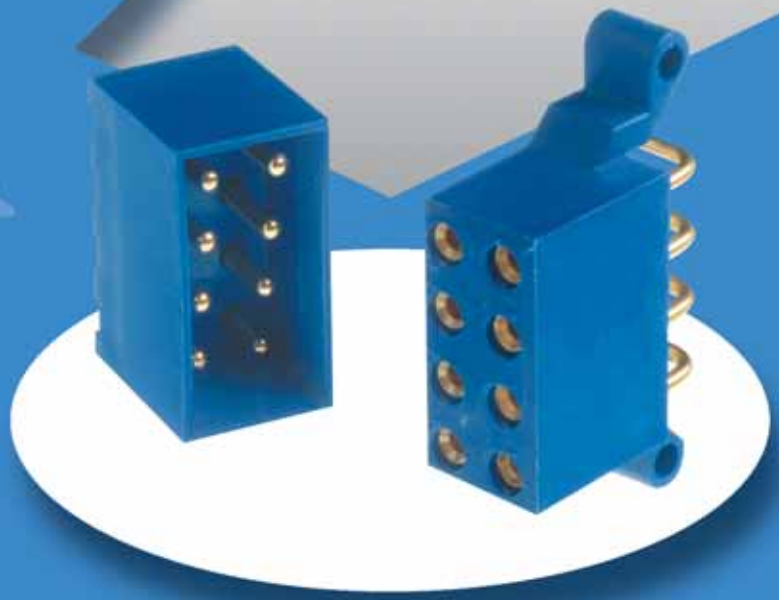
Positronic Industries

www.connectpositronic.com

VP SERIES

The dedicated power interface between plug-in boards and backplanes



Look for our NEW! Products!

VPN Series Features

- Eight power contacts
- Four levels of sequential mating
- Compatibility with popular high speed data connectors, no notching of the board required
- High reliability large surface area contact system

POSITRONIC INDUSTRIES RoHS Compliant

Catalog C-036 Rev. B

Plug-in boards used in today's computing platforms must provide higher reliability, greater functionality and require more power than ever before. Many next generation platforms are utilizing dedicated interfaces to provide power to plug-in boards. Dedicated power interfaces allow data connectors on the board to be fully utilized for data transport on and off the board.

Positronic's VP Series was developed as a dedicated power interface between backplanes and boards. The VPN offers eight power contacts, four levels of sequential mating, and high reliability in a small package. The VPN's features make it suitable for a wide variety of applications which require transferring high power from backplanes to plug-in boards.

Positronic is proud to be involved in the important work of PICMG (PCI Industrial Computer Manufacturers Group) and VITA (VMEbus International Trade Association).

www.picmg.com

www.vita.com

PICMG and the PICMG logo are registered trademarks of the PCI Industrial Computers Manufacturers Group.

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator: Glass filled polyester, UL 94V-0.

Contacts: Precision machined copper alloy with 0.000010 inch [0.25 microns] gold over nickel, or 0.000030 inch [0.76 microns] gold over nickel. Solder-coated terminations optional.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating: See Temperature Rise Curve on page 5.

NEW! **VPN Series:** 25 amperes
VPNH Series: 35 amperes

Initial Contact Resistance:

NEW! **VPN Series:** 0.0022 ohms max. per IEC 512-2, Test 2b.
VPNH Series: 0.0007 ohms max. per IEC 512-2, Test 2b.

Insulation Resistance: 5 G ohms per IEC 512-2, Test 3a, Method A.

Voltage Proof: 2000 Vrms per IEC 512-2, Test 4a, Method C.

Creepage Distance: 0.157 inch [4 mm] minimium.

Clearance Distance: 0.125 inch [3.2 mm] minimium.

Working Temperature: -55°C to +125°C.

Working Voltage: Designed to meet UL 660 VAC and CSA 600 VAC.

MECHANICAL CHARACTERISTICS:

Fixed Contacts: Size 16, 0.062 inch [1.57 mm] diameter male contact. Female contact has "closed entry" design for highest reliability.

Contact Retention in Insulator: 15 lbs. [67N] per IEC 512-8, Test 15a.

Contact Terminations: Straight and 90° solder printed board mount, 0.051 inch [1.30 mm] tail diameter. Compliant and solid termination press-fit. See Power Connection Systems Catalog for compliant press-fit termination performance characteristics.

Contact Insertion and Withdrawal Forces: 8 oz. [2.2 N] nominal per contact.

Sequential Mating System: Male contacts provide as many as four mating lengths.

Power to be enabled through a last mate contact within VPN Series or another connector.

Mechanical Operations: 1000 operations per IEC 512-5.

Contact Positronic for other connector needs
w w w . c o n n e c t p o s i t r o n i c . c o m


Power


D-subminiature


Rectangular


Circular

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

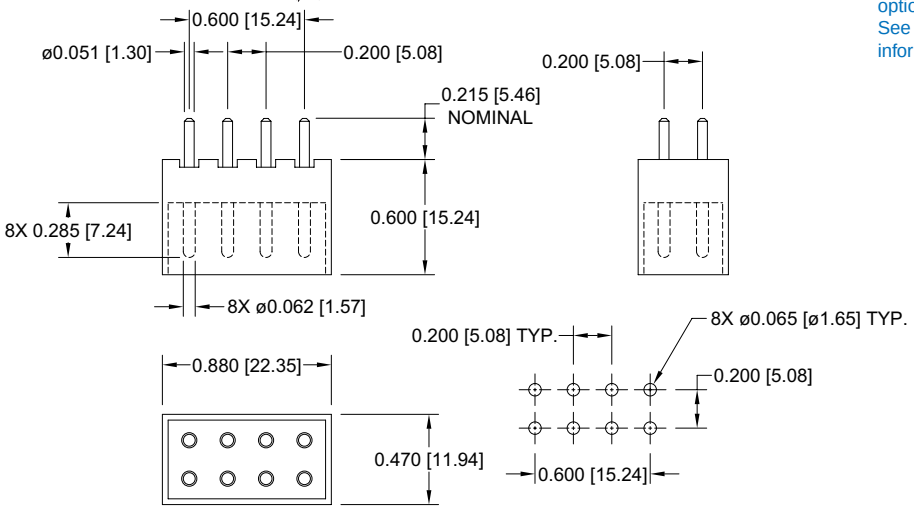
MALE CONTACT CONNECTOR WITH STRAIGHT SOLDER TERMINATIONS

Typical Part Numbers

VPN8W8M300*

NEW! **VPNH8W8M300***

NOTE: *Indicates contact plating options for connectors. See Step 7 of ordering information on page 6.



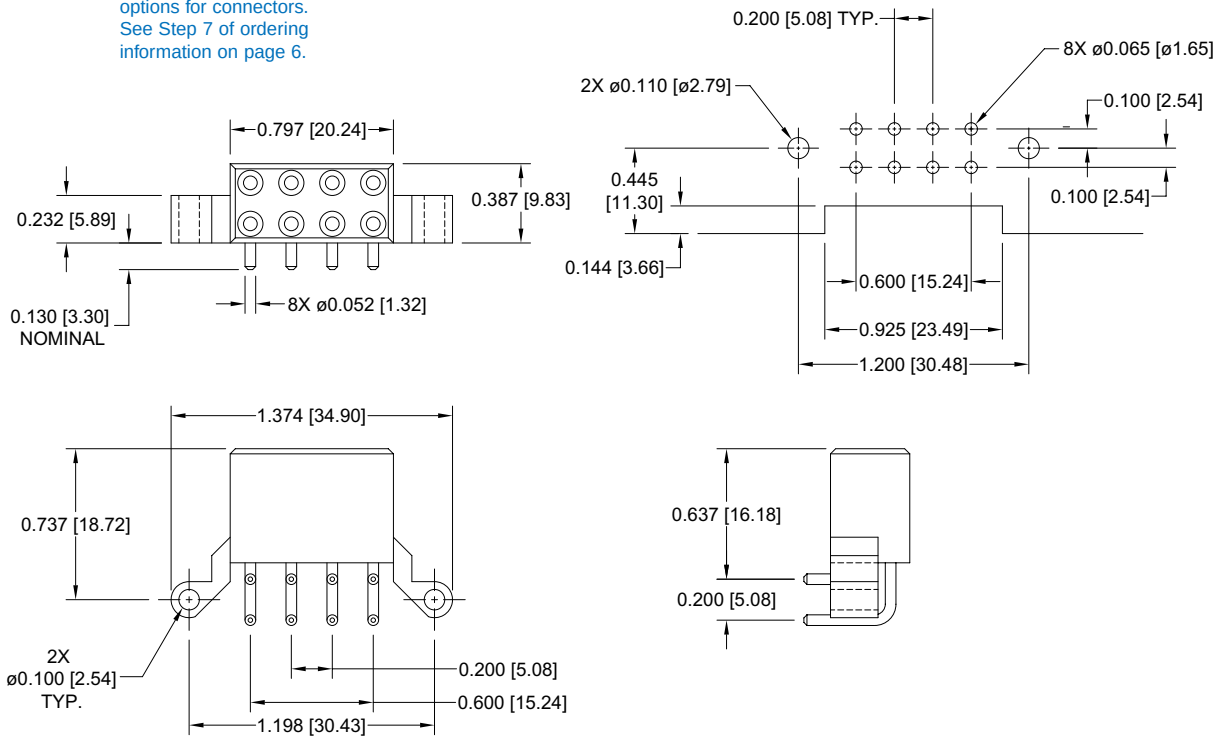
FEMALE CONTACT CONNECTOR WITH RIGHT ANGLE SOLDER TERMINATIONS

Typical Part Numbers

VPN8W8F400*

NEW! **VPNH8W8F400***

NOTE: *Indicates contact plating options for connectors. See Step 7 of ordering information on page 6.



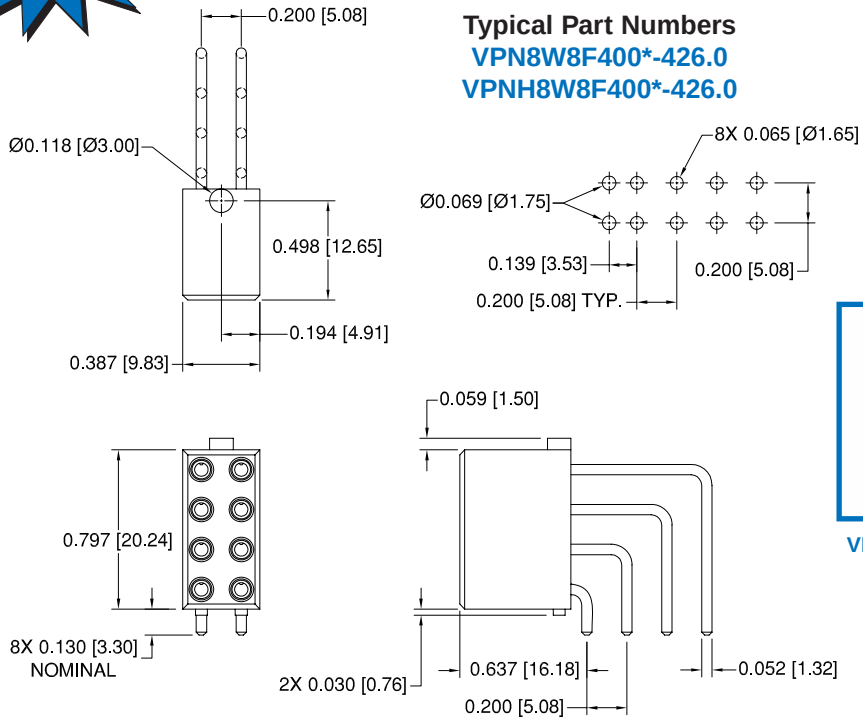
Products described within this catalog may be protected by one or more of the following US. patents:

#4,900,261 #5,255,580 #5,329,697
#6,260,268 #6,835,079 #7,115,002

Patented in Canada, 1992 Other Patents Pending

Positronic Industries' FEDERAL SUPPLY CODE (Cage Code) FOR MANUFACTURERS is 28198

FEMALE CONTACT CONNECTOR WITH VERTICAL RIGHT ANGLE SOLDER TERMINATIONS



Typical Part Numbers

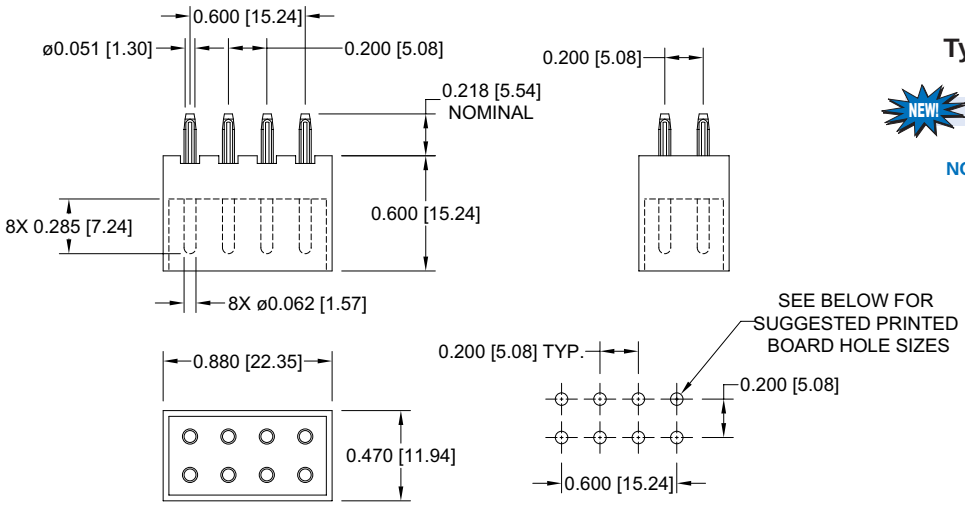
VPN8W8F400*-426.0

VPNH8W8F400*-426.0

NOTE: *Indicates contact plating options for connectors. See Step 7 of ordering information on page 6.

VPN8W8M9300A1 **VPN8W8F400A1**

MALE CONTACT CONNECTOR WITH PRESS-FIT TERMINATIONS



Typical Part Numbers

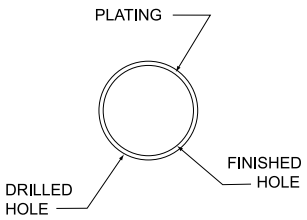
VPN8W8M9300*

NEW! **VPNH8W8M9300***

NOTE: *Indicates contact plating options for connectors. See Step 7 of ordering information on page 6.

SUGGESTED PRINTED BOARD HOLE SIZES FOR COMPLIANT PRESS-FIT CONNECTORS

COMPLIANT PRESS-FIT CONTACT HOLE				
BOARD TYPE	**CONTACT SIZE**	**DRILL HOLE SIZE**	**RECOMMENDED PLATING**	**FINISHED HOLE SIZES**
TIN-LEAD SOLDER PCB	**16**	ø0.0689±0.0010 [ø1.750±0.025]	0.0006 [15µ] minimum solder over 0.0010 [25µ] min. copper	ø0.0630+0.0035-0.0024 [ø1.600+0.090-0.060]
COPPER PCB	**16**	ø0.068±0.002 [ø1.73±0.05]	0.0010 [25µ] min. copper	ø0.0630+0.0035-0.0024 [ø1.600+0.090-0.060]
IMMERSION TIN PCB	**16**	ø0.068±0.002 [ø1.73±0.05]	0.000033±0.000006 [0.85±0.15µ] immersion tin over 0.0010 [25µ] min. copper	ø0.0630+0.0035-0.0024 [ø1.600+0.090-0.060]
IMMERSION SILVER PCB	**16**	ø0.068±0.002 [ø1.73±0.05]	0.000013±0.000007 [0.34±0.17µ] immersion silver over 0.0010 [25µ] min. copper	ø0.0630+0.0035-0.0024 [ø1.600+0.090-0.060]
ELECTROLESS NICKEL/ IMMERSION GOLD PCB	**16**	ø0.068±0.002 [ø1.73±0.05]	0.000002 [0.05µ] min. immersion gold over 0.000177±0.000059 [4.5±1.5µ] electroless nickel per IPC-4552 over 0.0010 [25µ] min. copper	ø0.0630+0.0035-0.0024 [ø1.600+0.090-0.060]

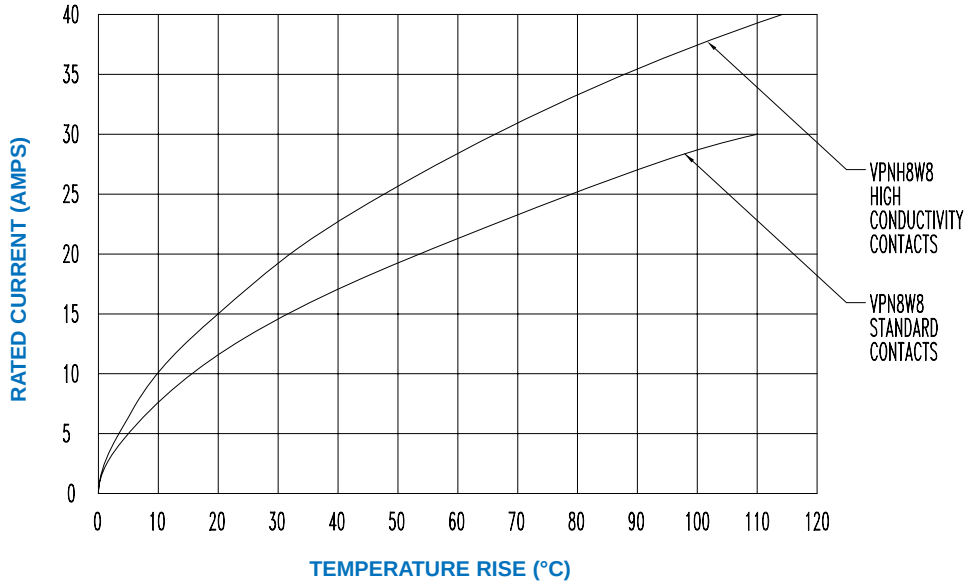


PRESS-FIT CONTACT HOLE

Note: For PCB plating compositions not shown, consult Technical Sales.

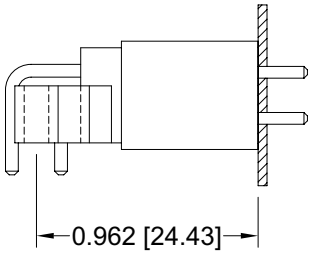
NEW! TEMPERATURE RISE CURVE

TESTED IN ACCORDANCE WITH U.L. 1977



TEST DETAIL:
Each curve was developed using individual connector bodies fully loaded with contacts. All power contacts energized through 16 awg wire. Temperature rise was measured in the contact mating area. Test was conducted with connectors in static air. Terminations of test connectors were straight compliant press-fit to right angle solder.

MATING DIMENSIONS



Right Angle Board Mount Female to Straight Board Mount Male (FULLY MATED)

SEQUENTIAL MATING CODE

SELECTION GUIDE FOR ORDERING DIFFERENT CONTACT LENGTHS STEP 9 OF ORDERING INFORMATION

SEE ORDERING INFORMATION PAGE FOR STEPS 1 THROUGH 9

CONTACT CODE	CONTACT LENGTH
A	0.325 [8.26]
B	0.285 [7.24] STANDARD
C	0.245 [6.22]
D	0.205 [5.21]

STEP	1	2	3	4	5	6	7	8	9
EXAMPLE	A	1	B	2	B	3	D	4	D

STEP 1
Specify code for most frequently used contact mating length. This length is used for all contacts not specified in steps 2 through 9.

STEP 2
Position number for first special length contact.

STEP 3
Length of contact specified in step 2. (Choose from length code chart)

STEP 4
Position number for second special length contact.

STEP 5
Length of contact specified in step 4 (Choose from length code chart).

STEP 6
Position number for third special length contact.

STEP 7
Length of contact specified in step 6 (Choose from length code chart).

STEP 8
Position number for fourth special length contact.

STEP 9
Length of contact specified in step 8 (Choose from length code chart).

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

STEP	1	2	3	4	5	6	7	8		9
EXAMPLE	VPN	8W8	F	93	0	0	A1	/AA		

STEP 1 - BASIC SERIES

VPN - VP Series - Standard Contact Material
VPNH - VP Series - High Conductivity Contact Material

STEP 2 - CONNECTOR VARIANTS

8W8 - All contact positions populated

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

STEP 4 - TYPE OF CONTACT

4 - Right Angle Board Mount, Solder. Female only
3 - Straight Board Mount, Solder. Male only
*93 - Straight Board Mount, Press-fit. Male only

STEP 5

0 - None

STEP 6

0 - None

STEP 7 - CONTACT PLATING

A1 - Gold flash over nickel on mating end and termination end.
A2 - Gold flash over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code 93 in step 4.
C1 - 0.76µ [0.000030 inch] gold over nickel on mating end and termination end.
C2 - 0.76µ [0.000030 inch] gold over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coated termination end. Not available with code 93 in step 4.
D1 - 1.27µ [0.000050 inch] gold over nickel on mating end and termination end.
D2 - 1.27µ [0.000050 inch] gold over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coated termination end. Not available with code 93 in step 4.

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

/AA - Compliant per EU Directive 2002/95/EC (RoHS)
Note: If no environmental options are required this step will not be used.
Example: VPN8W8F9300A1

STEP 9 - SPECIAL OPTIONS

-426.0 - Right angle vertically mounted female connector.
Sequential mating system - See page 5 for details.
CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

*Male contact press-fit connectors **require a press-fit tool**:

For **standard part number** VPN8W8M9300A1 use seating tool 9513-308-7-41 and support tool 9513-400-9-41, for installation.

Contact Technical Sales for **sequential mating** press-fit tools.

Let us work with you to develop variants of the VP Series to meet your specific requirements.

Unless otherwise specified, dimensional tolerances are:

1) ±0.001 inches [0.03 mm] for male contact mating diameters.
2) ±0.003 inches [0.08 mm] for contact termination diameters.
3) ±0.005 inches [0.13 mm] for all other diameters.
4) ±0.015 inches [0.38 mm] for all other dimensions.

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

Positronic Products

Power

Contact Sizes: 0, 8, 12, 16, 20 and 22
Current Ratings: To 100 amperes
Terminations: Crimp, wire solder, straight solder, right angle solder, straight press-fit and right angle press-fit
Configurations: Multiple variants in a variety of package sizes
Compliance: PICMG 2.11, PICMG 3.0, VITA 41

FEATURES: Hot swap capability • AC/DC operation in a single connector • Signal contacts for hardware management • Blind mating • Sequential mating • Large surface area contact mating system • Wide variety of accessories • Customer specified contact arrangements

D-Subminiature

Contact Sizes: 8, 20 and 22
Current Ratings: To 40 amperes nominal
Terminations: Crimp, wire solder, straight solder, right angle solder and straight press-fit
Configurations: Multiple variants in both standard and high densities
Qualifications: MIL-DTL-24308, Goddard Space Flight 311P, SAE AS 39029, IP65, IP67

FEATURES: Three performance levels available: professional quality, military quality and space-flight quality provide multiple performance-to-cost choices • Options include thermocouple contacts, environmentally sealed and dual port package including mixed density • Broad selection of accessories

Rectangular

Contact Sizes: 16, 20 and 22
Current Ratings: To 13 amperes
Terminations: Crimp, wire solder, straight solder and right angle solder
Configurations: Multiple variants in both standard and high densities
Qualifications: MIL-DTL-28748, SAE AS 39029, CCITT V.35

FEATURES: Two performance levels available: industrial quality and military quality provide two performance to cost choices • Large surface area contact mating system • A wide variety of accessories • Broad selection of contact variants and package sizes

Circular

Contact Sizes: 12, 16, 20 and 22
Current Ratings: To 25 amperes nominal
Terminations: Crimp, wire solder, straight solder and right angle solder
Configurations: Multiple variants
Qualifications: Environmental protection to IP67

FEATURES: Non-corrodible / lightweight composite construction • EMI/RFI shielded versions • Thermocouple contacts • Environmentally sealed versions • Rear insertion/ front release of removable contacts • Two level sequential mating • Overmolding available on full assemblies

Cable

All Positronic connector products can be supplied as part of cable assemblies whose technical characteristics would reflect those of the connectors being used within the assembly.

FEATURES: Shorten the supply chain and reduce additional costs and delays by “cablizing” • Overmolding available • Shielded and environmentally sealed versions available • Power cables and access boxes which meet the SAE J2496 specification

Hermetic

Contact Sizes: 8, 12, 16, 20 and 22
Current Ratings: To 40 amperes nominal
Terminations: Feedthrough is standard; flying leads and board mount available upon request
Configurations: See D-Subminiature and Circular Configurations above
Qualifications: Space-D32

FEATURES: Intended for use as an electrical feedthrough in high vacuum applications • Leakage rate: 5 x 10-9 mbar.l/s @ vacuum 1.5 x 10-5 atm • Signal, power, coax and high voltage versions available • Connectors can be mounted on flange assembly per customer specification

For more information, visit www.connectpositronic.com or call your nearest Positronic sales office as given on the back of this catalog.