact resistance at 11.5 amps - 45 millivolts maximum

Ordering Guide .062" Dia. Contacts**

156-	10	18	S	O
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Series designation for .062" dia. contacts

10-single contacts
09-contacts on reel

0-phosphor bronze, gold plated(std.)

Contact type
P - pin S - socket

Wire size/type
18-for wire sizes 18, 20, 22 AWG
24-for wire sizes 24, 26, 28, 30 AWG
33-designates dip solder tail
(.025 x .030 Chevron)

When ordering contacts, always state **total number of contacts desired . . . **not** number of reels.

XAFC Ordering Guide

XAFC	9	P	C	1	A	3	0	X
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XAFC Series

Number of contacts
9, 14, 18, 20, 26, 34, 42, 50

P - pin
S - socket

GUIDES

0 - if none required
G - phosphor bronze cylindrical guides
K - beryllium copper cylindrical guides
N - brass cylindrical guides
Add "SS" for stainless steel guides (Ex. "NSS")
"P" indicates two guide pins (Ex. NP)
"S" indicates two guide sockets (Ex. GS)

JACKSCREWS

0 - if none required
M - polarized short turnable jackscrew and jacksocket with standard knobs. Cannot be used with hood.
C - polarized long turnable jackscrew and jacksocket with standard knobs; to be used with hood.
W - polarized long turnable jackscrew and jacksocket with straight knob; to be used with hood.
D - polarized one-piece mono-jackscrew and mono-jacksocket (no separate knob) to be used with hoods on sizes, 34, 42, 50.
F - polarized fixed jackscrew and jacksocket usable with or without hood; (no knob required).
J - non-polarized short turnable jackscrews with standard knobs; cannot be used with hood.
L - non-polarized long turning jackscrews with standard knob; to be used with hood.
R - non-polarized fixed jacksockets - no knob required: usable with or without hood.
FZ - same as F but with 6-32 mtg. thd.
*** MW - same as M but with knurled round knob with internal hex.

Special Features

Omit letter when none are required
G - bulkhead gasket. Use only when mounting plate is specified.
F - face gasket. Use with male insert only.
B - if both bulkhead and face gaskets are desired.
X - large cable opening for hoods. Check plant for availability information on all special features.

Mounting Plates

0 - when no mounting plated is required
† 1 - mounting plate - standard
** - mounting plate, narrow style
*** 3 - stainless steel mounting plate.
† - mounting plates are not used with M, C, J, L, or D jackscrews.
** - not available for entire series. Consult Sales Engineering Dept. for available types.

Hoods

0 - no hood
3 - hood, top opening, for use with type C, D, or L jackscrews.
4 - hood, side opening, for use with type C, D, or L jackscrews.
5 - hood, top opening, for use with F style jackscrews and all guides.
6 - hood, side opening, for use with F style jackscrews and all guides

Polarization Position

A, B, C, E, F, or G

Omit letter when polarization is not required.

Shell Type

0 - no shell
1 - plug shell
2 - receptacle shell
3 - plug shell used with mono-jacks

4 - receptacle shell used with mono-jacks
*** 6 - flanged receptacle shell
*** 7 - plug shell stainless steel
*** 8 - receptacle shell stainless steel
*** - request availability information

*Use XAFC Ordering Guide if Mounting Plates and/or shells are required.

MRAFC Ordering Guide

MRAFC	34	S	G	H	VL
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MRAFC Series

Number of Contacts
9, 14, 18, 20, 26, 34, 42, 50

Contact Designation
P - pin molding
S - socket molding

Guides and Jackscrew Locks

Guides
G - Phosphor Bronze cylindrical guides
K - Beryllium Copper cylindrical guides
N - Brass cylindrical guides
Add "SS" for Stainless Steel guides (Ex. "NSS")
"P" indicates two guide pins or two jackscrews (Ex. JTCP)
"S" indicates two guide sockets or two jacksockets (Ex. GS)

Jackscrew Locks

J - polarized fixed jackscrew and jacksocket
JT - polarized short turning jackscrew and jacksocket
JTC - polarized long turning jackscrew and jacksocket
JTD - polarized long turning mono-jackscrew and mono-jacksocket for sizes 34, 42, 50 only.

Vibration Locks

V-lock tab
V2-lock tab (50 only)
VL-lever/pivot assembly
VL2-lever/pivot assembly (50 only)

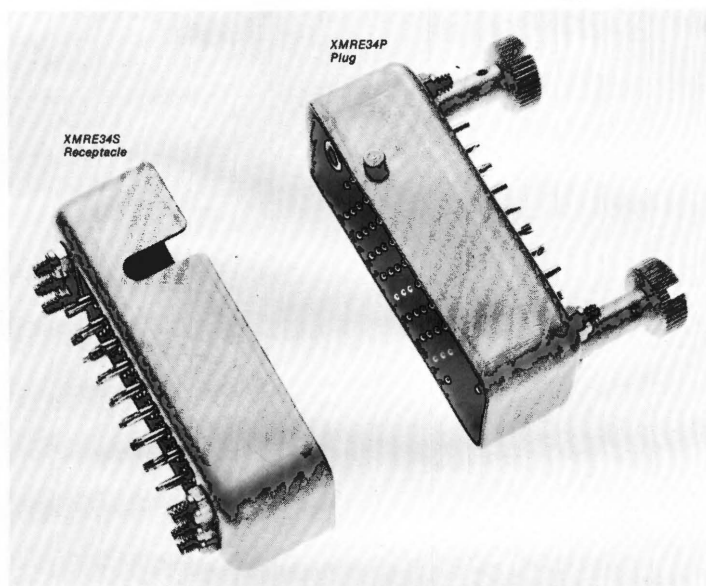
Hoods

H - standard top opening. Available in 26, 34, 42 sizes only.
H1 - standard side opening. Available in all sizes.
H8 - large top opening. Available in 26, 34, 42, 50 sizes only.
H9 - large side opening. Available in all sizes.
H13 - Large top opening high hood. Available in 9, 14, 18 and 20 sizes only.

†Use MRAFC Ordering Guide if Vibration Locks are required.

XMRA/XMRE Series External Miniature Rectangular Connectors

Compact, rugged and lightweight, XMRA/XMRE External Miniature Connectors are, in fact, first cousins to the MRA/MRE Series, offering the same flexibility and advantages of true miniaturization. This precision-design, high performance and reliability-proven connector series meets requirements of MIL-C-28748 and handles the same heavy working voltages and high current ratings as the MRA/MRE Series . . . with additional features incorporated for external mounting service. These include corrosion-resistant anodized aluminum protective shells and hoods, screw lock couplings, potting forms, mounting plates and other accessories to provide durability, strength and assured performance. Utilized for external mounting on walls, bulkheads, panels and other exposed surfaces as well as in external cable-to-cable interconnections, XMRA/XMRE Series connectors are available off-the-shelf from Winchester Electronics Distributors.



XMRA/XMRE General Specifications

Current Rating: XMRA, 13 amps. XMRE, 7.5 amps.

Electrical Data: Meet high potential performance of MIL-C-28748.

Dielectric: Minimum withstand voltage, 1 minute electrification at 1000 VAC for XMRA; 1 minute at 1200 VAC for XMRE, sea level.

Moldings: Plugs and receptacles in mineral-filled melamine. Diallyl phthalate available, consult Sales Dept.

Number of Contacts: XMRA: 9, 14, 20, 34, 42, 50, 50-8, 66, 75 and 104. XMRE: 9, 14, 18, 20, 26, 34, 42, 50, 75 and 104.

Pin Contacts: Material, gold-plated brass. XMRA, .062" dia. XMRE, .040" dia.

Socket Contacts: Material, high conductivity copper alloy, gold plated.

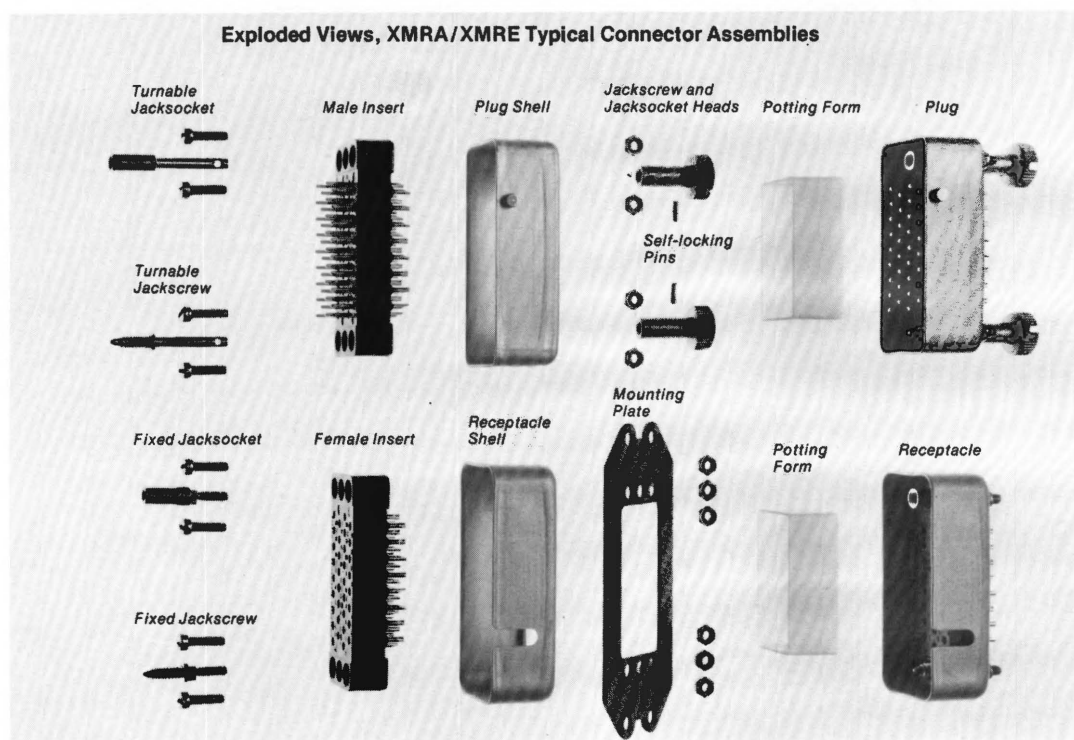
Terminations: Solder cup.

XMRA, .070" dia. for up to #16 AWG stranded wire.

XMRE, .048" dia. for up to #20 AWG stranded wire.

Polarization: via jackscrews / jacksockets or guide pins and sockets. Polarizing stud in plug shell and mating slot in receptacle shell alternate method.

Hood: Top and side opening anodized aluminum hoods for both plugs and receptacles available options.



XMRA/XMRE Series Ordering Guide

XMRE	34	S		F	2	A	1	10		
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Series Designation
XMRE - 7.5 amps
XMRA - 13 amps

No. of Contacts
XMRE: 9, 14, 18, 20, 26, 34, 42, 50, 75, 104.
XMRA: 9, 14, 20, 34, 42, 50, 50-8, 66, 75, 104.

Contact Type
P - Pin
S - Socket

Contact Special
Use for special material, finish or style of contact
Solder cup termination standard.
Consult Sales Dept.

Guides and Jackscrew Locks
G-Phosphor bronze cylindrical guides
K-Beryllium copper cylindrical guides
N-Brass cylindrical guides
M-Polarized short turning jackscrew and jacksocket. Cannot use with Hoods.
C-Polarized long turning jackscrew and jacksocket, used with Hoods.
D-Polarized mono-jackscrew and mono-jacksocket, used with Hoods, sizes 34, 42, 50, 50-8, 66, 75 and 104.
F-Polarized fixed jackscrew and jacksocket, used with or without Hood. (No knob required.)
J-Non-polarized short turning jackscrews, cannot used with Hoods.
L-Non-polarized long turning jackscrews, used with Hoods.
R-Non-polarized fixed jacksockets, used with or without Hoods. (No knob required).
FZ-Same as F, but with 6-32 mtg. thd. (standard on size 104)

Shell Type
1-Plug shell
2-Receptacle shell
3-Plug shell, used with mono-jacks.
4-Receptacle shell, used with mono-jacks.
7-Stainless steel plug shell (sizes 66, 104 only)
8-Stainless steel receptacle shell (sizes 66, 104 only)

X - large cable opening for Hoods.†

Special Gaskets†
omit if not required.
G-bulkhead gasket. Use only when mounting plate specified.
F-face gasket. Use with male insert only.
B-use if both bulkhead and face gaskets are required.
†Check plant for availability details on all above features.

Mounting Plates*
0-no mounting plate required.
1-standard mounting plate
3-stainless steel mounting plate, for sizes 50 and 104 only.
*Mounting plates not used with M, C, D, J or L jackscrews.

Potting Forms and Hoods
0-no potting form required
1-potting form required
2-deep drawn hood, side opening, for all guides and F and R jackscrews.**
3-hood, top opening for C, D, L jackscrews.
4-hood, side opening, for C, D, L jackscrews.
5-hood, top opening, for all guides and F jackscrews.
6-hood, side opening, for all guides and F jackscrews.
7-deep drawn hood, top opening, for C, D, L jackscrews.**
8-deep drawn hood, side opening, for C, D, L jackscrews.**
9-deep drawn hood, top opening, for all guides and F and R jackscrews.**
**for 34, 50-8, 104 sizes only.

Polarization Position
A, B, C, D, E, F or G.
Omit when polarization not required.

MRAC Series Miniature Rectangular Connectors

Compact, lightweight and capable of withstanding unusually high currents (13 amps) and heavy voltages (2000 VAC, sea level) relative to their miniature size, MRAC miniature rack & panel connectors utilize removable contacts to save time and effort and allow the designer greater flexibility in circuitry choices. Pin and socket contact types available (and ordered separately) are: MRAC Series 100 crimp removable contacts; dip solder removable contacts; solder cup removable contacts . . . and MRAC removable contacts with .025" and .045" wire wrap tails and stabilizing bushings. Insulator moldings are diallyl phthalate, standard. A variety of options include polarized and fixed jackscrews/jacksockets, hoods, vibration locks, guides and more. MRAC Series connectors meet the performance requirements of MIL-C-28748. They are available off-the-shelf from Authorized Winchester Electronics Distributors.

Ordering Guide MRAC Moldings

MRAC	34	S	G	H	VL
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MRAC Series Designation

Number of Contacts
9, 14, 18, 20, 26, 34, 41,
42, 50, 66, 75, 104

*Contact Designation—
P-Pin Molding
S-Socket Molding

*Contacts must be ordered
separately. See Tables below.

Guides and Jackscrew Locks

Guides
G-Phosphor Bronze Cylindrical
Guides
K-Beryllium Copper Cylindrical
Guides
N-Brass Cylindrical Guides
Add "SS" for Stainless Steel
Guides (Ex. "NSS")
Guides are not recommended
for Size 104

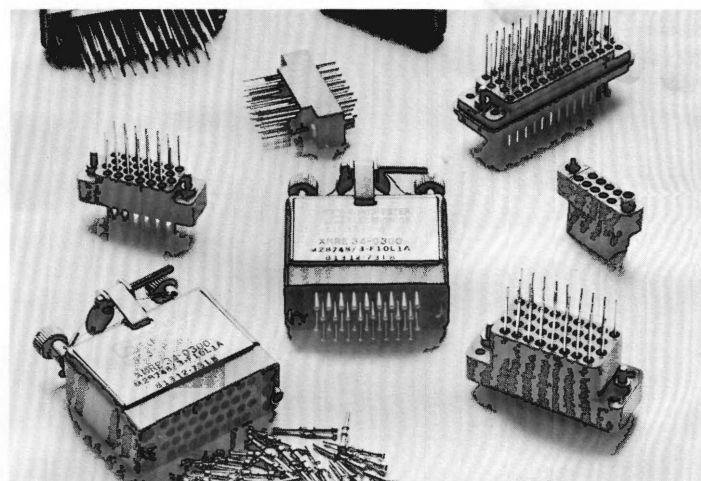
"P" indicates two Guide Pins or
two Jackscrews. (Ex. JTCP)
"S" indicates two Guide
Sockets or two Jacksockets.
(Ex. GS).

Jackscrew Locks

J-Polarized Fixed Jackscrew and Jacksocket
JT-Polarized Short Turning Jackscrew and Jacksocket
JTC-Polarized Long Turning Jackscrew and Jacksocket
JTD-Polarized Long Turning Mono-jackscrew and
Mono-jacksocket for Sizes 34, 42, 50, 66, 75 and 104 only.
JZ-Same as J but with 6-32 mtg. thd. (std. on 104)

Vibration Locks
V-Lock Tab
V2-Lock Tab
(sizes 50, 75)
VL-Lever & Pivot
Assembly
VL2-Lever & Pivot
Assembly
(sizes 50, 75)

Hoods
H-Standard Top Opening
Available in 26, 34, 41, 42, 66,
75, and 104 sizes only.
H1-Standard Side Opening.
Available in all sizes.
H8-Large Top Opening.
Available in 26, 34, 42, 50 and
75 sizes only.
H9-Large Side Opening
Available in all sizes.
H13-Large Top Opening High
Hood. Available in 9, 14, 18
and 20 sizes only.



MRAC Series Specifications

Current rating: Up to 13 amps

No. of contacts: 9, 14, 18, 20, 26, 34, 41, 42, 50, 66,
75, 104

Contacts: Must be ordered separately. Select from
crimp, solder, or Wire-Wrap* termination contacts.

Contact identification: Standard contact
identification is alphabetical except for MRAC66 and
75 which have numerical identification. To order
numerical identification on MRAC 34, 50 or 104,
specify MNAC**P or S.

Electrical data: Meets high potential performance
of MIL-C-28748C, para. 3.6.3. The dielectric
withstanding voltage is one minute electrification at
2000 VAC (sea level).

Dielectric: Standard material is diallyl phthalate,
per MIL-M-14, SDG-F, color gray.

Qualification: MIL-C-28748

Polarization: Gold plated guides provide positive
polarization. Polarized jackscrews of passivated
stainless steel with anodized aluminum knobs are
available.

Hoods: Anodized aluminum. May be applied to
either plug or receptacle. Both top and side opening
hoods available.

MRAC CRIMP REMOVABLE CONTACTS

CONFIGURATION	MAXIMUM STRANDED WIRE SIZE	PIN CATALOG NO.	SOCKET CATALOG NO.
13 amp contacts	14	100-1014P	100-1014S
13 amp contacts	16	100-1016P	100-1016S
13 amp contacts	20	100-1020P	100-1020S
13 amp contacts	24	100-1024P	100-1024S
7.5 amp contacts	16	100-2016P	100-2016S
7.5 amp contacts	20	100-2020P	100-2020S
7.5 amp contacts	24	100-2024P	100-2024S

MRAC WIRE WRAP REMOVABLE CONTACTS

CONFIGURATION	PIN CATALOG NO.	SOCKET CATALOG NO.
Wire Wrap Termination	8114	8113
Wire Wrap Termination with Stabilizing Bushing	8114SB	8113SB

*Wire Wrap® is a registered trademark of Gardner-Denver.

*Request availability information.

For complete specifications on Accessories,
contact Winchester Electronics Division.

XAC Series External Miniature Rectangular Connectors

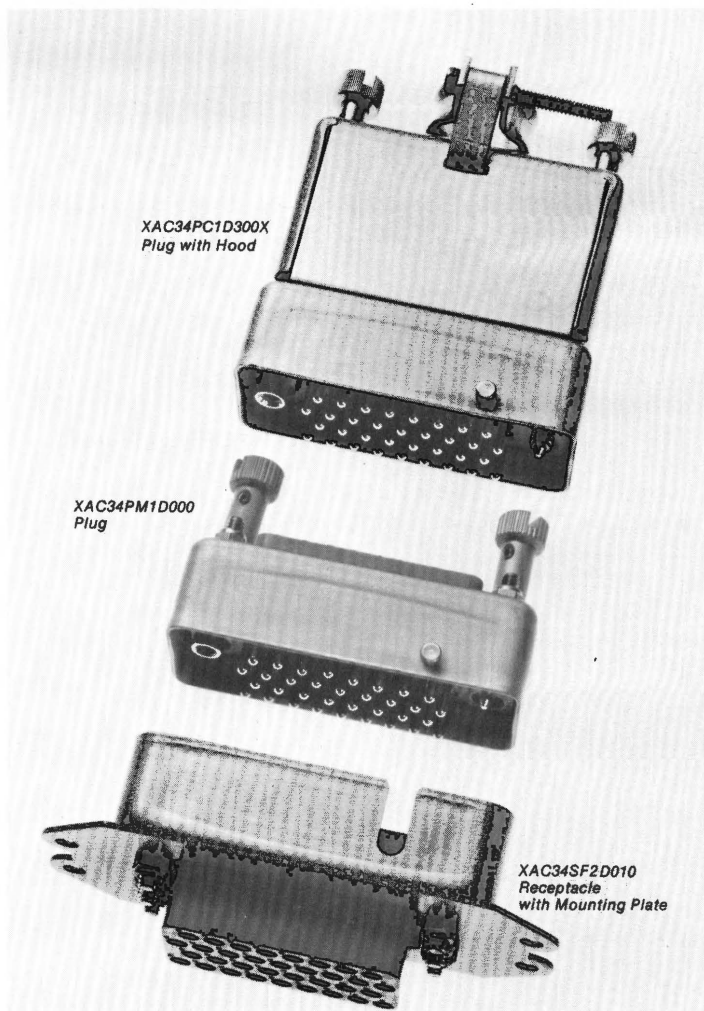
Insuring completely-reliable interconnections under adverse, external conditions, XAC miniature connectors are the external installation counterpart of MRAC Series crimp removable contact connectors. Offering parallel capabilities in high voltage (2000 VAC, sea level) and high current rating (13 amps) performance, XAC connectors have the advantage of true miniatures. Flexibility in circuitry choice and modification ease due to removable contacts is another plus. XAC moldings of diallyl phthalate accept four types of pin and socket contacts: MRAC Series 100 crimp removable contacts; dip solder removable contacts; solder cup removable contacts; and MRAC removable contacts with .025" and .045" wire wrap tails with stabilizing bushings. Contacts are ordered separately (see opposite page). The XAC Series meets the requirements of MIL-C-28748. A variety of hardware includes shells, hoods, mounting plates, screw lock couplings, gaskets and more. Available off-the-shelf from Authorized Winchester Electronics Distributors.

XAC Specifications

Polarization: via jackscrews/jacksockets or guide pins and sockets. Pin and slot polarization on shells (7 positions available) alternate method.

Accessories: Shells, formed and drawn hoods, mounting plates, jackscrews/jacksockets, guides and special gaskets available optionally.

* Refer to MRAC Specifications on previous page, also.



XAC Series Ordering Guide

XAC	34	S	D	4	B	3	O	O	
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Series Designation

No. of Contacts
9, 14, 18, 20, 26, 34,
42, 50, 66, 75, 104.

Contact Type
P - Pin
S - Socket

Jackscrew Locks

M-Polarized short turning jackscrew and jacksocket. Cannot use with Hoods.
C-Polarized long turning jackscrew and jacksocket, used with Hoods.
D-Polarized mono-jackscrew and mono-jacksocket, used with Hoods, sizes 34 - 104, except size 42.
F-Polarized fixed jackscrew and jacksocket, used with or without Hood. (No knob required).
J-Non-polarized short turning jackscrews. Cannot use with Hoods.
L-Non-polarized long turning jackscrews, used with Hoods.
R-Non-polarized fixed jacksockets, used with or without Hoods. (No knob required)
FZ-Same as F, but with 6-32 mtg. thd. standard on 104 only.

Hoods

2-deep drawn hood, side opening, for guides and F or R jackscrews.***
3-hood, top opening, for C, D, L jackscrews.
4-hood, side opening, for C, D, L jackscrews.
5-hood, top opening, for all guides and F jackscrews
6-hood, side opening, for all guides and F jackscrews
7-deep drawn hood, top opening, for C, D, L jackscrews.***
8-deep drawn hood, side opening, for C, D, L jackscrews.***
9-deep drawn hood, side opening, for guides and F or R jackscrews.***

*** F 34, 50-8, 104 sizes only.

Polarization Position

A, B, C, D, E, F or G
Omit when polarization not required.

X - large cable opening for Hoods.†

Special Gaskets†

Omit if none required.
G-bulkhead gasket. Use only when mounting plate is specified.
F-face gasket. Use with male insert only.

B-use if both bulkhead and face gaskets are required.

†Check plant for availability details on all above features.

Mounting Plates*

0-no mounting plate required.
1-standard mounting plate.
3-stainless steel mounting plate.**
* Mounting plates not used with M, C, D, J or L jackscrews.
** Not available for entire series. Consult Sales Dept.

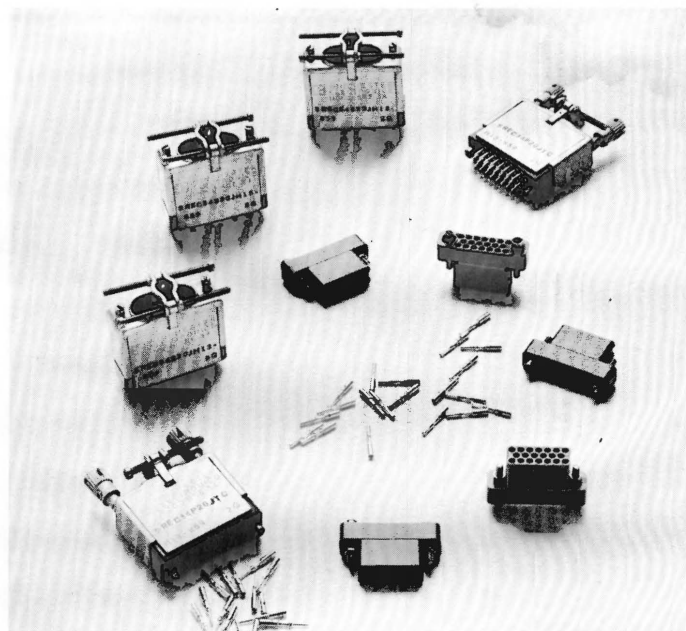
Shell Type

1-plug shell
2-receptacle shell
3-plug shell, used with mono-jacks.
4-receptacle shell, used with mono-jacks.

7-stainless steel plug shell (sizes 66, 104 only)
8-stainless steel receptacle shell (sizes 66, 104 only)

SREC Series Subminiature Removable Contact Connectors

Removable contacts to simplify circuitry design, changes and advances. High dielectric strength diallyl phthalate insulators to handle relatively heavy voltages and currents for connectors so small. These and more unique features have made reliability and applications proven SREC Subminiature rack and panel connectors the hands-down first choice with designers. Ideal for today's higher density packaging, SREC applications include aircraft instrumentation, minicomputers, portable and mobile equipment, business machines and more. The SREC Series utilizes precision subminiature removable contacts, which are ordered separately: SREC .030" dia. crimp removable pin and socket contacts . . . or SREC wire wrap removable pin and socket contacts with .025" tails and stabilizing bushings. Contact spacings are typically .081" or .090", centers. A broad range of options includes hoods, guides and jackscrew locks. Available from Authorized Winchester Electronics Distributors.



SREC Specifications

Current rating: 5 amps

No. of contacts: 4, 5, 7, 9, 11, 14, 18, 20, 26, 29, 34, 44, 50

Pin contacts: .030" dia. 4 indent crimp. Leaded commercial bronze, gold plated.

Socket contacts: Phosphor bronze, gold plated.

Terminations: Crimp or wire-wrap .025" sq. post crimped in contact. Will accommodate #20-#28 AWG stranded wire. Consult Sales Dept. if other sizes are desired.

Dielectric: Glass-filled diallyl phthalate per MIL-M-14, SDG-F.

Electrical data: The dielectric withstanding voltage is one minute electrification at 1400 VAC.

Jackscrews: Long and short turning, passivated stainless steel. Anodized aluminum knurled knobs equipped with set screws.

Guides: Type N is standard, brass for extra mechanical strength. Type K - beryllium copper for high electrical conductivity. Type NSS - stainless steel.

Hoods: Top opening hoods available in all sizes. Side opening available for SREC 50 only.

SREC Moldings†Ordering Guide

SREC	34	S	20	JTC	H13	
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SREC Series Designation

Number of contacts
4, 5, 7, 9, 11, 14, 18,
20, 26, 29, 34, 44, 50

*Contact Designation —
P-Pin Molding
S-Socket Molding
*Contacts must be
ordered separately: see
Tables below.

Contact Wire Size —
20-designates 20, 22 AWG
Contacts to be furnished
with connectors.
Omit if contacts are to
be ordered separately.

Consult factory for specials.

Hood

*H8-Large Top

Opening Hood

*H9-Large Side

Opening Hood

H13-Higher Top

Opening Hood,

Standard

*For sizes 11 and 50 only.

Guides & Jackscrew Locks**

K-Beryllium Copper Cylindrical Guides

N-Brass Cylindrical Guides (standard)

NSS-As above, but stainless steel

†N Guides furnished if this
designation is omitted

Jackscrews

J-Polarized Fixed Screw and Socket

JT-Polarized Short Turning Screw

and Socket

JTC-Polarized Long Turning Screw

and Socket

**Omit this step, if not required.

† For complete specifications on Accessories,
contact Winchester Electronics Division.

SREC CRIMP REMOVABLE CONTACTS

MAXIMUM STRANDED WIRE SIZES	PIN CATALOG NO.	SOCKET CATALOG NO.
20 AWG	100-4020P	100-4020S
24 AWG	100-4024P	100-4024S
28 AWG	100-4028P	100-4028S

SREC WIRE WRAP REMOVABLE CONTACTS

CONFIGURATION	PIN CATALOG NO.	SOCKET CATALOG NO.
Wire Wrap Termination	8122	8123
Wire Wrap Termination with Stabilizing Bushing	8122SB	8123SB

SLE/SRE/SME Series Subminiature Rectangular Connectors

High dielectric strength (1000 VAC, sea level) diallyl phthalate insulator moldings utilized for SLE/SRE/SME Series Subminiature connectors incorporate precision pin and socket contacts (factory installed) to give designers a selective range of 3 current ratings: 3 amps (SLE); 5 amps (SRE); and 7.5 amps (SME). Featuring extreme compactness and light weight, SLE/SRE/SME subminiatures are ideal interconnection choices for high density, high volumetric efficiency applications for aircraft, instrumentation, computers, portable or mobile equipment and more. All 3 Series feature solder cup terminations, with dip solder available in the SRE Series, as well. A wide range of options includes hoods, guides and jackscrew locks. Available off-the-shelf from Winchester Electronics Distributors.

SLE/SRE/SME Specifications

Current Ratings: SLE, 3 amps. SRE, 5 amps. SME, 7.5 amps.

Electrical Data: Dielectric withstand voltage, 1 minute electrification at 1000 VAC, sea level.

Dielectric: Glass-filled diallyl phthalate, per MIL-M-14, SDG-F, plug and receptacle moldings.

Number of Contacts: 4, 5, 7, 9, 11, 14, 20, 26, 29, 34, 44 and 50.

Contact Materials: Pin Contacts, brass, gold-plated, for SLE, SRE and SME. High conductivity copper alloy socket contacts gold plated. Phosphor bronze optional.

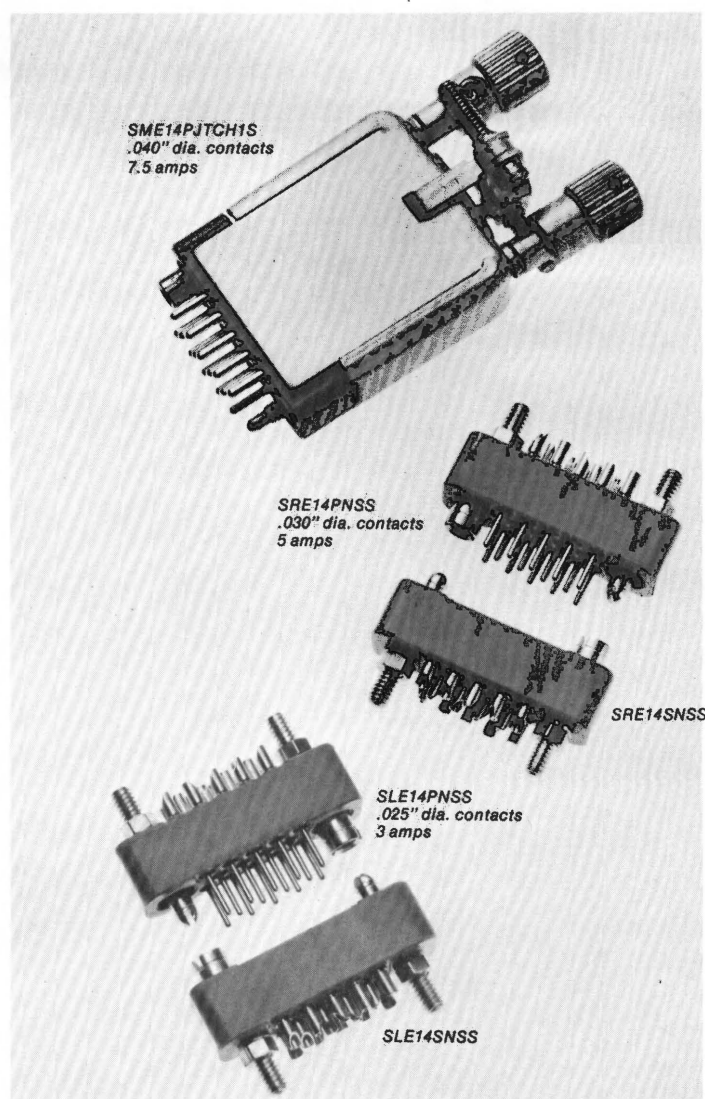
Contact Diameters: SLE, .025" dia. SRE, .030" dia. SME, .040" dia.

Terminations: .037" dia. solder cup, standard for up to #22 AWG stranded wire. Solder cup adapter (Part #S45) available to accept up to #20 AWG stranded wire. Dip solder terminations available for SRE Series. Consult Sales Dept. for lengths.

Jackscrews: Fixed long and short turning, in passivated stainless steel, with anodized aluminum knurled knobs with set screws. JTC jackscrews have S.S. knobs with groove pins.

Guides: Type NSS, stainless steel; or N brass guides.

Hoods: Top and side opening, in anodized aluminum, for both plugs and receptacles. Used with guides or long turning jackscrews.



SLE/SRE/SME Ordering Guide

SRE	34	S	JTC	H13	
-----	----	---	-----	-----	--

Series Designation
SLE - .025" dia. contact
SRE - .030" dia. contact
SME - .040" dia. contact

No. of Contacts
4, 5, 7, 9, 11, 14, 20, 26,
29, 34, 44 and 50.

Contact Designation
P - Pin
S - Socket

Special Contacts*
Use only when special material,
finish or style required. Omit
if standard contacts used.
Consult Sales Department for
special designations.

For special 2-56 UNC
threads on SRE Series.
Consult Sales Department.

*Part #S45, Solder Cup Adapter
for #20 AWG stranded wire
must be ordered separately.

Hoods
H8-Large top opening**
H9-Large side opening**
H13-Large top opening (High), Standard

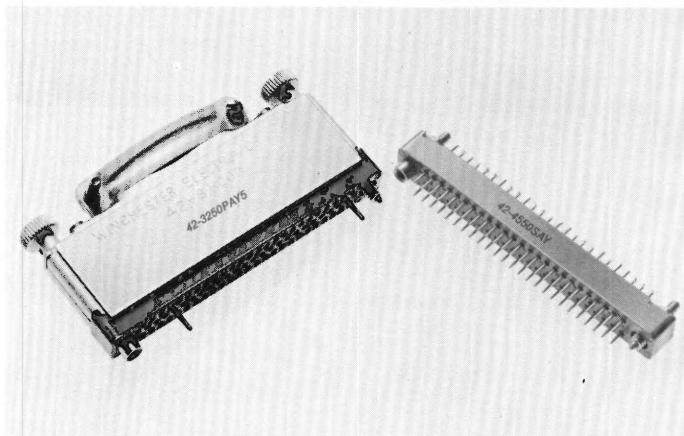
**Sizes 11 and 50 only.

Jackscrew Locks, Guides
J-Polarized Fixed Screw and Socket
JT-Polarized Short Turning Screw and Socket
JTC-Polarized Long Turning Screw and Socket
JTU-Polarized Short Turning Screw and Socket
with Short S.S. Knob.
NSS-Stainless Steel Cylindrical
Polarized Guides
N-Brass Cylindrical Polarized Guides

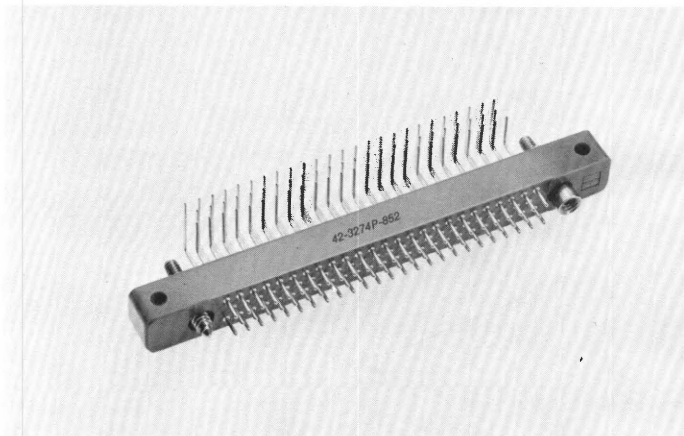
42 Series High Density Input/Output Connectors

Engineered to provide unusually compact, light weight input/output interconnections for today's higher density, high volumetric efficiency electronic packaging designs, the 42 Series offers the designer unique flexibility and high, reliable performance for its size. With contact spacing .100" centers in 3 rows, 42 Series plugs and receptacles provide a choice of 50 or 74 simultaneous interconnections. 3 types of contact terminations are offered: solder cup; dip solder; and crimp removable pin and socket contacts.

With crimp removable contacts, circuit revisions, changes and additions . . . as well as greater ease in field servicing are unique advantages. With dip solder terminations including a right angle configuration, 42 Series connectors may be mounted in the same plane as a back panel, printed circuit board or panel surface. A broad variety of hardware options includes hoods, jackscrews and guides. 42 Series connectors are available off-the-shelf from Winchester Electronics Distributors.



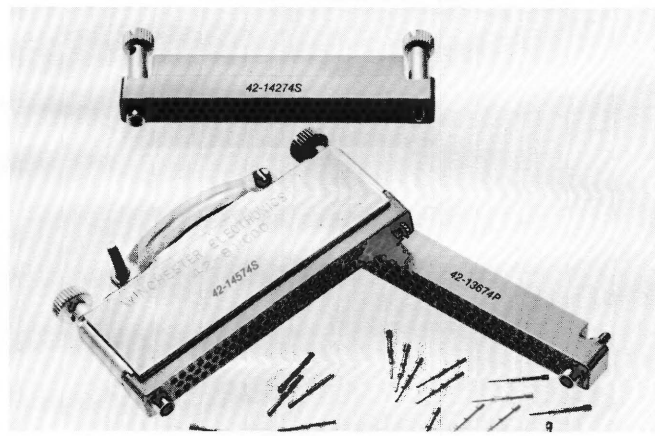
42 Series 50 position plug [with hood and long turning jackscrews] and mating receptacle. Note polarizing pins, locatable anywhere in the 24 center row positions to match polarizing holes in the receptacle. Dip solder terminations shown.



42 Series 74 position right angle dip solder contact receptacle. Configuration allows interconnection in parallel plane with back panel, printed circuit board or other mounting surface to enhance volumetric efficiency.



42 Series 74 position plug and receptacle, utilizing polarizing guides.



42 Series crimp removable contact connectors. Top, female connector [plug] with short turning jackscrews and no hood. Left, female connector with hood and long turning jackscrews. Right, male connector [receptacle] with fixed jackscrews. Diallyl phthalate moldings accept crimp removable pin and socket contacts shown.

42 Series Specifications

CONNECTORS WITH DIP SOLDER OR SOLDER CUP CONTACTS

Dielectric Material: Diallyl phthalate per MIL-M-14, type MDG.

Grid Spacing: 50 or 74 contact positions on .100 centers in 3 rows. Two outboard rows for 25 contacts each. Center row either for 24 additional contacts or polarizing pins in specified positions.

Dip Solder: .125 or .156 standard lengths with other lengths available on special order.

Solder Cup: To accomodate stranded wire sizes up to #22 AWG.

CONNECTORS WITH CRIMP REMOVABLE CONTACTS ONLY

Dielectric Material: Diallyl phthalate per MIL-M-14, type SDG-F.

Design: As above, with contact positions to accept crimp removable contacts.

Crimp Removable: Four indent crimps, with either hand tool or automatic machine on #20 to #30 AWG stranded wire sizes. Precision machined. Inserts and removes from connector body with hand tools.

CONTACTS

Number of contacts: 50 or 74

Pin Contacts: .030 diameter gold-plated commercial bronze.

Socket Contacts: Gold-plated phosphor bronze.

ELECTRICAL DATA

Current Rating: 5.0 amperes.

Dielectric Withstand Voltage: 1 minute electrification at 1200 VAC.

Insulation Resistance: Initial, 5000 + megohms; after humidity cycling, 1000 megohms, minimum.

Contact Resistance: 10 milliohms, maximum, at 5 amps test current.

CRIMP TOOLING

Automatic Crimping machine: Cat. No. 107-0952

Hand crimp tool: Cat. No. 107-0616

Locator: Cat. No. 107-0617

Contact removal tool: Cat. No. 107-1012

Contact insertion tool: Cat. No. 107-1011

42 Series Printed Circuit Connector † TABLE D

42	32	50	P	AY	5
42 Series Input/Output Connector					4-Dip solder contacts, pin length 1/8 in. 5-Dip solder contacts, pin length 5/32 in. 852-Right angle dip solder contacts
Hardware/Accessories 30-No hardware 31-Guide pin and socket 32-Fixed jackscrow and jacksocket					
Number of Contacts (50 or 74)					
				Polarizing Hole Positions*	Pin Contact

†Crimp removable forms not available.

*See footnotes under "Typical 42 Series Female Connector" and "Typical 42 Series Male Connector".

42 Series Ordering Guides

Typical 42 Series Male Connector TABLE B

42	36	50	P	AY
42 Series Input/Output Connector				Polarizing Pin Hole Positions*
			Pin Contacts Solder cup termination	
			Number of Contact Positions	

Hardware/Accessories

34-Molding no hardware

35-Molding with guides

36-Molding with fixed jackscrow set

52-Molding with short turning jackscrows

53-Molding with long turning jackscrows

54-Molding with hood and guides

55-Molding with hood and long turning jackscrows

*When 50 position male connector is specified location of polarizing holes on male connector must be the same as the polarizing pin positions on the mating female connector.

Typical 42 Series Connector Crimp Removable Contacts Type ††

42	1	45	50	S	AY
42 Series Input/Output Connector					Polarizing Pin Positions
				Socket Contacts (see ** below)	
Crimp Connector Molding				Number of Contact Positions	
Hardware/Accessories					

††For female crimp moldings, take nomenclature from "Table A" and add "1" in front of Hardware/Accessories number, as shown above. For male crimp moldings, take nomenclature from "Table B" and add "1" in front of Hardware/Accessories number.

**Contacts are ordered separately as follows:

100-4020P (#20 & 22 wire)

100-4024P (#24 & 36 wire)

100-4028P (#28 & 30 wire)

100-4020S (#20 & 22 wire)

100-4024S (#24 & 26 wire)

100-4028S (#28 & 30 wire)

Typical 42 Series Female Connector TABLE A

42	45	50	S	AY
42 Series Input/Output Connector				Polarizing Pin Positions
				Socket Contacts Solder cup terminations
Hardware/Accessories 40-Molding no hardware 41-Molding with guides 42-Molding with short turning jackscrows, no hood 43-Molding with long turning jackscrows, no hood 44-Molding with guides and hood 45-Molding with long turning jackscrows and hood 46-Molding with fixed jackscrows				Number of Contact Positions

*When 50 position female connector is specified 24 position center row is available for polarizing pins, if desired. Specify desired polarizing positions as: A, B, C, D, E, F, H, J, K, L, M, N, P, R, S, T, U, V, W, X, Y, Z, a, b.

JF Series Miniature Side Mounting Connectors

Featuring countersunk side mount holes and extremely narrow insulator moldings, the totally flexible JF Series allows exceptionally compact, flat mounting when used in individual units . . . or development of multicontact "custom" plug and receptacle connectors via the building block method. The series offers optimum circuit density and a variety of positive polarization choices. Order according to illustrations above. Available off-the-shelf from Winchester Electronics Distributors.

JF Series Specifications

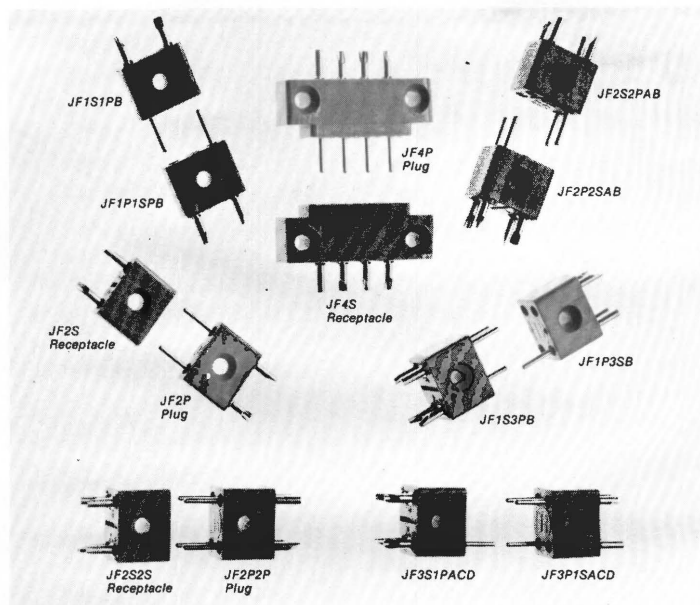
Current Rating: 7.5 amps

Electrical Data: Dielectric withstand voltage, 1 minute electrification at 1500 VAC, sea level.

Dielectric: Diallyl phthalate per MIL-M-14, SDG-F.

No. of Contacts: 2 and 4

Contact Materials: Pin contacts, .040" dia. brass, gold-plated. Socket contacts, high conductivity copper alloy, gold plated.



Terminations: .048" dia. solder cup for up to #20 AWG stranded wire.

Polarization: Specified location of pin and socket contacts polarizes plug and receptacle connectors.

Mounting: .093" dia. countersunk side mounting holes accept #2-56 flat-head screws or bolts.

JFA Series Miniature Side Mounting Connectors

Designed to handle currents as high as 13 amps and heavy working voltages, JFA Series Miniatures are extensively used in television, radio, communications and other electronic equipment where high current and voltage conditions are encountered. Countersunk side mounting holes and narrow .250" widths allow unusually flat mounting to minimize connector protrusion when installed. Both plug and receptacle moldings accept optional hoods for additional protection. Available off-the-shelf from Winchester Electronics Distributors.

JFA Series Specifications

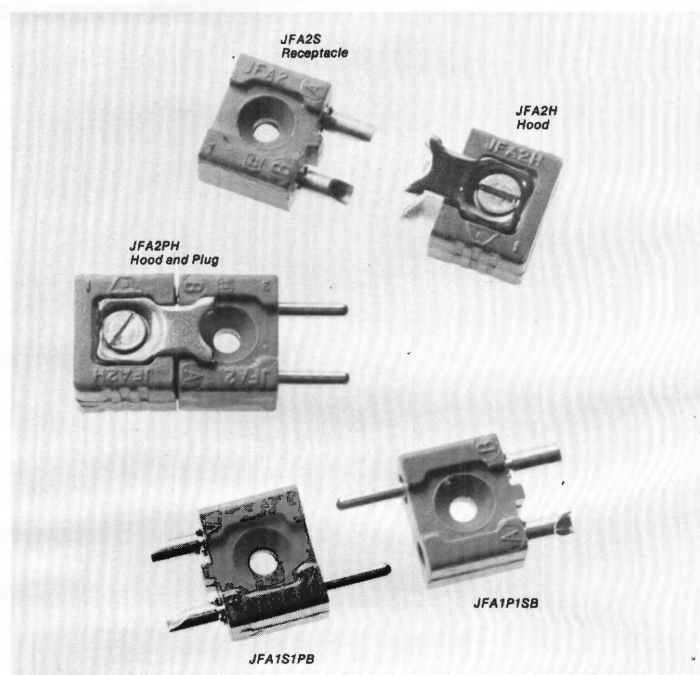
Current Rating: 13 amps

Electrical Data: Dielectric withstand voltage, 1 minute electrification at 2925 VAC, sea level.

Dielectric: Plugs, receptacles, hoods of diallyl phthalate per MIL-M-14, SDG-F.

No. of Contacts: 2

Contact Materials: Pin contacts, .062" dia. brass, gold-plated. Socket contacts, spring tempered phosphor bronze, gold-plated.



Terminations: .070" dia. solder cup for up to #16 AWG stranded wire.

Hoods: Diallyl phthalate hood, optional, locks to plug or receptacle molding with 2 side mounting straps.

Polarization: Specified location of pin and socket contact polarizes plug and receptacle.

M Series High Voltage Miniature Connectors

Able to handle relatively high currents (7.5 amps) and voltages for their size, the M Series offers highly compact, lightweight interconnections ideally suited for aircraft strain gauge, telemetry and pressure pick-up instrumentation plus electronics in other mobile and portable equipment. A variety of hardware makes the M Series capable in applications where high vibration and shock loads may be encountered. M Series connectors are available off-the-shelf from Winchester Electronics Distributors.

M Series Specifications

Current Rating: 7.5 amps

Electrical Data: Dielectric withstand voltage, 1 minute electrification at 1500 VAC, sea level . . . 2250 VAC for M12.

Dielectric: Plugs, receptacles, hoods of molded melamine, per MIL-M-14, MME.

No. of Contacts: 4, 5, 7, 9, 10 and 12.

Contact Materials: Pin contacts, .040" dia. brass, gold-plated. Socket contacts, high conductivity copper alloy, gold plated.

Terminations: .048" dia. solder cup, for up to #20 AWG stranded wire. .043" dia. solder cup for M12, for up to #22 AWG stranded wire.

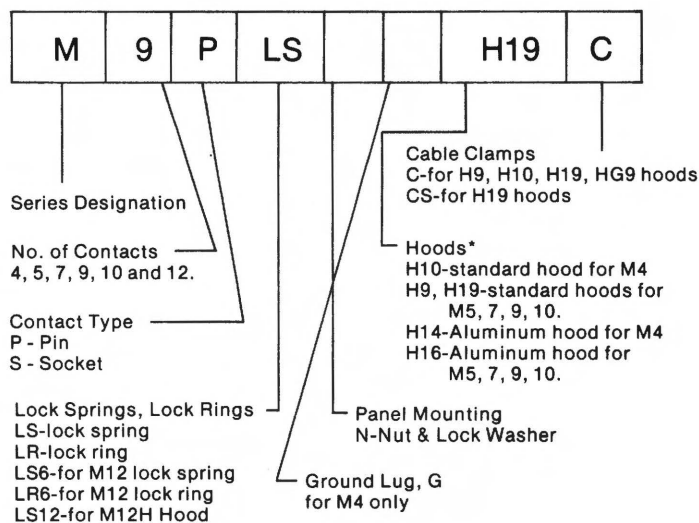
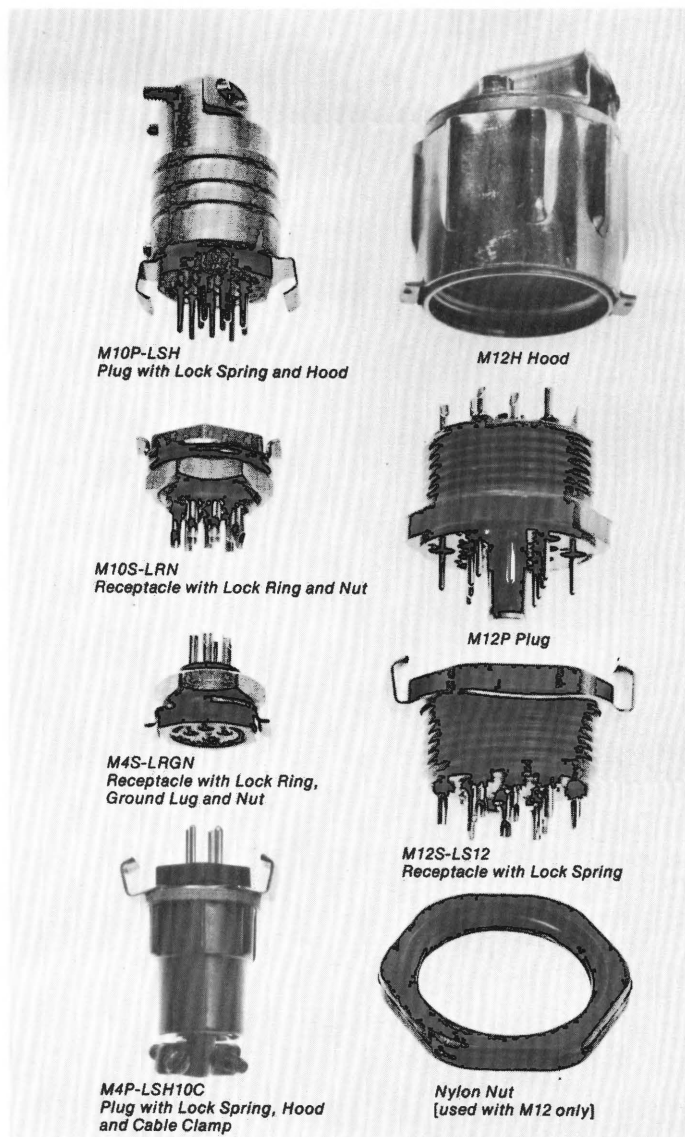
Polarization: Integral in plug and receptacle molding design.

Panel Mounting: Plugs or receptacles may be mounted on .0625" thick panels with optional nuts and lock washers.

Lock Spring/Lock Rings: Optional on plugs and receptacles to prevent accidental disconnects, resist vibration and shock loads. Lock ring used in panel mounting prevents connector rotation on panel.

Ground Lug: Optional on M4 only. Grounds any one of the 4 contacts.

Hoods: Melamine or anodized aluminum hoods, with or without cable clamps for cable strain relief.



* Additional Hoods also available, consult Sales Department.

HW Series Printed Circuit Edgeboard Connectors

The HW Series is a broad, evolutionary family of printed circuit connectors designed especially for automatic wiring. Reliability-proven, they feature precise true-position wrap posts, Gardner-Denver holes to accommodate high density automatic wire wrapping * techniques, low force insertion/withdrawal contacts, between contact polarization . . . and optional CA 725/Gold Inlay contacts to reduce costs up to 25% and more. The series is available in grid spacings of .100" x .200" (HWC, HWP) and .125" x .250" (HWD) . . . and a range of sizes from 22 to 50 pairs of contact positions. HW Series connectors are available off-the-shelf from Authorized Winchester Electronics Distributors.

General Specifications

Current Rating: 5 amps

Operating Voltage: 800 VDC at sea level

Max. Voltage Drop: 25 mv at 5 amps

Operating Temperature: -65°C to +125°C

Dielectric: Green glass-filled diallyl phthalate, per MIL-M-14, SDG-F.

PC Board Thickness: .054" through .071"

Mounting: Choice of .128" dia. holes or #4-40 threaded inserts, molded in.

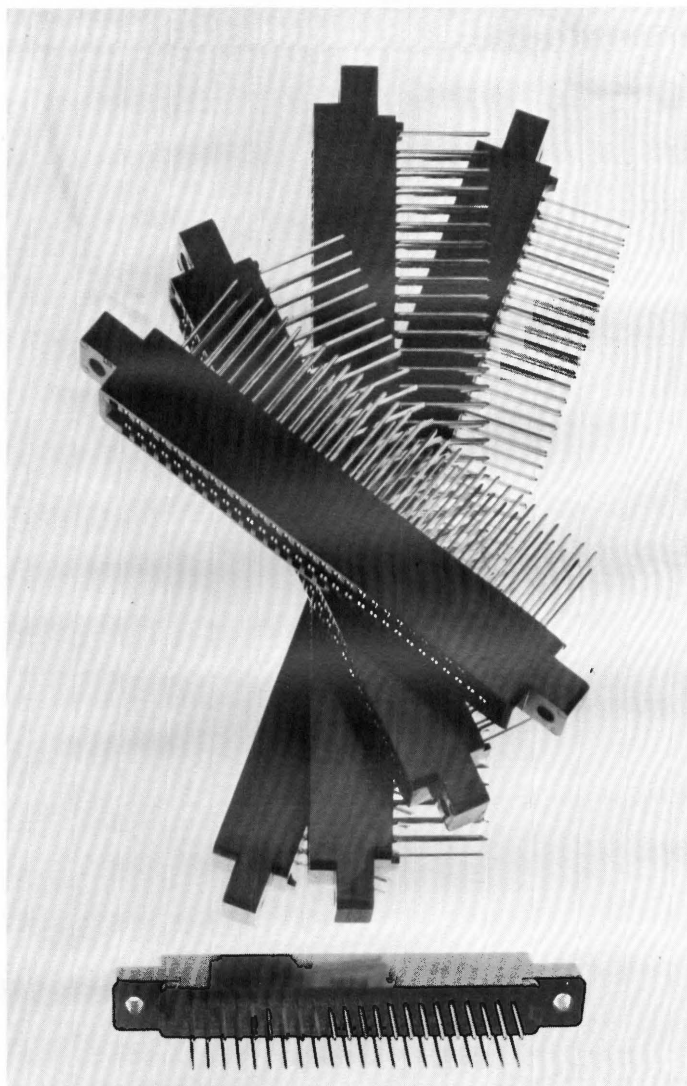
Contacts: Phosphor bronze, gold over nickel.

CA 725/Gold Inlay; or CA 725, no inlay or plating also available.

Insertion/Withdrawal Forces: 2 to 8 oz.

average/contact pair using .0620" ($\pm .00005$) steel

test blade. *Wire Wrap® is a registered trademark of Gardner-Denver.



HW40D2-11

In-contact polarizing keys available for all HW Series connectors.

Between-contact polarizing keys available for HWD and HWP Series.

Positive, reliable electromechanical interface between PC board circuits and contacts.

Low force insertion/withdrawal contacts for ease in production and field servicing. 2 to 8 oz. per contact pair with .0620" steel test blade.

#4-40 threaded insert molded in. .028" dia. holes also available.

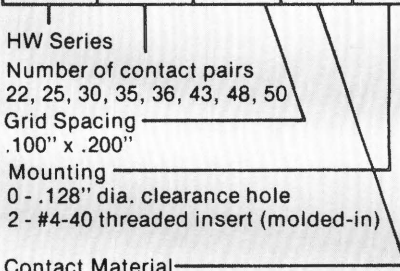
High dielectric strength molding of green glass-filled diallyl phthalate per MIL-M-14, SDG-F. Glass-filled phenolic also available.

Automatically inserted and twisted .025" square wrap posts with true position within .020" diameter. Up to #30 AWG solid wire accepted on up to 3Z levels.

Gardner-Denver true positioning holes, each end to accommodate high density automatic wiring technique.

Ordering Guides

HWC Series

HW	43	C	9	O	112
HW Series				Contact Plating*	
Number of contact pairs 22, 25, 30, 35, 36, 43, 48, 50				111 - .000015" Gold over .000040" Nickel	
Grid Spacing .100" x .200"				112 - .000030" Gold over .000040" Nickel	
Mounting 0 - .128" dia. clearance hole 2 - #4-40 threaded insert (molded-in)				113 - .000050" Gold over .000040" Nickel	
Contact Material			per MIL-G-45204, Type II, Grade C, Class I *Omit if CA 725 contacts are specified.		
No Number - Phosphor Bronze 9-0* - CA 725 with no inlay or plating 9* - CA 725 with 12k .000015" Gold Inlay 9-3* - CA 725 with 12k .000030" Gold Inlay 9-5* - CA 725 with 12k .000050" Gold Inlay *Consult factory for Gold Inlay options					

HWD Series

HW	49	D	9	2	111
HW Series	Number of contact pairs 28, 30, 31, 40, 49, 50	Contact Spacing .125" x .250"	Mounting 0 - .128" dia. clearance hole 2 - #4-40 threaded insert (molded-in)	Contact Material No Number - Phosphor Bronze 9-0* - CA 725 with no inlay or plating 9* - CA 725 with 12k .000015" Gold Inlay 9-3* - CA 725 with 12k .000030" Gold Inlay 9-5* - CA 725 with 12k .000050" Gold Inlay *Consult factory for Gold Inlay options and availability.	Contact Plating*
					111 - .000015" Gold over .000040" Nickel
					112 - .000030" Gold over .000040" Nickel 113 - .000050" Gold over .000040" Nickel per MIL-G-45204, Type II, Grade C, Class I *Omit if CA 725 contacts are specified

HWP Series

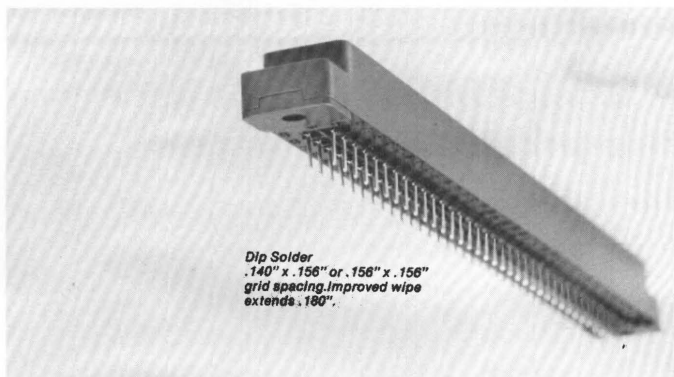
HW	P	30	C	9	2	112
HW Series	Polarization between contacts	Number of contact pairs 20, 25, 30, 35, 40, 45, 50	Grid Spacing .100" x .200"	Mounting 0 - .128" dia. clearance holes 2 - #4-40 threaded insert (molded-in)	Contact Plating*	
Contact Material No Number - Phosphor Bronze 9-0* - CA 725 with no inlay or plating 9* - CA 725 with 12k .000015" Gold Inlay 9-3* - CA 725 with 12k .000030" Gold Inlay 9-5* - CA 725 with 12k .000050" Gold Inlay *Consult factory for Gold Inlay options/karat.					111 - .000015" Gold over .000040" Nickel 112 - .000030" Gold over .000040" Nickel 113 - .000050" Gold over .000040" Nickel per MIL-G-45204, Type II, Grade C, Class I *Omit if CA 725 contacts are specified.	

HSD/HMD Series Printed Circuit Edgeboard Connectors

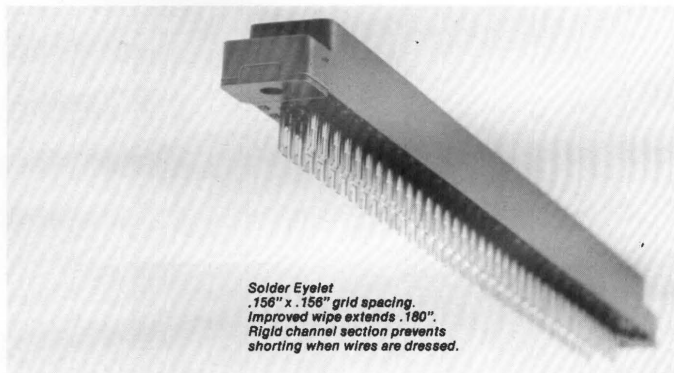
The maximum adaptability and wide range of specifying options of HSD/HMD connectors makes them a prime example of Winchester Electronics' design-by-specifying. Indeed, the designer can specify connectors in more than 4400 configurations to match his performance requirements. These include: 3 termination types; 3 mounting options; 83 positions for polarizing keys; and 6 choices in number of contact positions. In addition, contacts may be specified in phosphor bronze, gold-plated over copper; CA 725/gold inlay; or CA 725, no inlay or plating.

HSD connectors utilize glass-filled phenolic insulators and are applied in high performance commercial devices including: computers and peripheral equipment; memory systems; numerical and processing controls; accounting and business machines; and more. HMD connectors, with glass-filled diallyl phthalate moldings, are used where adverse environments dictate higher reliability assurance: government, aerospace and military electronics . . . and commercial or industrial uses where shock, vibration and temperatures are more extreme.

HSD/HMD Series printed circuit connectors are available off-the-shelf from Authorized Winchester Electronics Distributors.



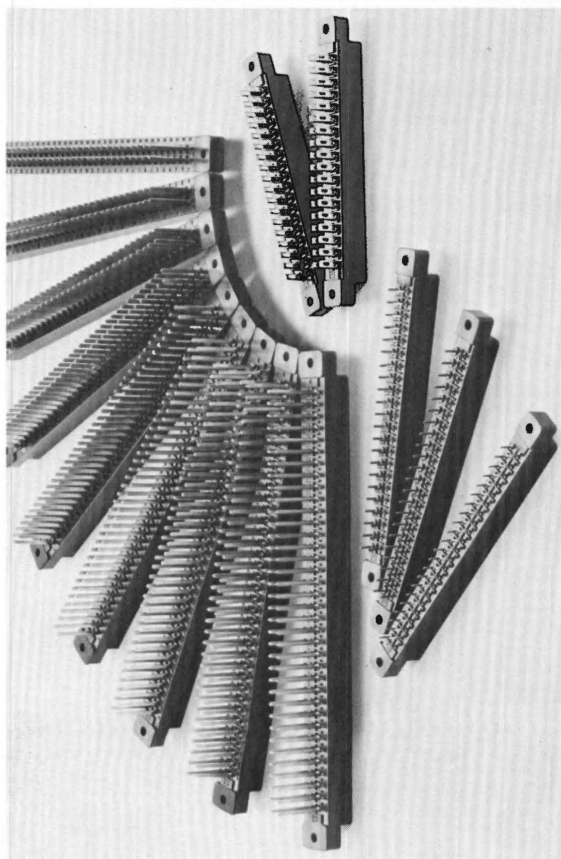
*Dip Solder
.140" x .156" or .156" x .156"
grid spacing. Improved wipe
extends .180".*



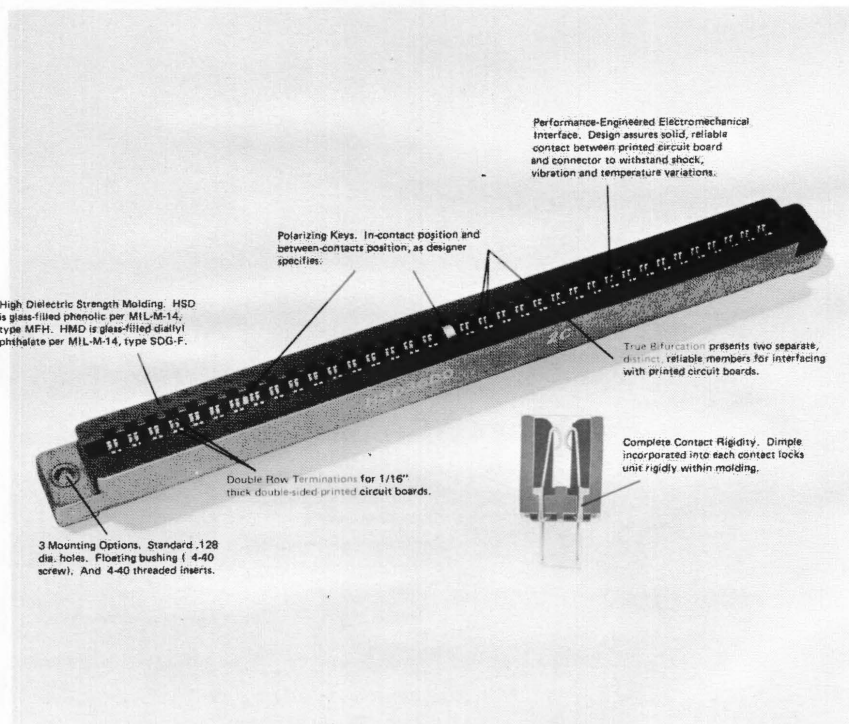
*Solder Eyelet
.156" x .156" grid spacing.
Improved wipe extends .180".
Rigid channel section prevents
shorting when wires are dressed.*



*Wire Wrap
.156" x .156" grid spacing.
Ideal for wire wrap production
needs, terminations within .040"
true position.*



High Dielectric Strength Molding. HSD is glass-filled phenolic per MIL-M-14, type MFH. HMD is glass-filled diallyl phthalate per MIL-M-14, type SDG-F.



Performance-Engineered Electromechanical Interface. Design assures solid, reliable contact between printed circuit board and connector to withstand shock, vibration and temperature variations.

Polarizing Keys. In-contact position and between-contacts position, as designer specifies.

True Bifurcation presents two separate, distinct, reliable members for interfacing with printed circuit boards.

Double Row Terminations for 1/16" thick double-sided printed circuit boards.

Complete Contact Rigidity. Dimple incorporated into each contact locks unit rigidly within molding.

3 Mounting Options. Standard .128 dia. holes. Floating bushing (4-40 screw). And 4-40 threaded inserts.

HSD/HMD Series General Specifications

Current Rating: 5 amps

Operating Voltage: 850 VDC, sea level

Dielectric:

HSD-moldings of glass-filled phenolic, per MIL-M-14, MFH.

HMD-moldings of diallyl phthalate, glass-filled per MIL-M-14, SDG-F.

No. of Contact Positions: 10, 15, 18, 22, 36 and 43 standard.

Contacts: Phosphor bronze per QQ-B-750, gold-plating over copper; CA 725/gold inlay; or CA 725, no inlay or plating.

Terminations: Dip solder; solder eyelet; Wire Wrap..

Polarization: In-contact or between-contact keys specified as part of connectors. May be ordered separately: In-contact, order Cat. No. 109-5535; Between-contact, order Cat. No. 109-9892.

Mounting: .128" dia. holes, standard; floating bushing (#4-40 screw); or #4-40 threaded inserts.

Ordering Guide

HSD	22	D	9	O	Z	X/Y
-----	----	---	---	---	---	-----

HSD or HMD
Series designation

Number of contact positions
6, 10, 15, 18, 22, 36, 43

In contact polarizing key. Specify
position(s). Omit if none required.

Contact Termination
D - dip solder terminal (.140" x .156")
R - dip solder terminal (.156" x .156")
S - solder eye terminal (.156" x .156")
W - wire wrap terminal (.156" x .156")

Contact Material

Blank - Phosphor Bronze, standard, Gold plated

9* - CA 725 with 12k .000015" Gold Inlay

*For HSD Series only. Consult factory for Gold
Inlay options / karat and availability.

Between contacts
polarizing key.
Specify position(s).
Omit if none required.

Mounting type
0 - standard .128"
dia. holes
1 - floating bushing
(#4-40 screw)
2 - #4-40 threaded
inserts

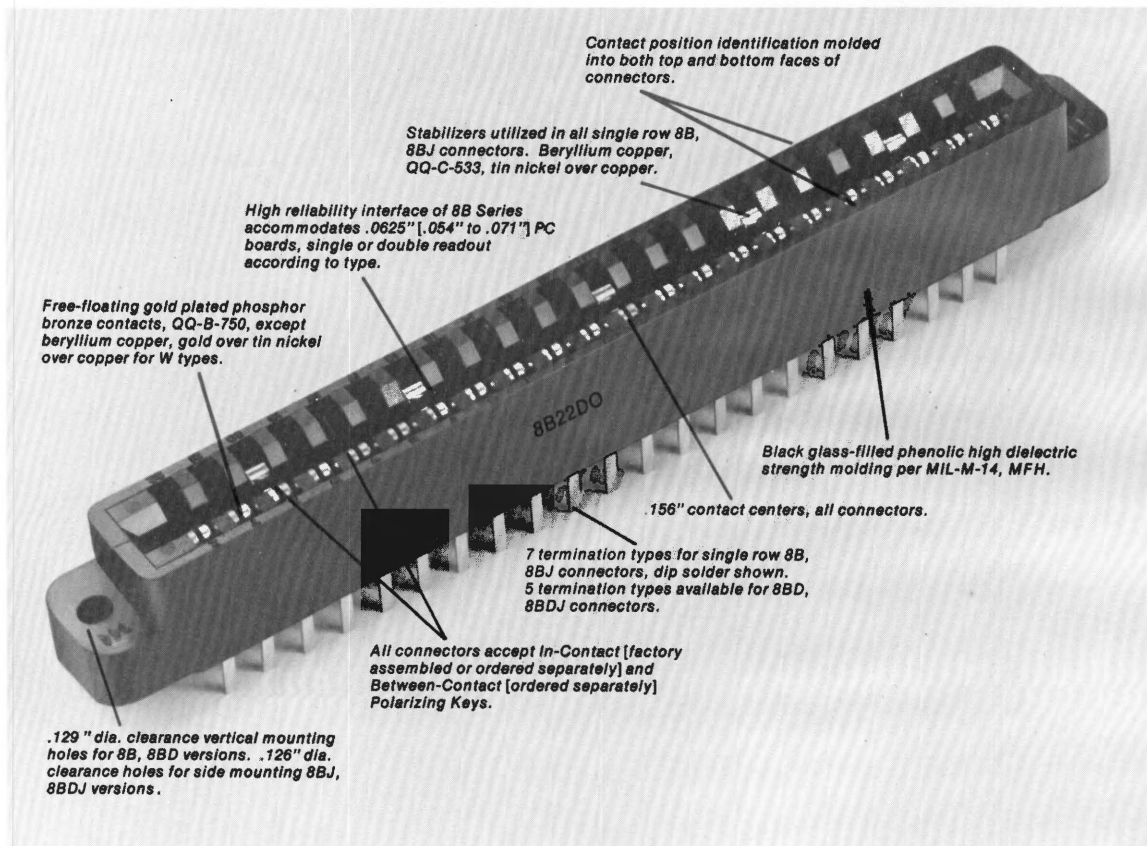
8B Series Printed Circuit Edgeboard Connectors

Used in a broad range of electronic systems and devices for commerce and industry, the highly-adaptable 8B Series is a family of time, performance and applications proven low-cost connectors offering a wide variety of options to suit specific electronics packaging design requirements.

High reliability, precision 8B Series connectors, with .156" contact centers and used for .0625" single and double readout PC boards, may be ordered in single row contact (8B, 8BJ) or double row contact (8BD, 8BDJ) configurations; in side mounting (J designation) modes . . . and with in-contact and between-contact polarizing keys. Like Winchester Electronics' HW and HSD/HMD Series, 8B connectors may now be specified with contacts in CA 725/gold inlay.

Utilizing glass-filled phenolic moldings (MIL-M-14, type MFH), the 8B Series is suitable for applications with voltages as high as 700 VRMS, sea level. Free floating contacts, capable of withstanding heavy vibration and shock, feature fatigue-resistant, "live action" design to retain full electromechanical integrity - even with PC boards misaligned.

8B Series printed circuit connectors are available off-the-shelf from Authorized Winchester Electronics Distributors.



8B Series General Specifications

Current Rating: 5 amps

Operating Voltage: 700 VRMS, sea level

Max. Voltage Drop: 30 mv at 5 amps

Dielectric: Black, glass-filled phenolic per MIL-M-14, type MFH.

Contacts: Phosphor bronze, gold-plated over copper per QQ-B-750; or CA 725/Gold Inlay.

Stabilizers: Used for single row 8B, 8BJ versions only. Beryllium copper, QQ-C-533, tin nickel over copper.

Contact Spacing: .156" contact centers.

No. of Contact Positions: 6, 10, 12, 15, 18, 22, 28, 30.

PC Boards: .0625" (.054" to .071"). Single-sided for 8B, 8BJ; double-sided for 8BD, 8BDJ versions.

Mounting: .129" dia. clearance holes for vertical mounting 8B, 8BD versions; .126" dia. clearance holes for side mounting 8BJ, 8BDJ versions.

Polarization: In-contact key, ordered with connector, or separately, Cat. No. 109-3386. Between-contact key may be ordered separately, Cat. No. 109-8597.

Ordering Guide Single Row Connectors

8B	22	D	9	2/15	1G2
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Series designation
8B, vertical mounting
8BJ, side mounting

Number of contact
positions
6, 10, 12, 15, 18,
22, 28, 30

Between contact polarization.
Separate adjacent positions
with "G". Omit if none required.

In-contact polarization keys. When
not required, "O". When required,
specify contact position(s) by
number(s) for location(s).

Termination Type
D - dip solder
S - solder eyelet
W - wire wrap - Beryllium Copper only
ML - 90° dip solder surface termination
MR - 90° dip solder
L - 90° dip solder, low profile

Contact Material
Blank - for "W" termination
0 - Phosphor Bronze, standard, Gold Plated
9* - CA 725 with 12k .000015" Gold Inlay
*For use with D, ML, MR, and S contact
terminations only. Consult factory for
Gold Inlay options /karat and availability.

Ordering Guide Double Row Connectors

8BD	28	M	9	4/20	1G2
-----	----	---	---	------	-----

Series designation
8BD, vertical mounting
8BDJ, side mounting

Number of contact
positions
6, 10, 12, 15, 18,
22, 28, 30

Between contact polarization.
Separate adjacent positions
with "G". Omit if none required.

In contact polarization keys. When
not required, "O". When required,
specify contact position(s) by
number(s) for location(s).

Termination Type
D - dip solder
M - 90° dip solder
W - wire wrap - Beryllium Copper only
S - solder eyelet
G - dip solder, surface termination

Contact Material
Blank - for "W" termination
0 - Phosphor Bronze, standard, Gold plated
9* - CA 725 with 12k .000015" Gold Inlay
*For use with D, M, G, and S contact
terminations only. Consult factory for
Gold Inlay options /karat and availability.

PGB Series Input/Output Connectors

PGB Series connectors effectively utilize a relatively idle "dimension" on the wire wrapped back panel: **the Z3 level of the wrap post**. Without interfering with Z2 level wire wrapped circuitry, **PGB connectors allow effective, solid, dependable input/output connections to be made anywhere on a back panel**.

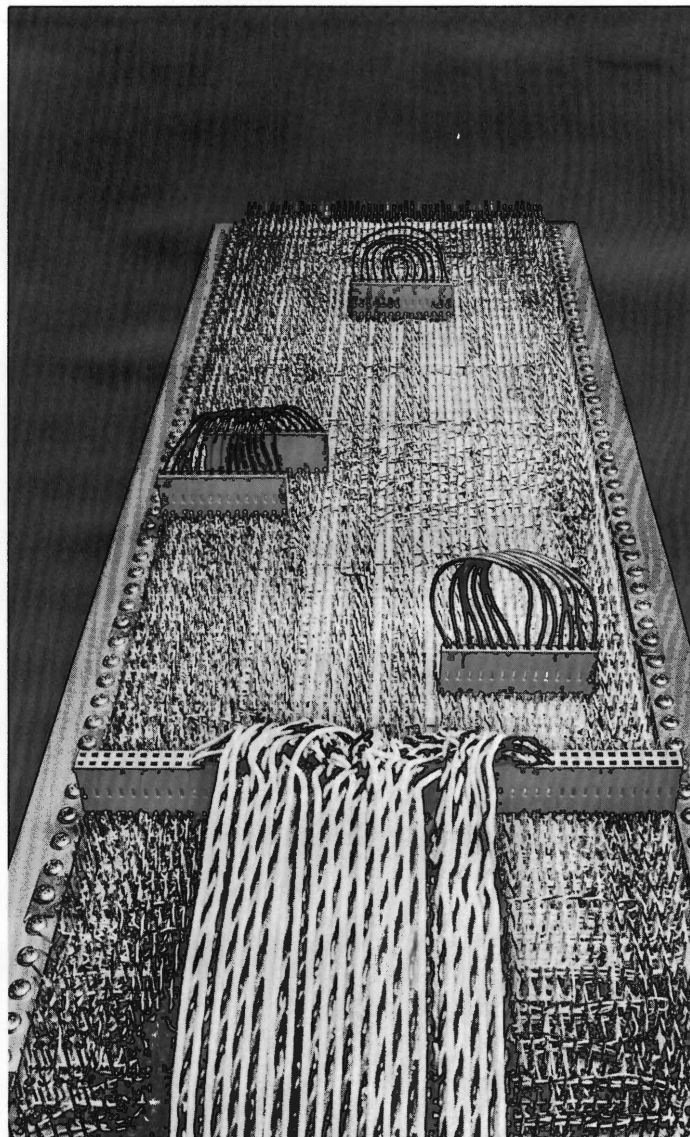
The weight, bulk, work, time and cost involved in making such connections with **special connectors at the edge of the back panel are eliminated** . . and with them the possible creation of critical signal problems.

The PGB Series is used entirely with printed circuit connectors and automatic wire wrapping techniques on all types of back panels with .100" x .100", .125" x .125", .100" x .200" and .125" x .250" grid spacings. They are used for direct input/output; as random jumpers; and in patchboard solutions.

PGB Series crimp removable contacts, which mate with .025" sq. wrap posts and .025" or .030" dia. round pins, may be ordered **with an internal stop** (allowing Z3 level seating without disturbing the Z2 level wrap) . . . **or with no stop** for seating at Z2/Z3 levels.

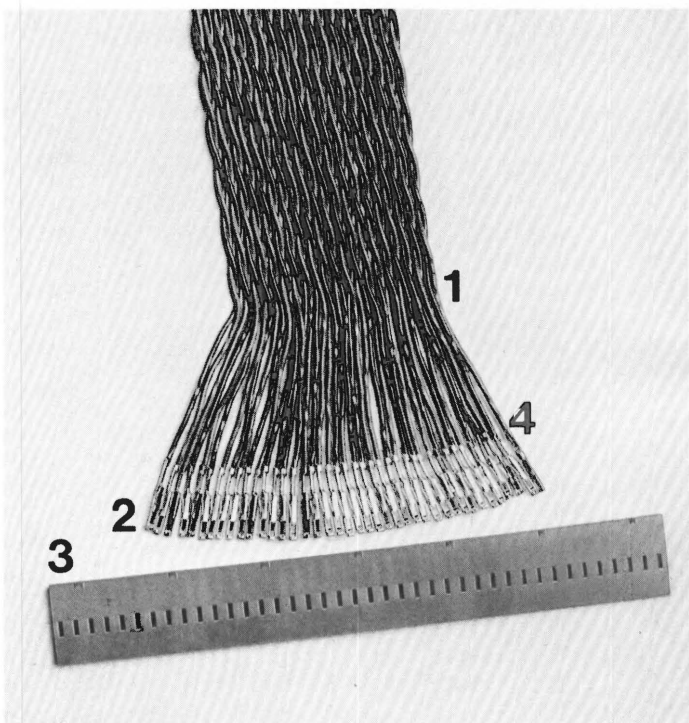
PGB connectors provide the designer with many practical benefits. These include freedom and latitude in making circuitry modifications or corrections . . . or planning circuitry advances and new functions. Additionally, they allow greater compactness; greater simplicity for production ease and field servicing; and lower costs.

PGB Series connectors are available off-the-shelf from Authorized Winchester Electronics Distributors.



Typical PGB Series Connector Exploded View

- 1** Wiring harness or wires for interconnection. Wire size from 20 gage to 30 gage may be used.
- 2** Contacts, with built-in male stops, fit securely on Z3 level of square wrap posts. Contacts without stops, utilize Z2 and Z3 levels.
- 3** Connectors featuring up to 51 contact positions, as required, are available with .100 x .100 or .125 x .250 double row grid spacings. Grid spacings of .100 and .125 single row, and .100 x .200 and .125 x .125 double row are available in up to 40 contact positions.
- 4** Contacts are crimped on with automatic machines or hand tools.



PGB Series Input/Output Connectors General Specifications

Contacts

Socket: Accepts .025"-.030" round or square pin.
Material: Copper Alloy #510 (Phosphor Bronze "A")
Plating: .000015" gold (min.) over .000100" copper (min.). Consult factory for optional plating.
Design: Closed entry (formed box).
Retention in Molding: 4.5 lbs. min.
Insertion/Withdrawal: 8 oz. max. insertion, 2 oz. min. withdrawal (.025" sq. test pin)
Wire Range: 20-30 AWG

Crimp Strength:	Wire Size	Min. Tensile (lbs.)
	20	20.0
	22	12.0
	24	8.0
	26	4.5
	28	2.7
	30	1.5

Insulator

Material: Polycarbonate,† 20% glass-filled, self-extinguishing, U.L. rating SE-1
Design: Closed entry, excludes .036 pin, round or square

Grid spacing: .100" x .100" double row
.100" single row
.125" x .125" double row
.125" single row
.100" x .200" double row
.125" x .250" double row

Electrical ratings: (Met with contacts installed in insulator)

Current capacity: 3 amps (max.)

Contact resistance: 4 milliohms at 3 amps test current

Dielectric withstanding voltage: 1000 volts RMS between contacts

Insulation resistance: Initial - 5000 megohms (500 volts applied). After humidity cycling - 1000 megohms.

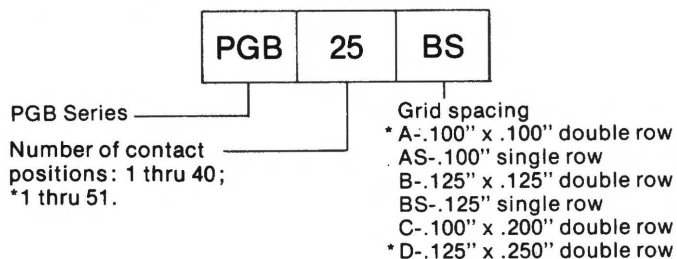
†Depending on material availability, Valox® (thermoplastic polyester) may be substituted for Lexan® (polycarbonate resin).

® Registered trademark, General Electric.

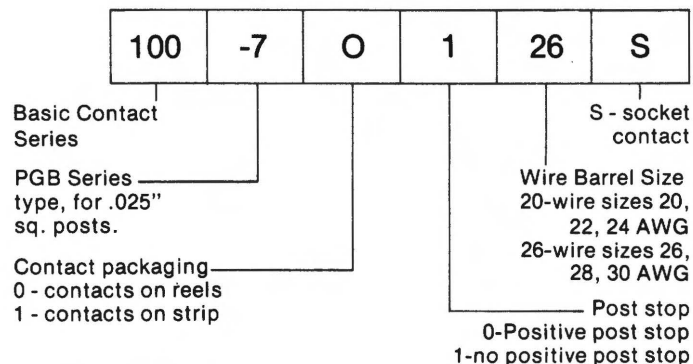
Application Tooling Crimp Tooling

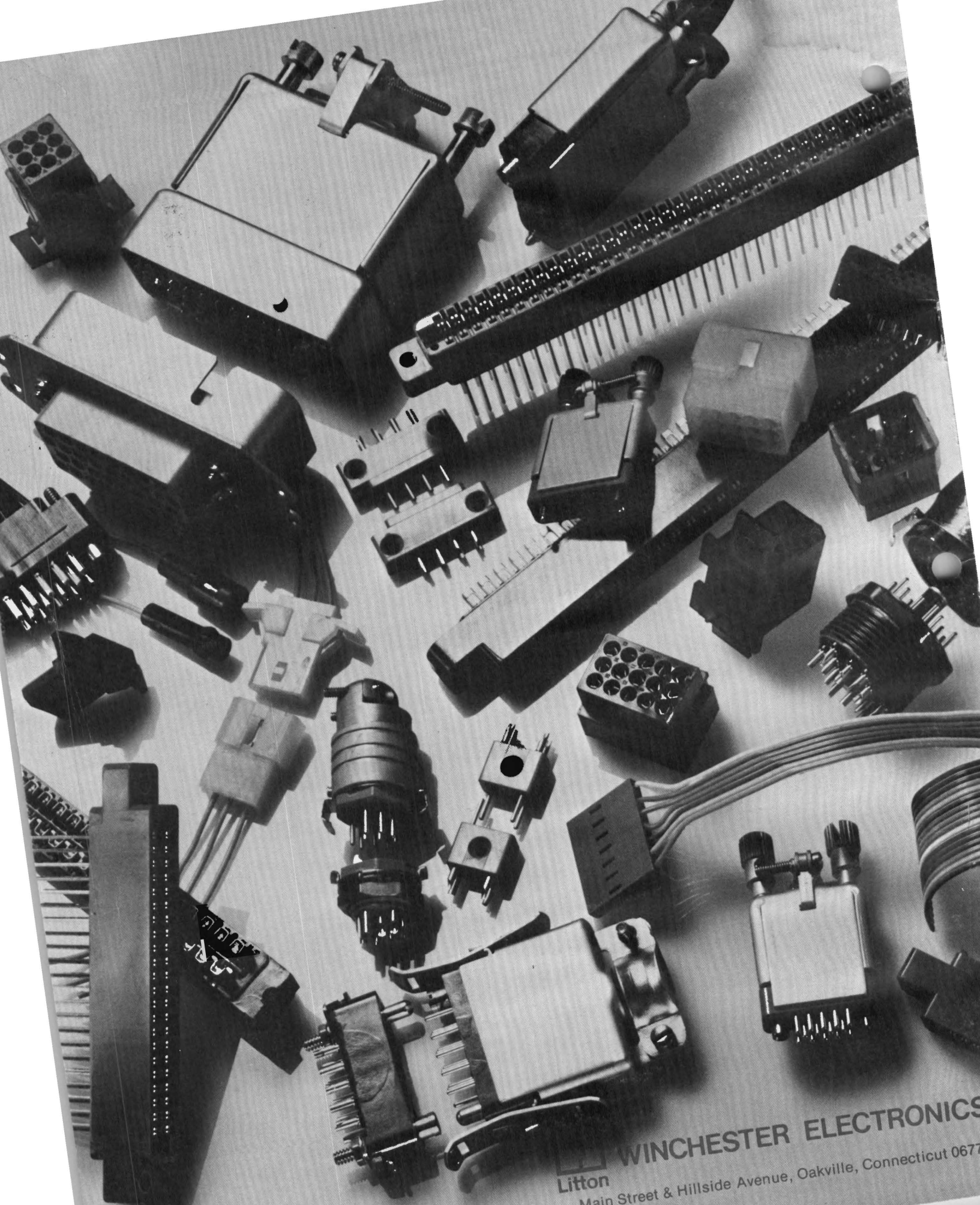
DESCRIPTION	TOOL CAT. NO.	CONTACT CAT. NO.	WIRE SIZES
CRIMP MACHINE	107-0750	100-70†26S	26-28-30
APPLICATOR	107-0751	100-70†20S	20-22-24
HAND CRIMP TOOL	107-0525	100-71†26S	26-28-30
(CONTACTS ON STRIPS)	107-0526	100-71†20S	20-22-24
EXTRACTION TOOL	107-1060	.100 & .125 GRID	
"G" DIM. (CRIMP) GAGE	107-1240		24-26-28-30
	107-1241		20-22-24

Ordering Guide Insulator Moldings



Ordering Guide Crimp Removable Contacts





Litton

WINCHESTER ELECTRONICS
Main Street & Hillside Avenue, Oakville, Connecticut 06770