

BI-LOBE[®] | NANO-D

MISSION-CRITICAL INTERCONNECTION TECHNOLOGIES FOR
RUGGED AND HARSH ENVIRONMENT



OMNETICS
CONNECTOR CORPORATION

DUAL ROW HORIZONTAL SMT (TYPE AA)

Horizontal SMT Bi-Lobe[®] extremely low-profile connectors are well-suited for pick and place mounting methods. SMT Bi-Lobe[®] nano connectors feature Omnetics' highly reliable gold-plated Flex Pin contact system. In addition to ease of assembly, their lightweight construction helps meet size and weight goals. They are rugged and deliver high performance under shock, vibration, temperature extremes, and other rigorous conditions common to critical applications. Omnetics' SMT Bi-Lobe[®] nano connectors are available in a range of options, including mounting holes suitable for PCB and flex mounting. They are available in standard sizes ranging from 9 through 91 positions, as well as custom configurations.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	87 milliohms (87 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

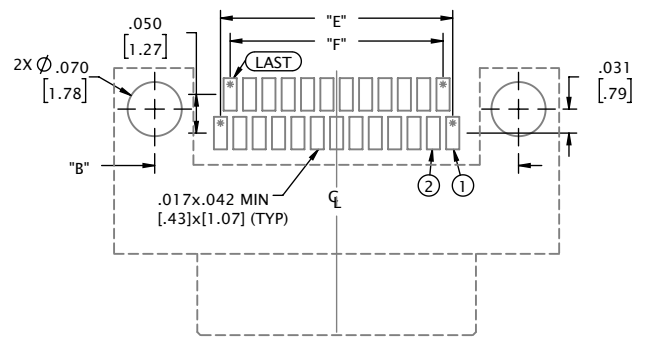
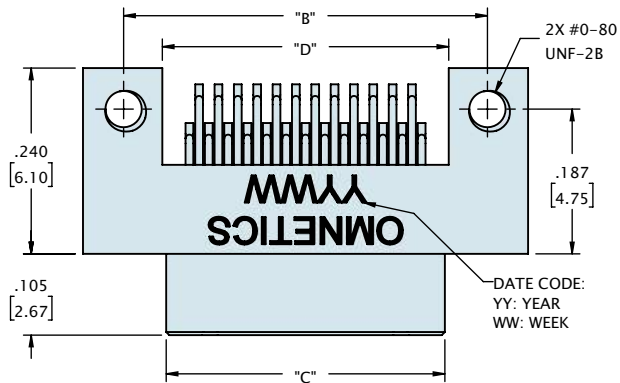
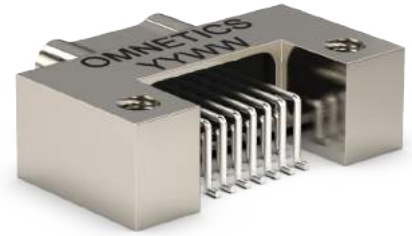
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

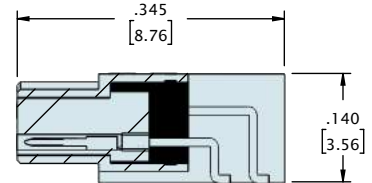
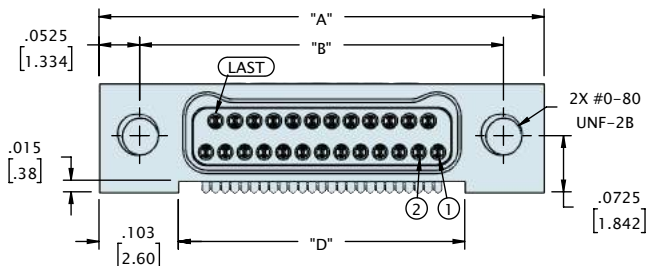
Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL ROW HORIZONTAL SMT (TYPE AA)



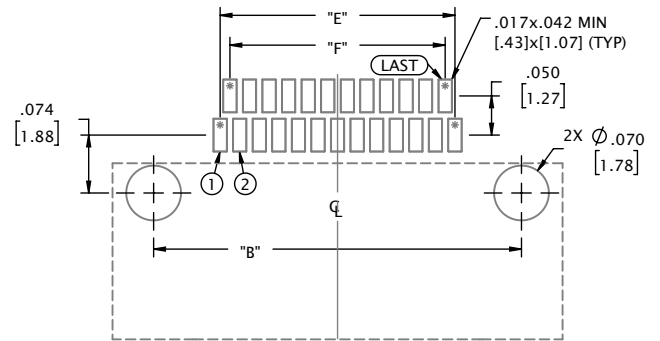
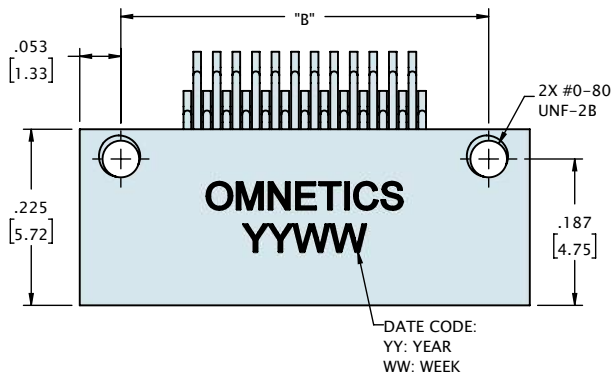
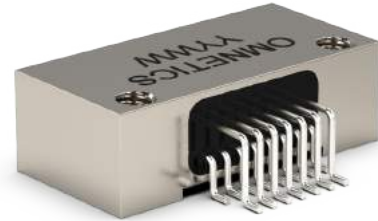
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



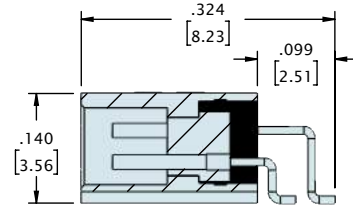
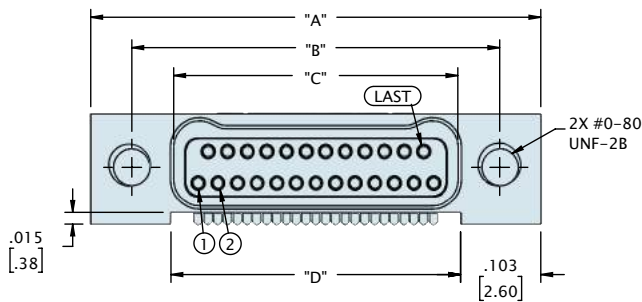
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"
09	.375 [9.53]	.270 [6.86]	.160 [4.06]	.170 [4.32]	.100 [2.54]	.075 [1.90]
15	.450 [11.43]	.345 [8.76]	.235 [5.97]	.245 [6.22]	.175 [4.44]	.150 [3.81]
21	.525 [13.34]	.420 [10.67]	.310 [7.87]	.320 [8.13]	.250 [6.35]	.225 [5.71]
25	.575 [14.61]	.470 [11.94]	.360 [9.14]	.370 [9.40]	.300 [7.62]	.275 [6.98]
31	.650 [16.51]	.545 [13.84]	.435 [11.05]	.445 [11.30]	.375 [9.52]	.350 [8.89]
37	.725 [18.42]	.620 [15.75]	.510 [12.95]	.520 [13.21]	.450 [11.43]	.425 [10.79]
51	.900 [22.86]	.795 [20.19]	.685 [17.40]	.695 [17.65]	.625 [15.87]	.600 [15.24]
65	1.075 [27.31]	.970 [24.64]	.860 [21.84]	.870 [22.10]	.800 [20.32]	.775 [19.68]
69	1.125 [28.58]	1.020 [25.91]	.910 [23.11]	.920 [23.37]	.850 [21.59]	.825 [20.95]
85	1.325 [33.66]	1.220 [30.99]	1.110 [28.19]	1.120 [28.45]	1.050 [26.67]	1.025 [26.03]
91	1.452 [36.88]	1.321 [33.55]	1.185 [30.10]	1.195 [30.35]	1.125 [28.57]	1.100 [27.94]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW HORIZONTAL SMT (TYPE AA)



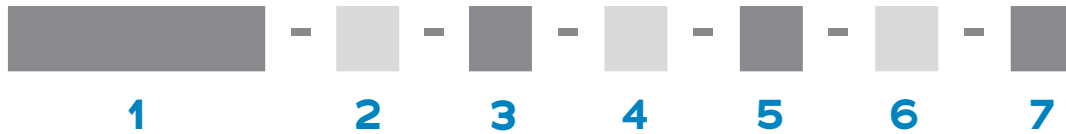
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



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91	1.452 [36.88]	1.321 [33.55]	1.188 [30.18]	1.195 [30.35]	1.125 [28.58]	1.100 [27.94]

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ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset
2 Number Of Contacts	09 15 21 25 31 37 51 65 69 85 91	
3 Termination Type	AA Horizontal Surface Mount	
4 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated B Aluminium Shell, Black Anodized T Titanium Shell, Unplated	CD Aluminium shell, Cadmium Plated S Stainless Steel Shell, Passivated
5 Common Options	ETH End Threaded Hole, #0-80 NTH Non-Threaded Holes For Mounting To The Board YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw) HT High Temp. Epoxy CS Customer Supplied Material	EJS End Jack Screw RH RoHS Compliant
6 Mod Codes	M10 Keyed M50 Space Grade Nano-D, SPT1	M30 Ground Spring M53 Space Grade Nano-D, SPT2
7 Special Instructions	YYY Describe anything that is not covered in standard options	

DUAL ROW VERTICAL SMT (TYPE VV)

As electronic devices scale down, Omnetics is ready with ever-smaller connectors designed to offer exceptional performance in reduced package sizes. Our **Vertical SMT Bi-Lobe®** nano connectors require minimal board space on flex circuits and printed circuit boards. These connectors feature Omnetics' highly reliable Flex Pin contact system and are available with threaded mounting holes and retention screws. Omnetics' Vertical SMT Type VV Bi-Lobe® nano connectors are available in a wide range of configurations to meet the needs of a variety of critical applications. These connectors are available in standard sizes ranging from 9 through 91 positions, as well as custom configurations.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	87 milliohms (87 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

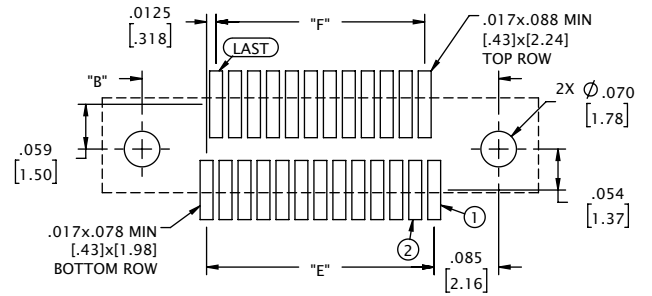
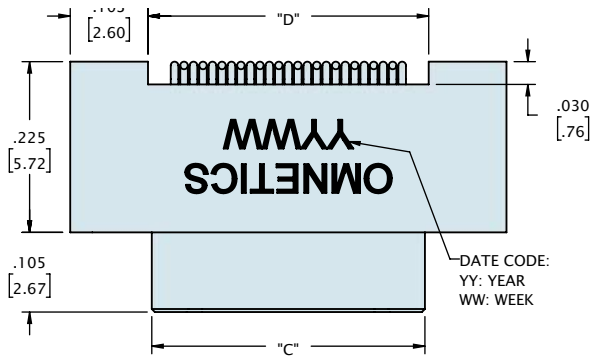
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

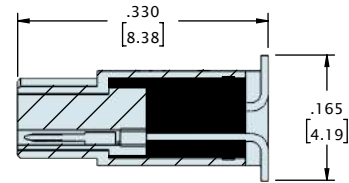
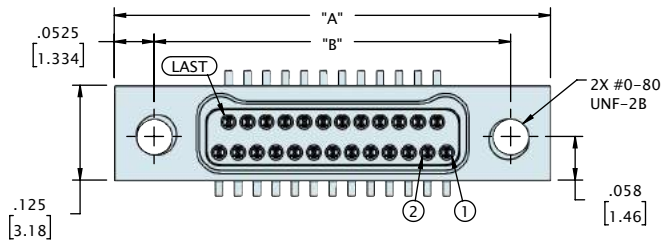
Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL ROW VERTICAL SMT (TYPE VV)



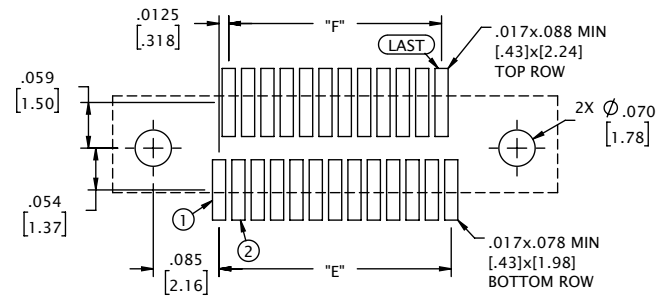
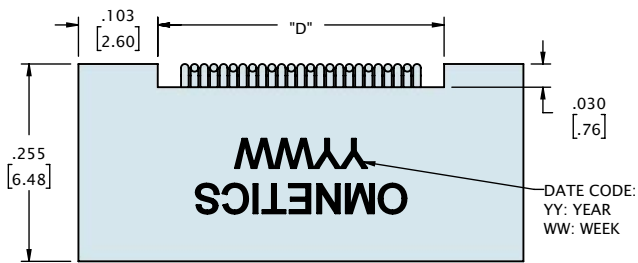
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



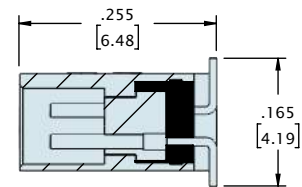
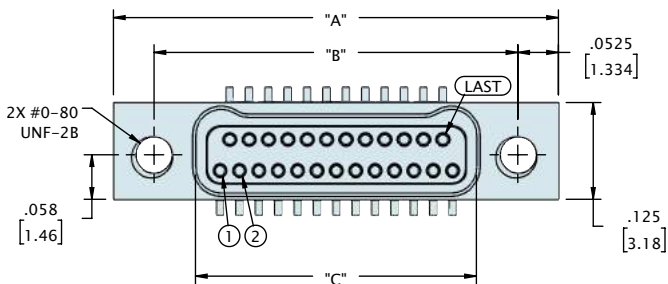
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"
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DUAL ROW VERTICAL SMT (TYPE VV)



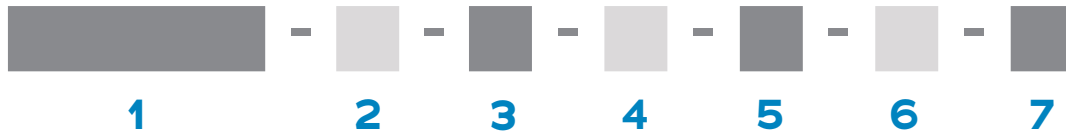
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



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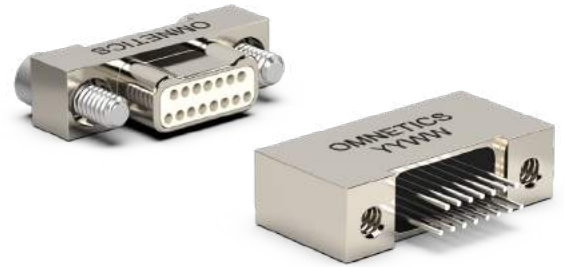
ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset
2 Number Of Contacts	09 15 21 25 31 37 51 65 69 85 91	
3 Termination Type	VV Vertical Surface Mount	
4 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated B Aluminium Shell, Black Anodized T Titanium Shell, Unplated	CD Aluminium shell, Cadmium Plated S Stainless Steel Shell, Passivated
5 Common Options	ETH End Threaded Hole, #0-80 NTH Non-Threaded Holes For Mounting To The Board YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw) HT High Temp. Epoxy CS Customer Supplied Material	EJS End Jack Screw RH RoHS Compliant
6 Mod Codes	M10 Keyed M50 Space Grade Nano-D, SPT1	M30 Ground Spring M53 Space Grade Nano-D, SPT2
7 Special Instructions	YYY Describe anything that is not covered in standard options	

DUAL ROW STRAIGHT TAIL (TYPE DD)

The Dual Row Bi-Lobe[®] nanos are tiny and powerful, with ruggedized features that make them suitable for high-reliability applications in medical, military, and other rigorous environments. They feature straight tails (integral or crimped) for vertical thru-hole mounting to fine pitch flex circuits. Straight solid tails are commonly used in ultra-fine wire wrap terminations, such as in electrophysiology applications. The connectors are designed on .025" (.64 mm) centerlines and feature Omnetics' gold-plated Flex Pin contact system. They are available with retention screws for a positive lock and come in standard sizes ranging from 9 to 85 positions. Custom configurations are also available.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	71 milliohms (71 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

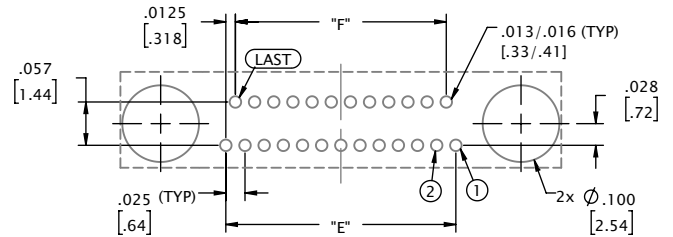
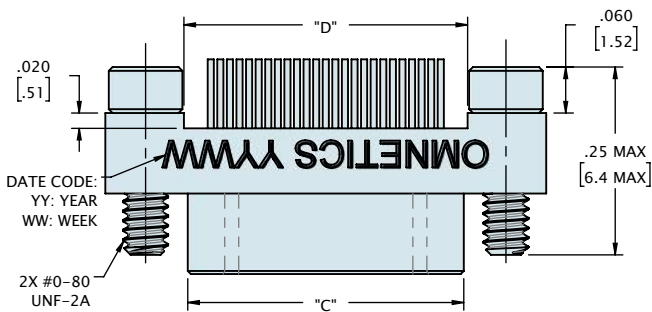
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

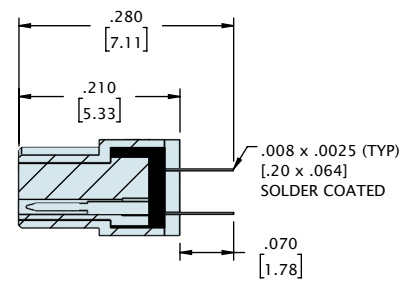
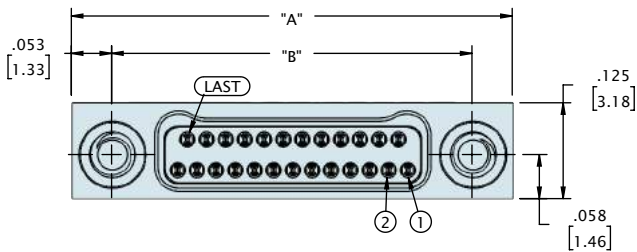
Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL ROW STRAIGHT TAIL (TYPE DD)



**SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)**

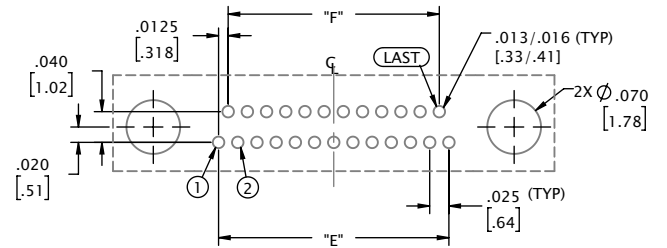
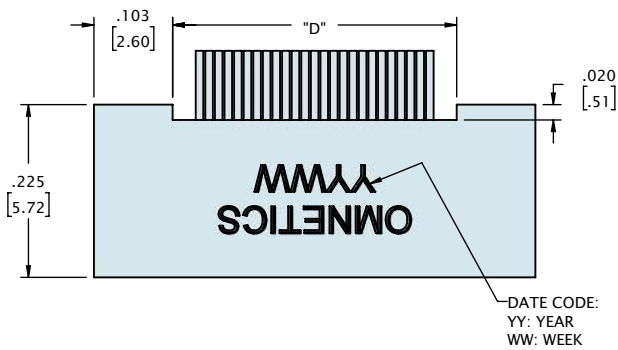


JACKSCREW NOT SHOWN FOR CLARITY

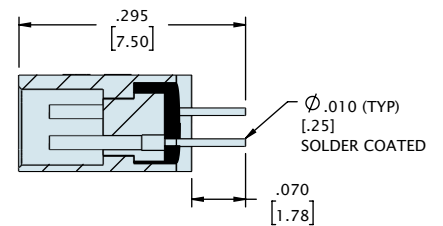
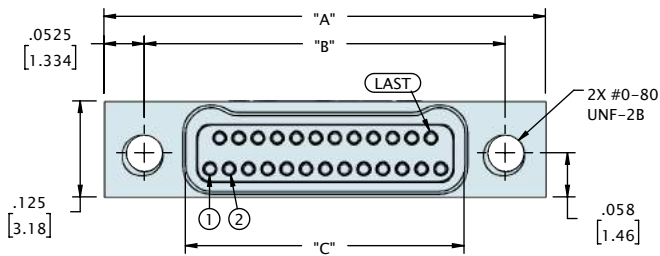
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DUAL ROW STRAIGHT TAIL (TYPE DD)



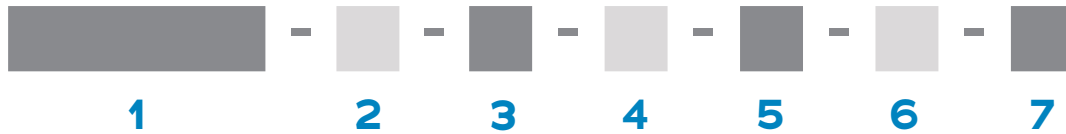
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



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31	.650 [16.51]	.545 [13.84]	.438 [11.13]	.445 [11.30]	.375 [9.53]	.350 [8.89]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]	.520 [13.21]	.450 [11.43]	.425 [10.80]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]	.695 [17.65]	.625 [15.88]	.600 [15.24]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]	.870 [22.10]	.800 [20.32]	.775 [19.69]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]	1.120 [28.45]	1.050 [26.67]	1.025 [26.04]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset
2 Number Of Contacts	09 15 21 25 31 37 51 65 85	
3 Termination Type	DD Thru-Hole Straight	
4 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated B Aluminium Shell, Black Anodized T Titanium Shell, Unplated	CD Aluminium shell, Cadmium Plated S Stainless Steel Shell, Passivated
5 Common Options	ETH End Threaded Hole, #0-80 NTH Non-Threaded Holes For Mounting To The Board YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw) HT High Temp. Epoxy CS Customer Supplied Material	
6 Mod Codes	M10 Keyed M50 Space Grade Nano-D, SPT1	M30 Ground Spring M53 Space Grade Nano-D, SPT2
7 Special Instructions	YYY Describe anything that is not covered in standard options	

DUAL ROW HORIZONTAL THRU-HOLE (TYPE H4)

The Dual Row Bi-Lobe® H4 nanos are suitable for high-reliability miniature applications that must deliver exceptional performance in medical, military, and other demanding environments. They are a thru-hole mounted, low-mass ruggedized connector on .025" (.64) centerlines. The thru-hole tails are spread onto a mounting pattern on .050 (1.27 mm) with space for annular rings and routing traces. They feature Omnetics' gold-plated Flex Pin contact system. These durable, lightweight connectors provide power and signal under rigorous conditions and intermate with Omnetics QPL versions of MIL-DTL-32139. They are available with retention screws for a positive lock and come in standard sizes ranging from 9 to 65 positions. Custom configurations are also available.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	87 milliohms (87 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

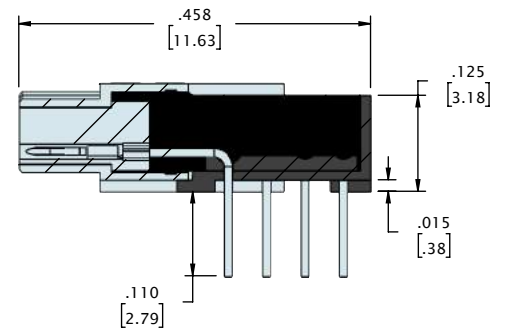
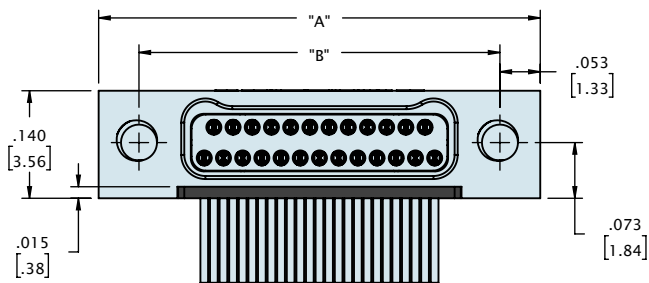
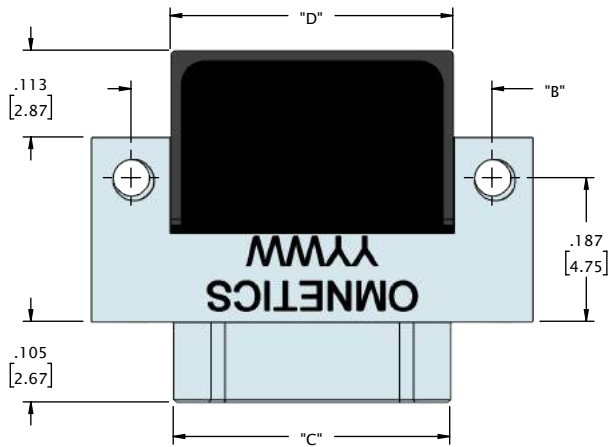
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

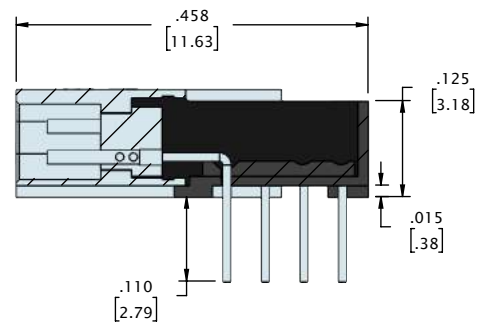
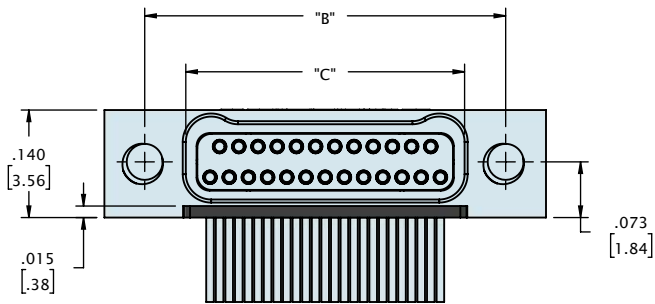
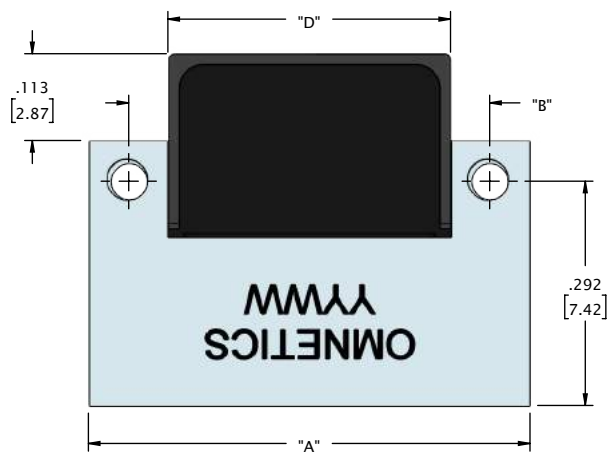
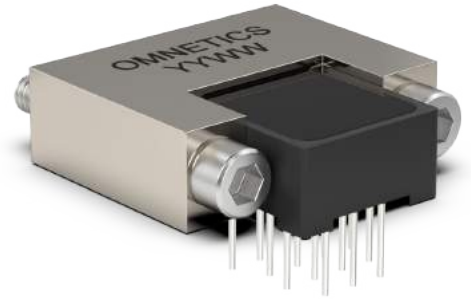
DUAL ROW HORIZONTAL THRU-HOLE (TYPE H4)



CONTACTS	"A"	"B"	"C"	"D"
09	.375 [9.53]	.270 [6.86]	.160 [4.06]	.168 [4.27]
15	.450 [11.43]	.345 [8.76]	.235 [5.97]	.243 [6.17]
21	.525 [13.34]	.420 [10.67]	.310 [7.87]	.318 [8.08]
25	.575 [14.61]	.470 [11.94]	.360 [9.14]	.368 [9.35]
31	.650 [16.51]	.545 [13.84]	.435 [11.05]	.443 [11.25]
37	.725 [18.42]	.620 [15.75]	.510 [12.95]	.518 [13.16]
51	.900 [22.86]	.795 [20.19]	.685 [17.40]	.693 [17.60]
65	1.075 [27.31]	.970 [24.64]	.860 [21.84]	.868 [22.05]
85	1.325 [33.66]	1.220 [30.99]	1.110 [28.19]	1.118 [28.40]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW HORIZONTAL THRU-HOLE (TYPE H4)

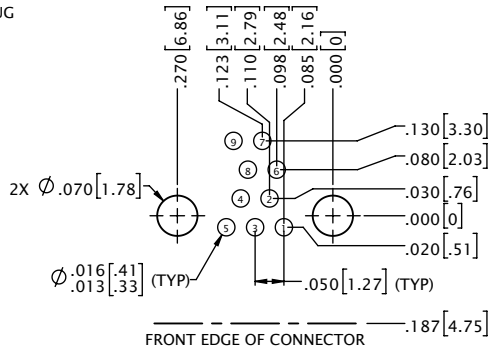


CONTACTS	"A"	"B"	"C"	"D"
09	.375 [9.53]	.270 [6.86]	.163 [4.14]	.168 [4.27]
15	.450 [11.43]	.345 [8.76]	.238 [6.05]	.243 [6.17]
21	.525 [13.34]	.420 [10.67]	.313 [7.95]	.318 [8.08]
25	.575 [14.61]	.470 [11.94]	.363 [9.22]	.368 [9.35]
31	.650 [16.51]	.545 [13.84]	.438 [11.13]	.443 [11.25]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]	.518 [13.16]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]	.693 [17.60]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]	.868 [22.05]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]	1.118 [28.40]

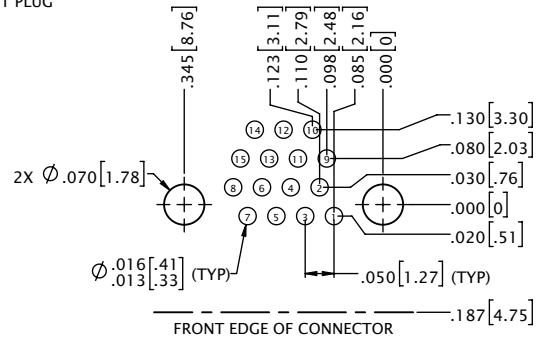
DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW HORIZONTAL THRU-HOLE (TYPE H4)

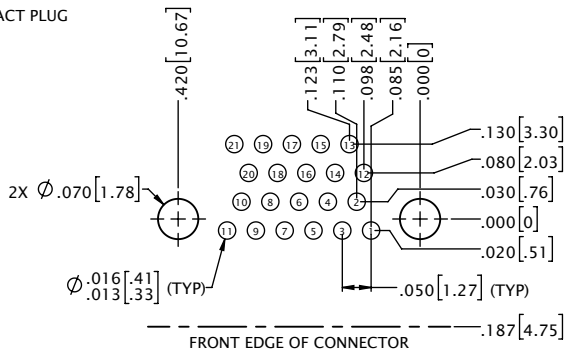
9 CONTACT PLUG



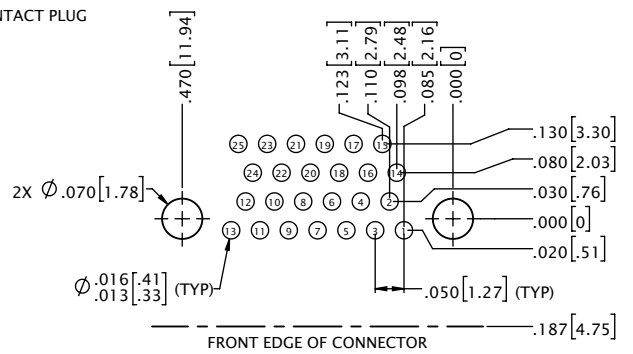
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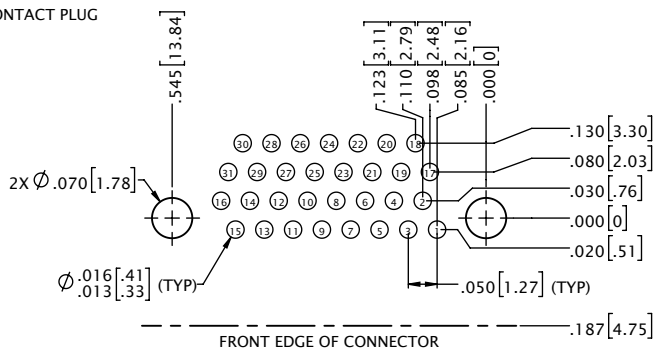
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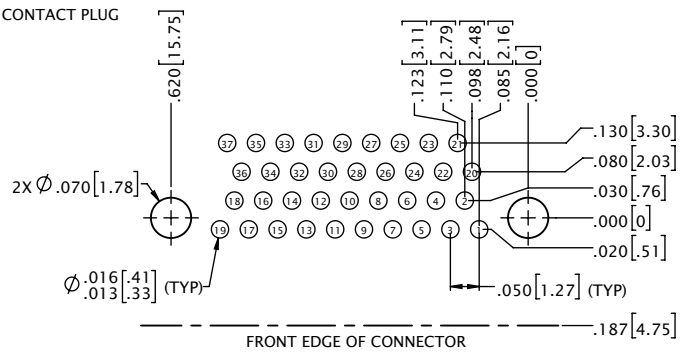
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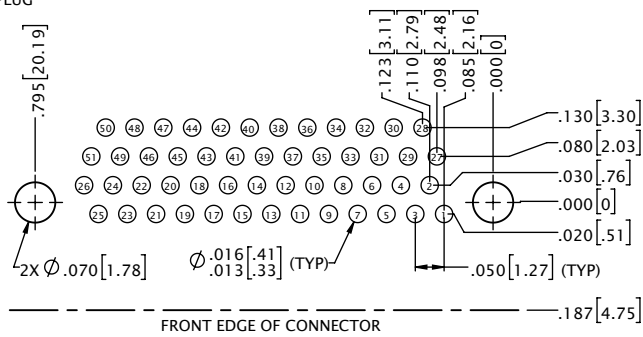
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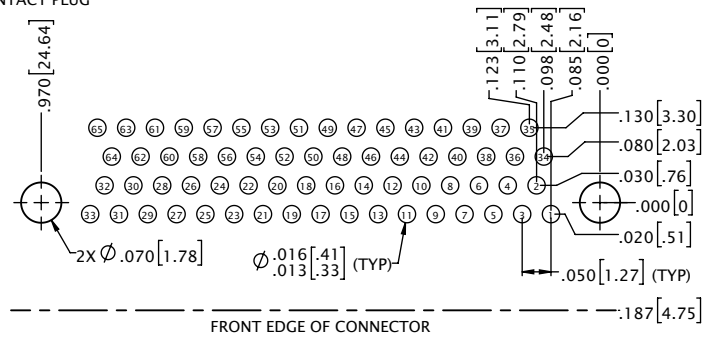
37 CONTACT PLUG



51 CONTACT PLUG

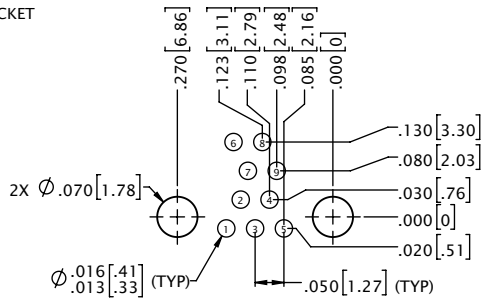


65 CONTACT PLUG



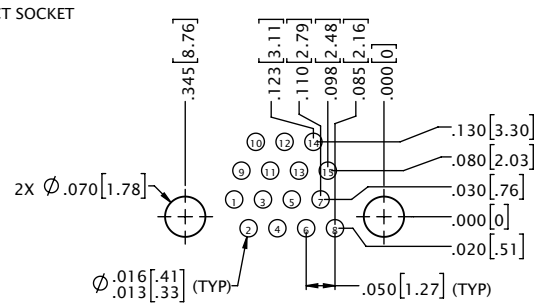
DUAL ROW HORIZONTAL THRU-HOLE (TYPE H4)

9 CONTACT SOCKET



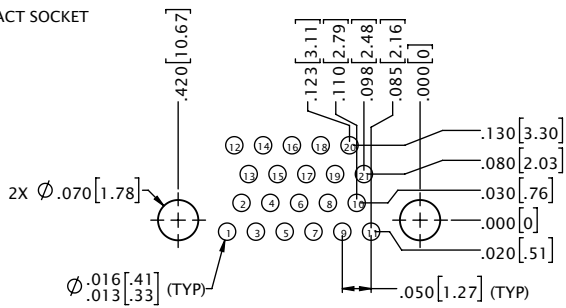
FRONT EDGE OF CONNECTOR .292 [7.42]

15 CONTACT SOCKET



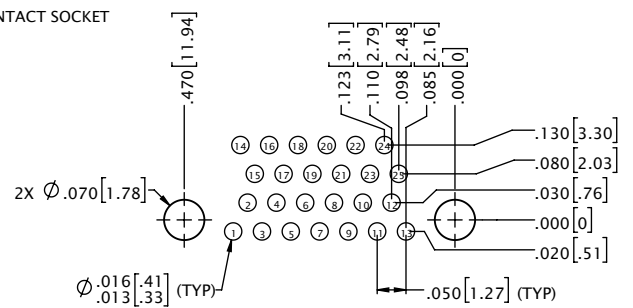
FRONT EDGE OF CONNECTOR .292 [7.42]

21 CONTACT SOCKET



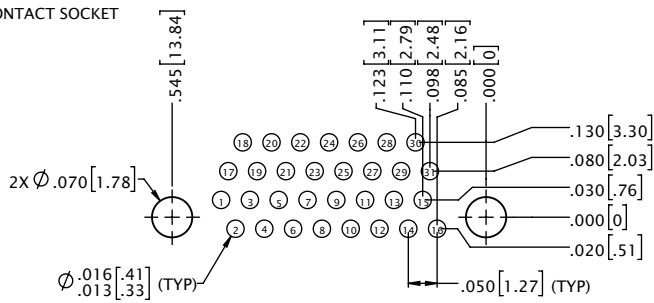
FRONT EDGE OF CONNECTOR .292 [7.42]

25 CONTACT SOCKET



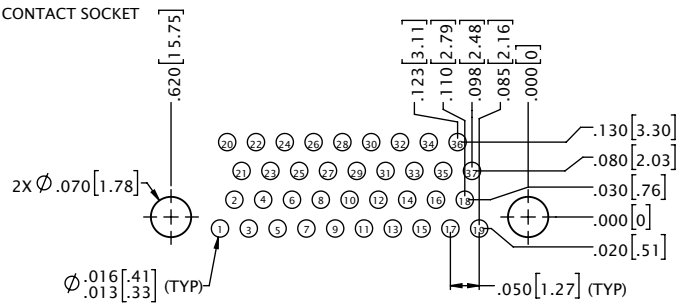
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31 CONTACT SOCKET



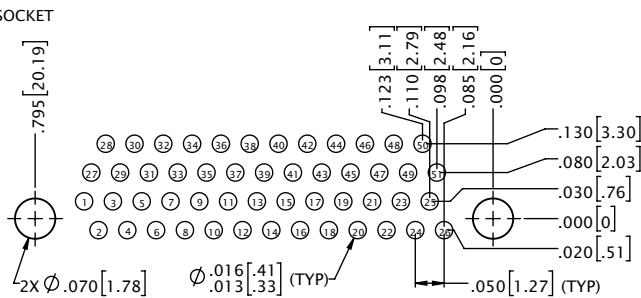
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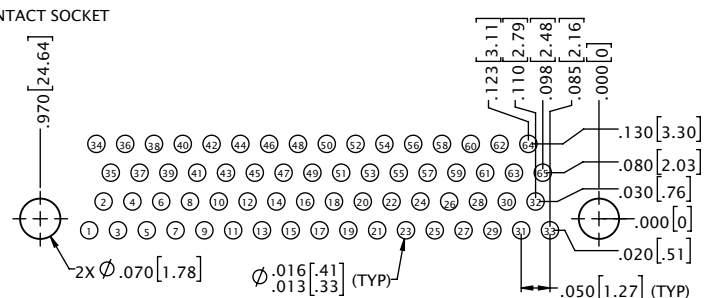
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51 CONTACT SOCKET



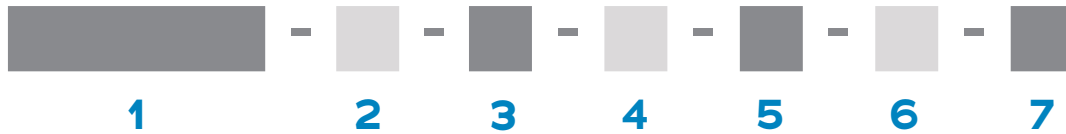
FRONT EDGE OF CONNECTOR .292 [7.42]

65 CONTACT SOCKET



FRONT EDGE OF CONNECTOR .292 [7.42]

ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset							
2 Number Of Contacts	O9	15	21	25	31	37	51	65	85
3 Termination Type	H4 Horizontal Thru-Hole								
4 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated				CD Aluminium shell, Cadmium Plated				
	B Aluminium Shell, Black Anodized				S Stainless Steel Shell, Passivated				
	T Titanium Shell, Unplated								
5 Common Options	ETH End Threaded Hole, #0-80				EJS End Jack Screw				
	NTH Non-Threaded Holes For Mounting To The Board								
	YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw)								
	HT High Temp. Epoxy				RH RoHS Compliant				
	CS Customer Supplied Material								
6 Mod Codes	M10 Keyed				M30 Ground Spring				
	M50 Space Grade Nano-D, SPT1				M53 Space Grade Nano-D, SPT2				
7 Special Instructions	YYY Describe anything that is not covered in standard options								

DUAL ROW VERTICAL THRU-HOLE (TYPE V4)

Applications that experience frequent high vibration and shock are served well by Omnetics' **Dual Row Bi-Lobe® V4** nanos. This low-mass vertical thru-hole mounted connector has contacts arranged on .025" (.64 mm) centerlines. The thru-hole tails are spread onto a mounting pattern on .050 (1.27 mm) with space for annular rings and routing traces. They feature Omnetics' gold-plated Flex Pin contact system. These durable, lightweight connectors serve the most demanding applications and intermate with Omnetics QPL versions of MIL-DTL-32139. They are available with retention screws for a positive lock and come in standard sizes ranging from 9 to 65 positions. Custom configurations are also available.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	87 milliohms (87 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

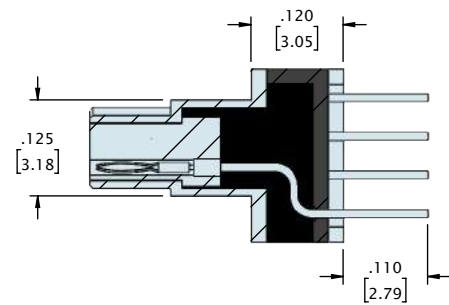
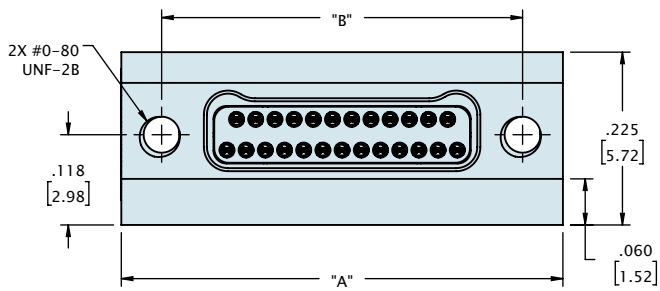
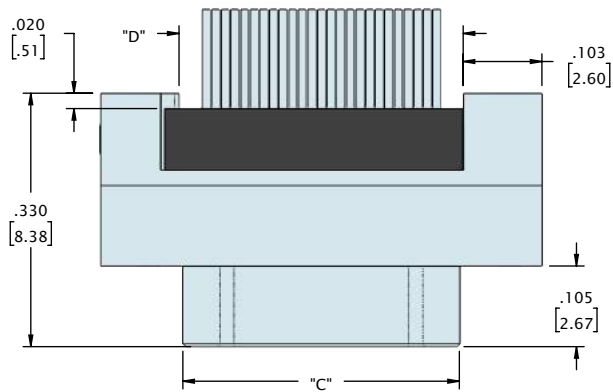
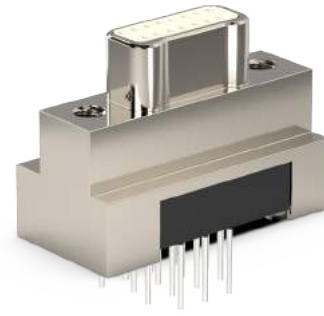
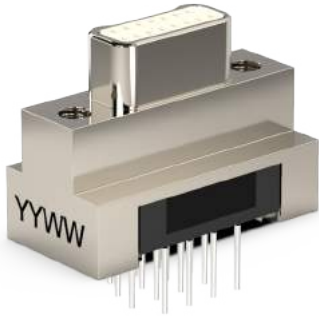
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

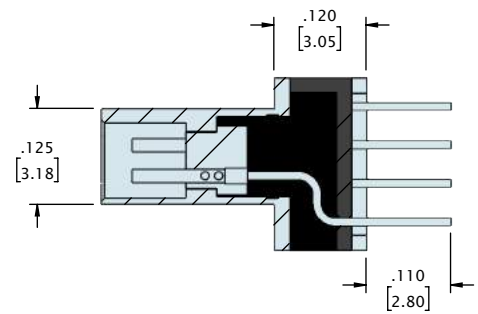
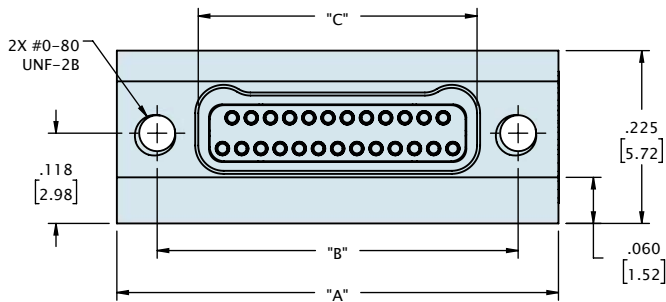
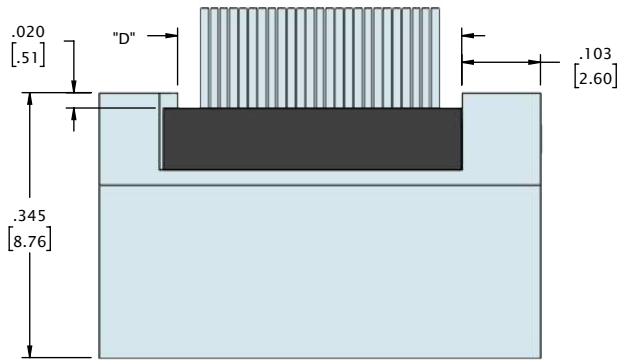
DUAL ROW VERTICAL THRU-HOLE (TYPE V4)



CONTACTS	"A"	"B"	"C"	"D"
09	.375 [9.53]	.270 [6.86]	.160 [4.06]	.170 [4.32]
15	.450 [11.43]	.345 [8.76]	.235 [5.97]	.245 [6.22]
21	.525 [13.34]	.420 [10.67]	.310 [7.87]	.320 [8.13]
25	.575 [14.61]	.470 [11.94]	.360 [9.14]	.370 [9.40]
31	.650 [16.51]	.545 [13.84]	.435 [11.05]	.445 [11.30]
37	.725 [18.42]	.620 [15.75]	.510 [12.95]	.520 [13.21]
51	.900 [22.86]	.795 [20.19]	.685 [17.40]	.695 [17.65]
65	1.075 [27.31]	.970 [24.64]	.860 [21.84]	.870 [22.10]
85	1.325 [33.66]	1.220 [30.99]	1.110 [28.19]	1.120 [28.45]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW VERTICAL THRU-HOLE (TYPE V4)

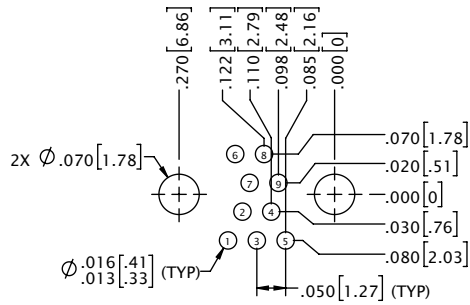


CONTACTS	"A"	"B"	"C"	"D"
09	.375 [9.53]	.270 [6.86]	.163 [4.14]	.170 [4.32]
15	.450 [11.43]	.345 [8.76]	.238 [6.05]	.245 [6.22]
21	.525 [13.34]	.420 [10.67]	.313 [7.95]	.320 [8.13]
25	.575 [14.61]	.470 [11.94]	.363 [9.22]	.370 [9.40]
31	.650 [16.51]	.545 [13.84]	.438 [11.13]	.445 [11.30]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]	.520 [13.21]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]	.695 [17.65]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]	.870 [22.10]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]	1.120 [28.45]

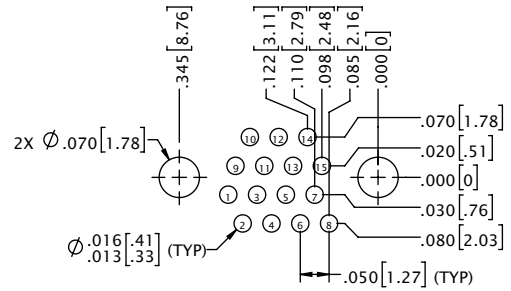
DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW VERTICAL THRU-HOLE (TYPE V4)

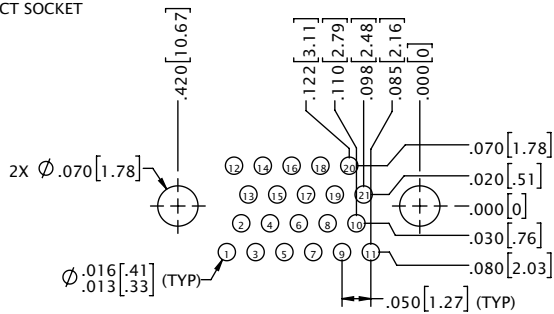
9 CONTACT SOCKET



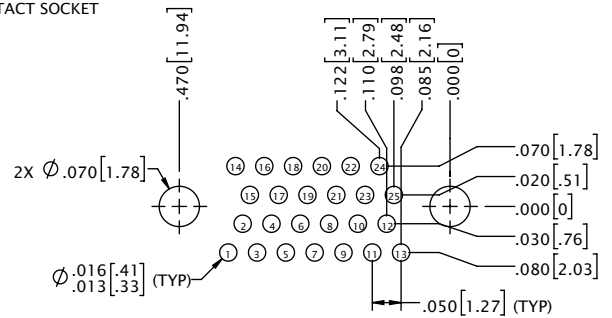
15 CONTACT SOCKET



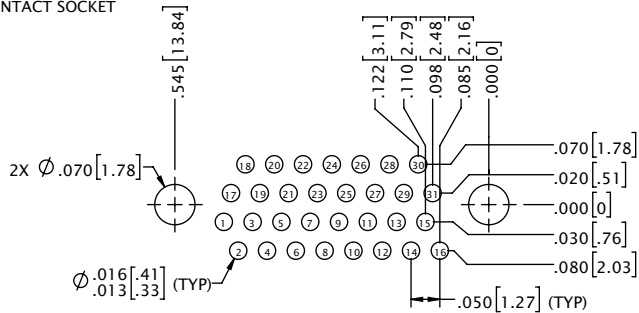
21 CONTACT SOCKET



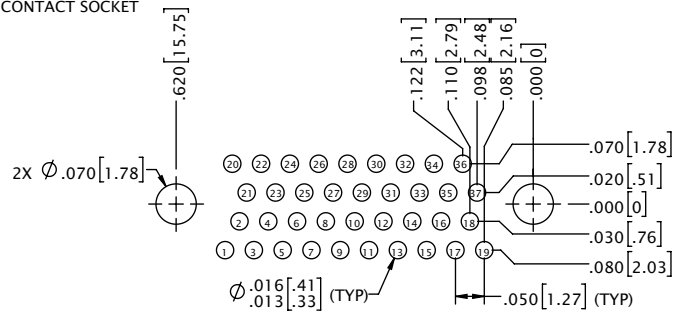
25 CONTACT SOCKET



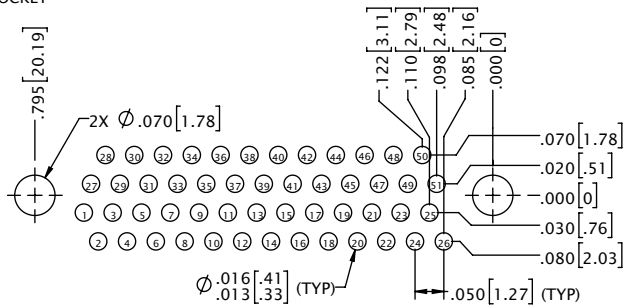
31 CONTACT SOCKET



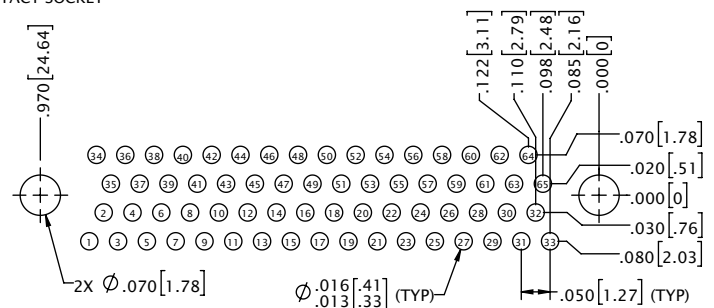
37 CONTACT SOCKET



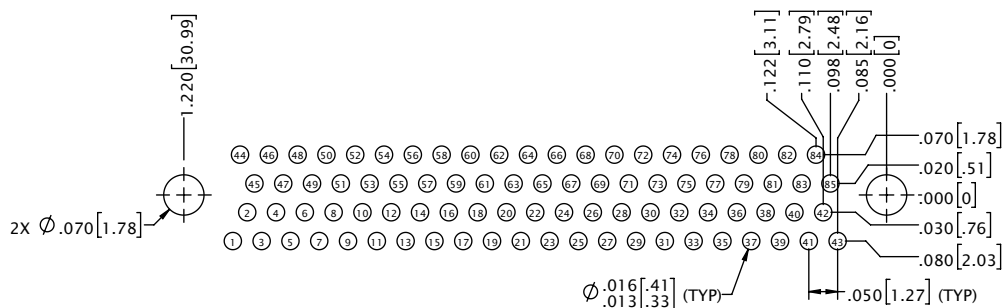
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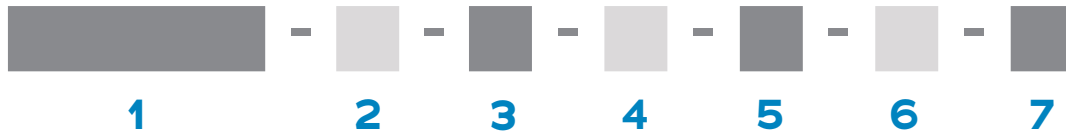
65 CONTACT SOCKET



85 CONTACT SOCKET



ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset
2 Number Of Contacts	09 15 21 25 31 37 51 65 85	
3 Termination Type	V4 Vertical Thru-Hole	
4 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated B Aluminium Shell, Black Anodized T Titanium Shell, Unplated	CD Aluminium shell, Cadmium Plated S Stainless Steel Shell, Passivated
5 Common Options	ETH End Threaded Hole, #0-80 NTH Non-Threaded Holes For Mounting To The Board YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw) HT High Temp. Epoxy CS Customer Supplied Material	EJS End Jack Screw RH RoHS Compliant
6 Mod Codes	M10 Keyed M50 Space Grade Nano-D, SPT1	M30 Ground Spring M53 Space Grade Nano-D, SPT2
7 Special Instructions	YYY Describe anything that is not covered in standard options	

DUAL ROW FLEX TAIL (TYPE FF)

Flex Tail Bi-Lobe[®] nanos protect connectivity in critical applications with a low-profile, ruggedized design that serves well in high-reliability environments. The contacts are arranged on .025" (.64 mm) centerlines and the SMT tails are formed in an hourglass shape that allows a double-sided flex circuit to slide between the two rows. Spring tension holds the flex in place during the soldering process. They feature Omnetics' gold-plated Flex Pin contact system. These durable, lightweight connectors serve the most demanding applications and intermate with Omnetics QPL versions of MIL-DTL-32139. They are available with retention screws for a positive lock and come in standard sizes ranging from 9 to 85 positions. Custom configurations are also available.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	71 milliohms (71 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

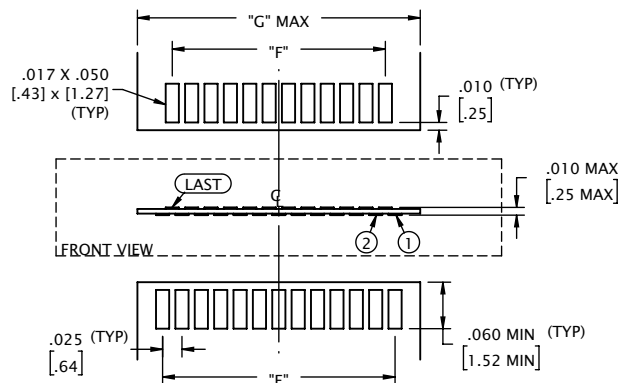
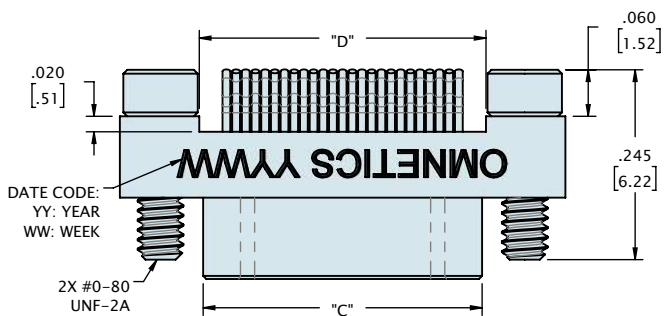
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

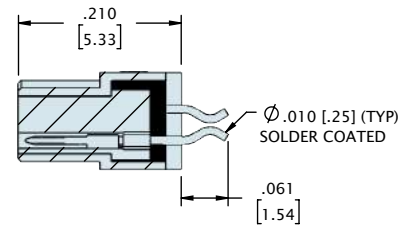
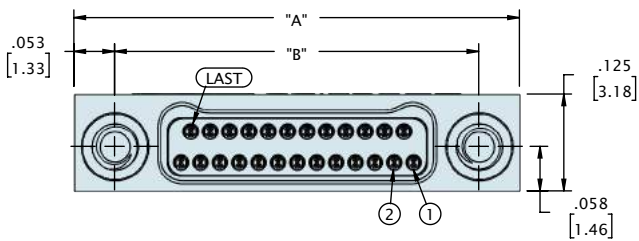
Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL ROW FLEX TAIL (TYPE FF)



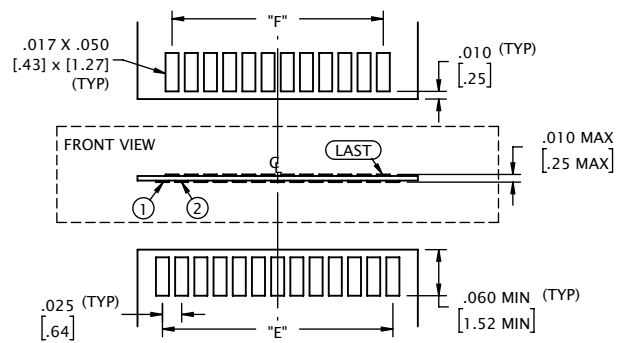
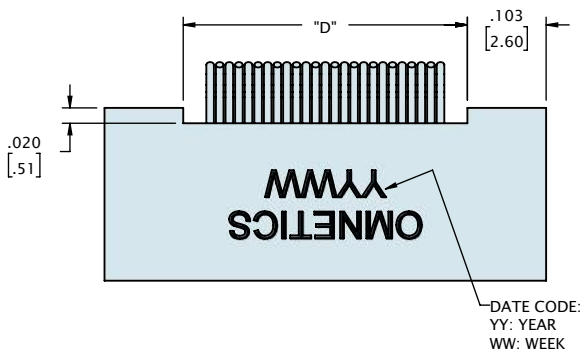
SUGGESTED PAD LAYOUT



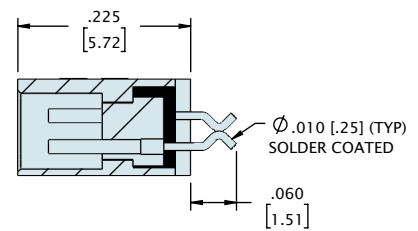
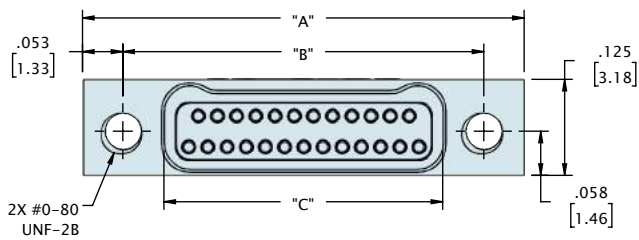
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"G"
09	.375 [9.53]	.270 [6.86]	.160 [4.06]	.170 [4.32]	.100 [2.54]	.075 [1.90]	.165 [4.19]
15	.450 [11.43]	.345 [8.76]	.235 [5.97]	.245 [6.22]	.175 [4.45]	.150 [3.81]	.240 [6.10]
21	.525 [13.34]	.420 [10.67]	.310 [7.87]	.320 [8.13]	.250 [6.35]	.225 [5.71]	.315 [8.00]
25	.575 [14.61]	.470 [11.94]	.360 [9.14]	.370 [9.40]	.300 [7.62]	.275 [6.98]	.365 [9.27]
31	.650 [16.51]	.545 [13.84]	.435 [11.05]	.445 [11.30]	.375 [9.52]	.350 [8.89]	.440 [11.18]
37	.725 [18.42]	.620 [15.75]	.510 [12.95]	.520 [13.21]	.450 [11.43]	.425 [10.79]	.515 [13.08]
51	.900 [22.86]	.795 [20.19]	.685 [17.40]	.695 [17.65]	.625 [15.87]	.600 [15.24]	.690 [17.53]
65	1.075 [27.31]	.970 [24.64]	.860 [21.84]	.870 [22.10]	.800 [20.32]	.775 [19.68]	.865 [21.97]
69	1.125 [28.58]	1.020 [25.91]	.910 [23.11]	.920 [23.37]	.850 [21.59]	.825 [20.96]	.915 [23.24]
85	1.325 [33.66]	1.220 [30.99]	1.110 [28.19]	1.120 [28.45]	1.050 [26.67]	1.025 [26.03]	1.115 [28.32]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW FLEX TAIL (TYPE FF)



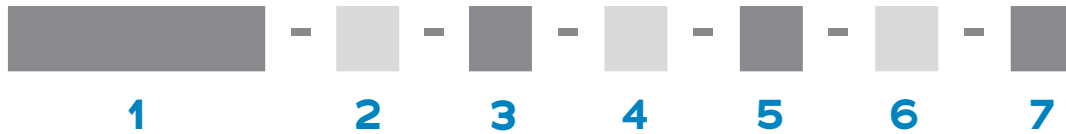
SUGGESTED PAD LAYOUT



CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"
09	.375 [9.53]	.270 [6.86]	.163 [4.14]	.170 [4.32]	.100 [2.54]	.075 [1.91]
15	.450 [11.43]	.345 [8.76]	.238 [6.05]	.245 [6.22]	.175 [4.45]	.150 [3.81]
21	.525 [13.34]	.420 [10.67]	.313 [7.95]	.320 [8.13]	.250 [6.35]	.225 [5.72]
25	.575 [14.61]	.470 [11.94]	.363 [9.22]	.370 [9.40]	.300 [7.62]	.275 [6.99]
31	.650 [16.51]	.545 [13.84]	.438 [11.13]	.445 [11.30]	.375 [9.53]	.350 [8.89]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]	.520 [13.21]	.450 [11.43]	.425 [10.80]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]	.695 [17.65]	.625 [15.88]	.600 [15.24]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]	.870 [22.10]	.800 [20.32]	.775 [19.69]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]	1.120 [28.45]	1.050 [26.67]	1.025 [26.04]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset								
2 Number Of Contacts	09	15	21	25	31	37	51	65	69	85
3 Termination Type	FF Flex Tail									
4 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated					CD Aluminium shell, Cadmium Plated				
	B Aluminium Shell, Black Anodized					S Stainless Steel Shell, Passivated				
	T Titanium Shell, Unplated									
5 Common Options	ETH End Threaded Hole, #0-80					EJS End Jack Screw				
	NTH Non-Threaded Holes For Mounting To The Board									
	YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw)									
	HT High Temp. Epoxy					RH RoHS Compliant				
	CS Customer Supplied Material									
6 Mod Codes	M10 Keyed					M30 Ground Spring				
	M50 Space Grade Nano-D, SPT1					M53 Space Grade Nano-D, SPT2				
7 Special Instructions	YYY Describe anything that is not covered in standard options									

DUAL ROW PRE-WIRED (TYPE WD)

Pre-Wired Dual Row Bi-Lobe[®] nanos feature 30 AWG or smaller sizes of stranded wire. Omnetics assembles them using our proprietary semi-automated crimping system, as their very small size requires special care and precision to accomplish a perfect crimp. Each unit is carefully hand-inspected throughout the assembly process. Pre-crimped wires and contacts are potted in place to further protect the integrity of the crimp joint. Designers may specify wire type, size, and color coding to achieve a near-custom part. COTS versions with 18" of color-coded AWG Teflon are also available for quick turnaround. These connectors come in standard sizes ranging from 9 to 91 positions, as well as custom configurations. Omnetics also offers full QPL versions of MIL-DTL-32139.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	71 milliohms (71 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

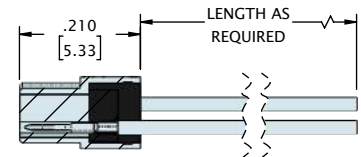
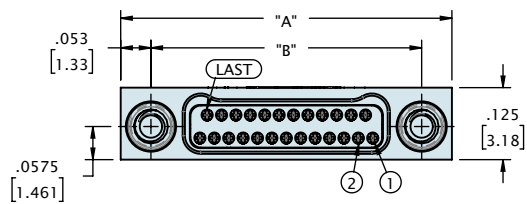
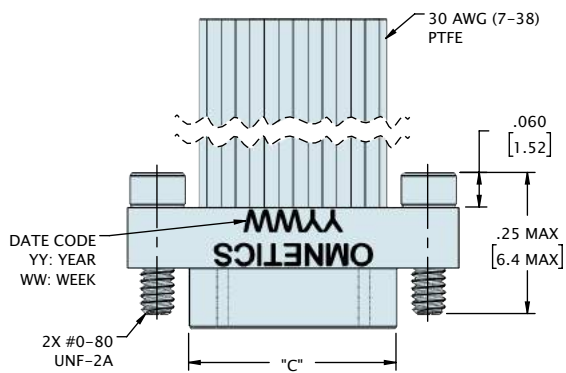
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL ROW PRE-WIRED (TYPE WD)

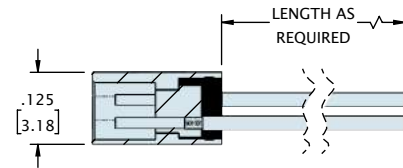
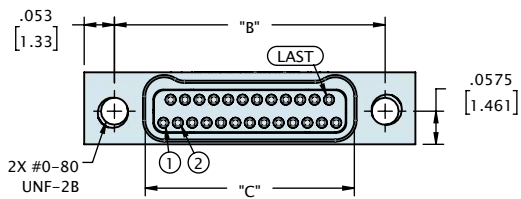
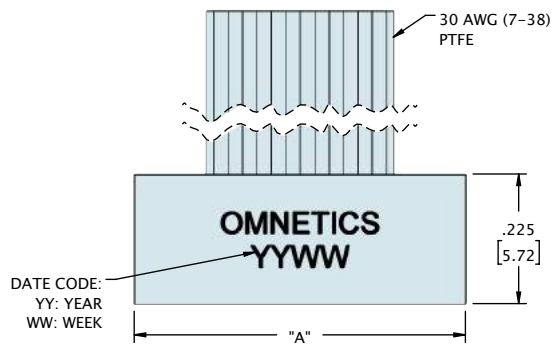
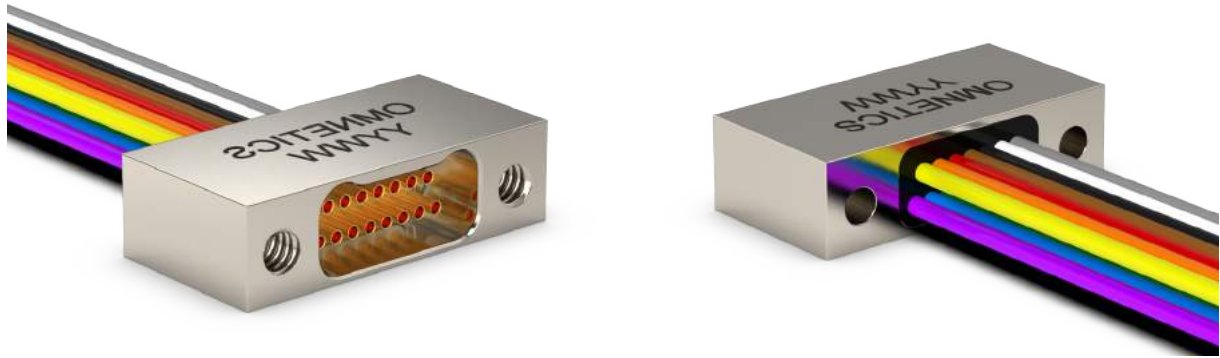


JACKSCREW HIDDEN FOR CLARITY

CONTACTS	"A"	"B"	"C"
09	.375 [9.53]	.270 [6.86]	.160 [4.06]
15	.450 [11.43]	.345 [8.76]	.235 [5.97]
21	.525 [13.34]	.420 [10.67]	.310 [7.87]
25	.575 [14.61]	.470 [11.94]	.360 [9.14]
31	.650 [16.51]	.545 [13.84]	.435 [11.05]
37	.725 [18.42]	.620 [15.75]	.510 [12.95]
51	.900 [22.86]	.795 [20.19]	.685 [17.40]
65	1.075 [27.31]	.970 [24.64]	.860 [21.84]
69	1.125 [28.58]	1.020 [25.91]	.910 [23.11]
85	1.325 [33.66]	1.220 [30.99]	1.110 [28.19]
91	1.452 [36.88]	1.321 [33.55]	1.185 [30.10]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

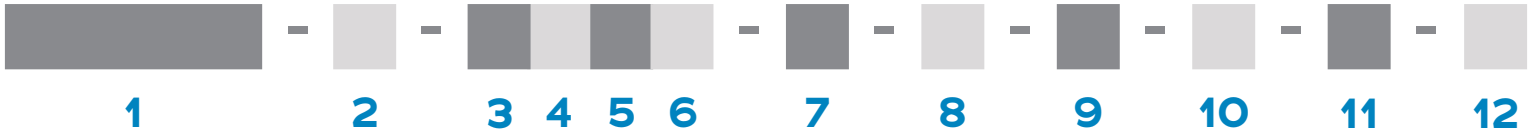
DUAL ROW PRE-WIRED (TYPE WD)



CONTACTS	"A"	"B"	"C"
09	.375 [9.53]	.270 [6.86]	.163 [4.14]
15	.450 [11.43]	.345 [8.75]	.238 [6.05]
21	.525 [13.34]	.420 [10.67]	.313 [7.95]
25	.575 [14.61]	.470 [11.94]	.363 [9.22]
31	.650 [16.51]	.545 [13.84]	.438 [11.13]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]
69	1.125 [28.58]	1.020 [25.91]	.913 [23.19]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]
91	1.452 [36.88]	1.321 [33.55]	1.188 [30.18]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

ORDERING GUIDE



1 Series	MNPO Metal Nano Pin Offset	MNSO Metal Nano Socket Offset
2 Number Of Contacts	09 15 21 25 31 37 51 65 69 85 91	
3 Termination Type	WD Discrete Wires	WC Cable
4 Wire Gage	0 30 AWG (STD)	2 32 AWG
5 Wire Type	Q NEMA HP3 (formerly M16878/4 and /6)	XX.X M22759/33 (30 AWG only)
6 Wire Length	18.0 18.00" (STD)	XX.X Custom Length
7 Color Scheme	C 10 Repeating Colors Per MIL STD 681	Y All Other Wire Color
8 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated B Aluminium Shell, Black Anodized T Titanium Shell, Unplated	CD Aluminium shell, Cadmium Plated S Stainless steel Shell, Passivated
9 Common Options	ETH End Threaded Hole, #0-80 YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw) HT High Temp. Epoxy BS1 Standard Straight Backshell BS3 90/RA Oval BSY Custom Backshell	EJS End Jack Screw RH RoHS Compliant BS2 45 Oval BS4 2 Piece BS CS Customer Supplied Material
10 Shield / Jacket	D Slip-on Braid	E Machine Braid F Flexo Braid J Nomex Braid ST Shrink Tube
11 Mod Codes	M10 Keyed M50 Space Grade Nano-D, SPT1	M30 Ground Spring M53 Space Grade Nano-D, SPT2
12 Special Instructions	YYY Describe anything that is not covered in standard options	

DUAL ROW JUMPERS (TYPE JUM)

Omnetrics' **Pre-Wired Dual Row Bi-Lobe®** harnesses are built to order by Omnetrics to offer maximum flexibility in wire type, size, and color-coding. They are designed to accommodate 30 AWG and smaller stranded wire and feature .025" (.64 mm) centerlines, which makes them an excellent choice for routing multiple lines through confined spaces. They feature Omnetrics' gold-plated Flex Pin contact system. Shell material options include aluminum, titanium, and stainless steel, with custom plating options available upon request. These connectors are available in standard sizes ranging from 9 to 91 positions, as well as custom configurations.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	71 milliohms (71 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

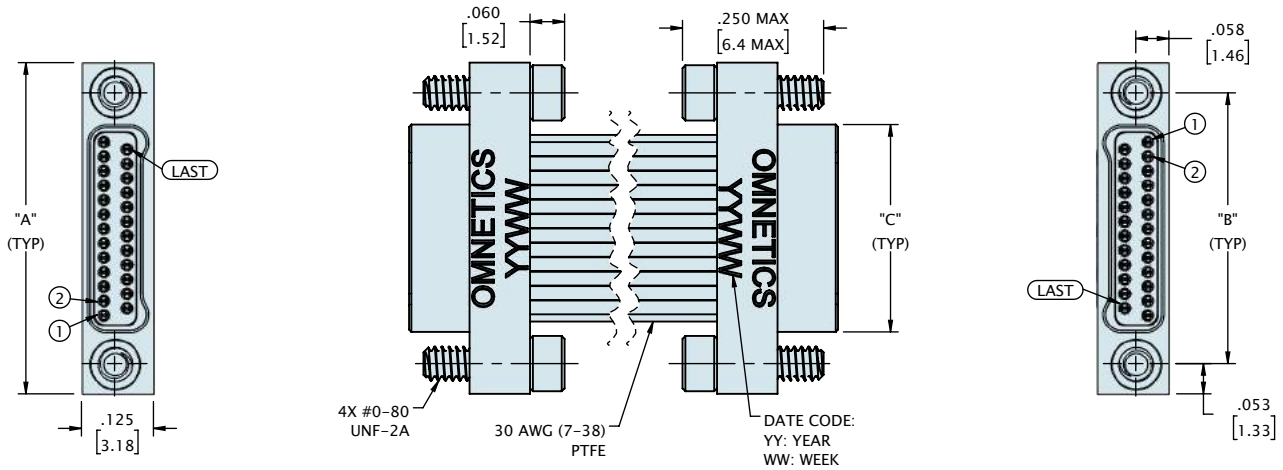
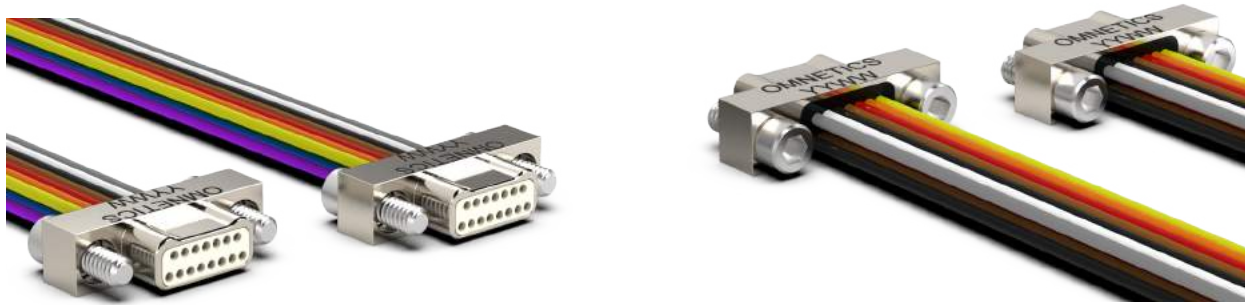
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL ROW MALE TO MALE JUMPERS (TYPE JUM)

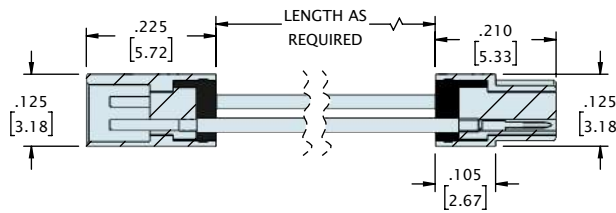
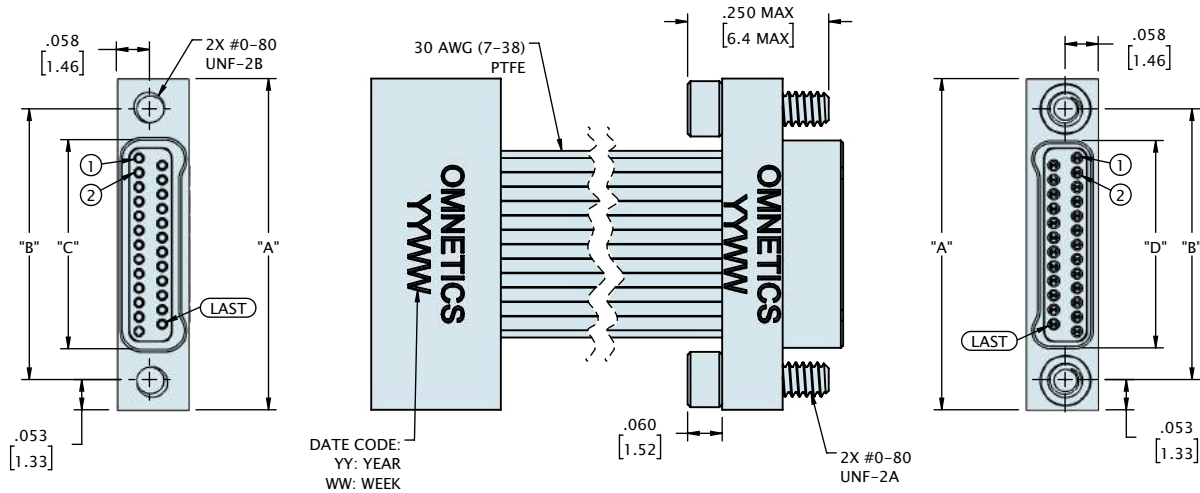


JACKSCREWS HIDDEN FOR CLARITY

CONTACTS	"A"	"B"	"C"
09	.375 [9.53]	.270 [6.86]	.160 [4.06]
15	.450 [11.43]	.345 [8.76]	.235 [5.97]
21	.525 [13.34]	.420 [10.67]	.310 [7.87]
25	.575 [14.61]	.470 [11.94]	.360 [9.14]
31	.650 [16.51]	.545 [13.84]	.435 [11.05]
37	.725 [18.42]	.620 [15.75]	.510 [12.95]
51	.900 [22.86]	.795 [20.19]	.685 [17.40]
65	1.075 [27.31]	.970 [24.64]	.860 [21.84]
69	1.125 [28.58]	1.020 [25.91]	.910 [23.11]
85	1.325 [33.66]	1.220 [30.99]	1.110 [28.19]
91	1.452 [36.88]	1.321 [33.55]	1.185 [30.10]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW MALE TO FEMALE JUMPERS (TYPE JUM)

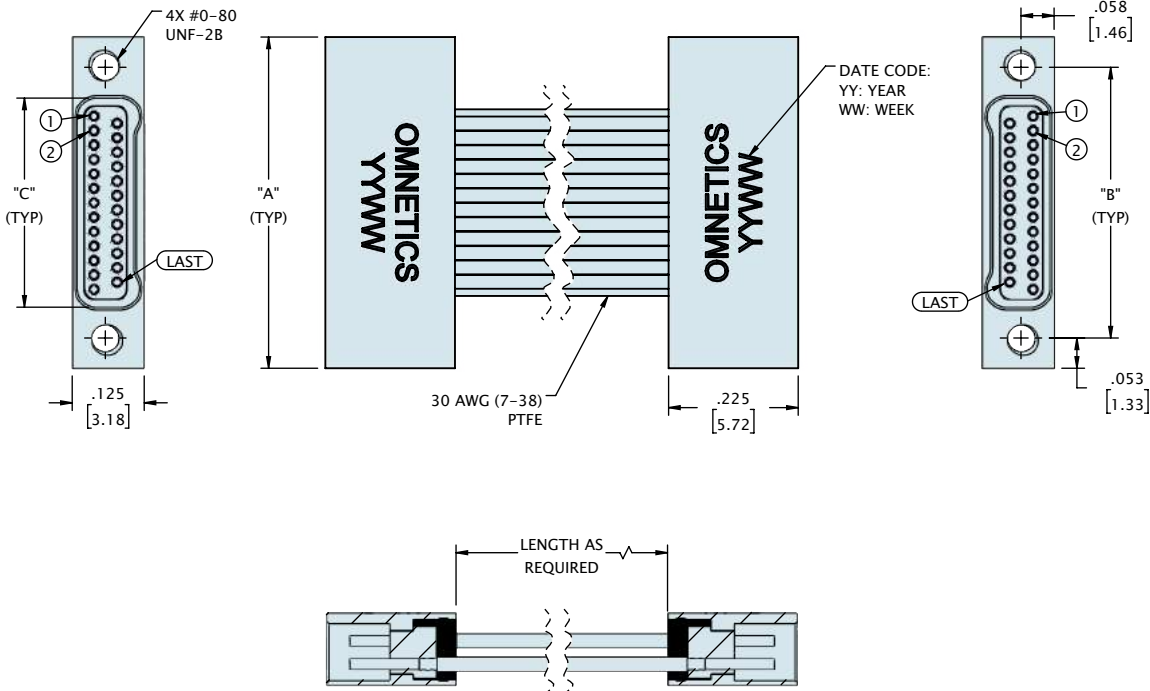


JACKSCREWS HIDDEN FOR CLARITY

CONTACTS	"A"	"B"	"C"	"D"
09	.375 [9.53]	.270 [6.86]	.163 [4.14]	.160 [4.06]
15	.450 [11.43]	.345 [8.75]	.238 [6.05]	.235 [5.97]
21	.525 [13.34]	.420 [10.67]	.313 [7.95]	.310 [7.87]
25	.575 [14.61]	.470 [11.94]	.363 [9.22]	.360 [9.14]
31	.650 [16.51]	.545 [13.84]	.438 [11.13]	.435 [11.05]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]	.510 [12.95]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]	.685 [17.40]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]	.860 [21.84]
69	1.125 [28.58]	1.020 [25.91]	.913 [23.19]	.910 [23.11]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]	1.110 [28.19]
91	1.452 [36.88]	1.321 [33.55]	1.188 [30.18]	1.185 [30.10]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW FEMALE TO FEMALE JUMPERS (TYPE JUM)

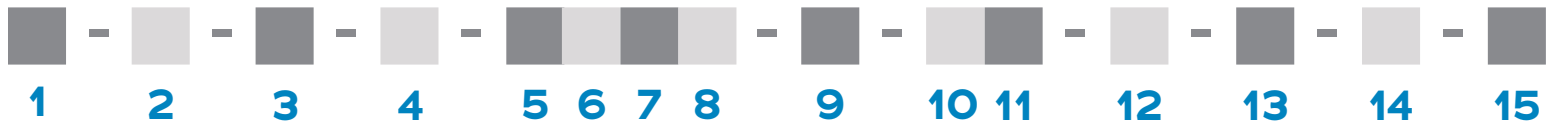


CONTACTS	"A"	"B"	"C"
09	.375 [9.53]	.270 [6.86]	.163 [4.14]
15	.450 [11.43]	.345 [8.75]	.238 [6.05]
21	.525 [13.34]	.420 [10.67]	.313 [7.95]
25	.575 [14.61]	.470 [11.94]	.363 [9.22]
31	.650 [16.51]	.545 [13.84]	.438 [11.13]
37	.725 [18.42]	.620 [15.75]	.513 [13.03]
51	.900 [22.86]	.795 [20.19]	.688 [17.48]
65	1.075 [27.31]	.970 [24.64]	.863 [21.92]
69	1.125 [28.58]	1.020 [25.91]	.913 [23.19]
85	1.325 [33.66]	1.220 [30.99]	1.113 [28.27]
91	1.452 [36.88]	1.321 [33.55]	1.188 [30.18]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

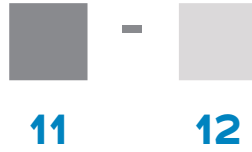
DUAL ROW JUMPERS (TYPE JUM)

ORDERING GUIDE



1 Series	JUM Jumpers											
2 Number Of Contacts	09	15	21	25	31	37	51	65	69	85	91	
3 Connector 1	MNPO Metal Nano Pin Offset						MNSO Metal Nano Socket Offset					
4 Connector 2	MNPO Metal Nano Pin Offset						MNSO Metal Nano Socket Offset					
5 Termination	WD Discrete Leadwire	WC Cable	WX Multiple Wire Types				TW Twisted Wires					
6 Wire AWG	0 30 AWG			2 32 AWG								
7 Wire Type	Q NEMA HP3			R M22759/11			S M22759/33			X Other Wire Types		
8 Wire Length	18.0				XX.X							
9 Color Coded	C 10 Repeating Colors Per MIL STD 681								Y All Other Wire Colors			
10 Shell / Material Finish	N Aluminum Shell, Electroless Nickel Plated						T Titanium Shell, Unplated					
	B Aluminium Shell, Black Anodized						CD Aluminium shell, Cadmium Plated					
	BN Aluminium Shell, Black Nickel Plated						P Stainless steel Shell, Passivated					
11 Hardware	See table page 49											
12 Common Options	See table page 49											
13 Shield / Jacket	D Slip On Metal Braid				E Machine Braid				F Flexo Braid			
	J Nomex Braid				ST Shrink Tube							
14 Mod Codes	M50 Space Grade Micro-D, SPT1						M53 Space Grade Micro-D, SPT2					
15 Special Instructions	YYY Describe anything that is not covered in standard options											

ORDERING GUIDE



11 Hardware

- 00** None, Ø .092 Hole (STD)
- 01** Fixed Jack-Posts (STD)
- 02** Jackscrews, STD Length, Hex Head (STD)
- 03** Jackscrews, STD Length, Slotted
- 04** Jackscrews, Long, Hex
- 05** Jackscrews, Long, Slotted
- 06** Float Mount, Front Mounted
- 07** Float Mount, Rear Mounted
- 08** Non-removable
- 13** Fixed Jackspots (STD)
- 14** Jackscrews STD Length, Hex Head (STD)
- 15** One set of each, Fixed Jackspots & Jackscrews, Standard Length, Hex Head (STD)
- YY** Non Standard Hardware

12 Common Options

- | | |
|--------------------------------------|--|
| ETH End Threaded Hole, #0-80 | EJS End Jack Screw |
| HT High Temp. Epoxy | RH RoHS Compliant |
| FP Front Panel Mount | SR Strain Relief |
| CS Customer Supplied Material | RP Rear Panel Mount |
| IS Inline Shell | OR O-Ring |
| OM Overmold | BS1 Standard Straight Backshell |
| BS2 45 Oval | BS3 90/RA Oval |
| BS4 2 Piece BS | BSY Custom Backshell |

DUAL ROW PANEL MOUNT

Omnetics' **Dual Row Bi-Lobe[®]** nanos are available with panel mount housings, which enables designers to use minimal real estate to create a streamlined I/O arrangement. Their low mass and .025" (.64 mm) centerlines make them an excellent choice for applications that endure high degrees of shock and vibration. Retention screws ensure a positive lock and termination options include pre-wired, SMT, flex mount, and straight tails. These durable, lightweight connectors feature Omnetics' gold-plated Flex Pin contact system and can intermate with all MIL-DTL-32139 plugs. Shell material options include aluminum and stainless steel, with custom plating options available upon request. These connectors are available in standard sizes ranging from 9 to 85 positions, as well as custom configurations.



Electro-Mechanical Specifications

TYPE	PERFORMANCE
Durability	> 2000 Mating Cycles min
Temperature	-55°C to +125 °C (200 °C w/HTE)
Current rating	1 Amp per contact
Voltage Rating (DWV)	250 VAC RMS Sea Level
Insulation Resistance	5,000 Megohms @ 100 VDC
Shock	100 g's discontinuity < 10 nanoseconds
Vibration	20 g's discontinuity < 10 nanoseconds
Thermal Vacuum Outgassing	1.0% max TML, 0.1% VCM
Contact Resistance	71 milliohms (71 mV) max @ 1 Amp
Mating/Unmating Force	2.5 oz. (.71g) typical per contact

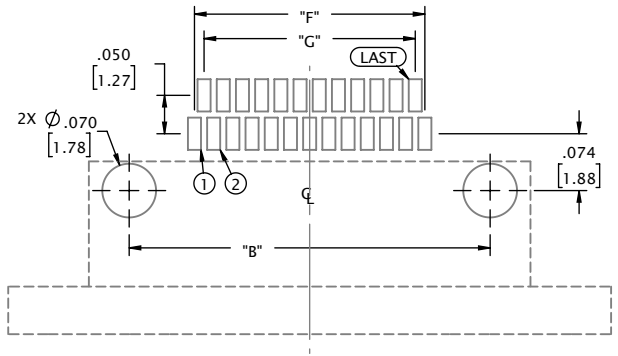
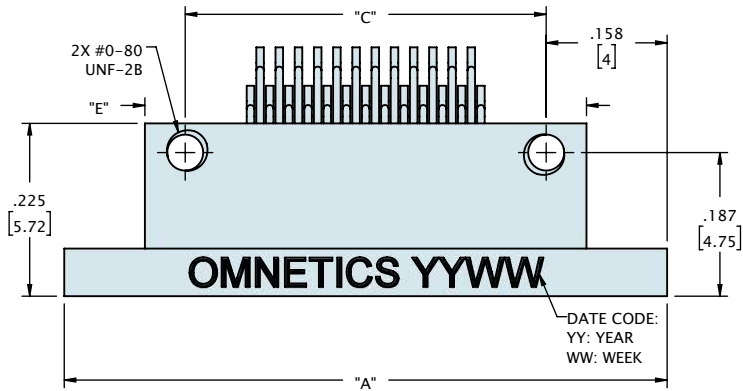
Material Specifications

TYPE	PERFORMANCE
Contact	Copper Alloy Per MIL-DTL-32139
Contact Finish	Gold per ASTM B488, Type II, Class 1.27, Code C Over Nickel Underplate
Insulator	Thermoplastic per MIL-M-24519
Encapsulant	Epoxy

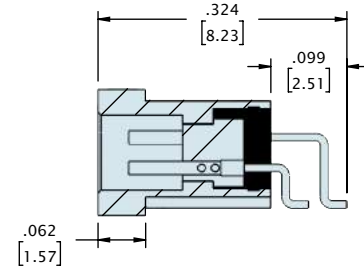
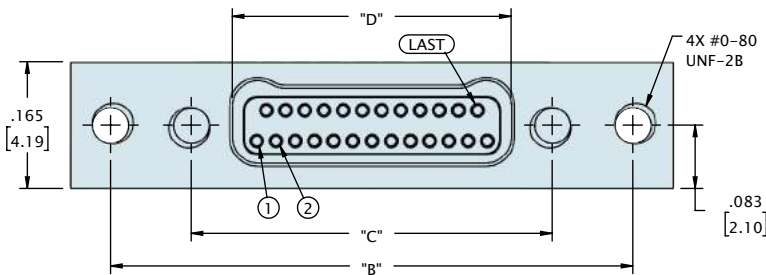
Shell Options

TYPE	PERFORMANCE
Aluminum 6061	Electroless Nickel per SAE-AMS-2404
Stainless Steel, 300 Series	Passivated per SAE-AMS-2700

DUAL RAW PANEL MOUNT (TYPE AA)



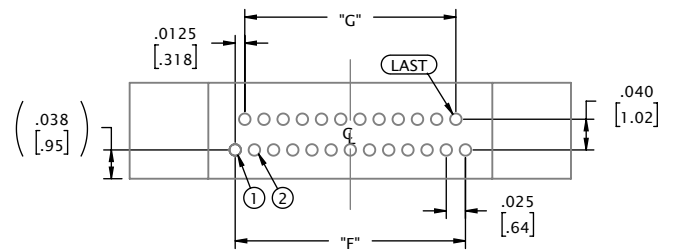
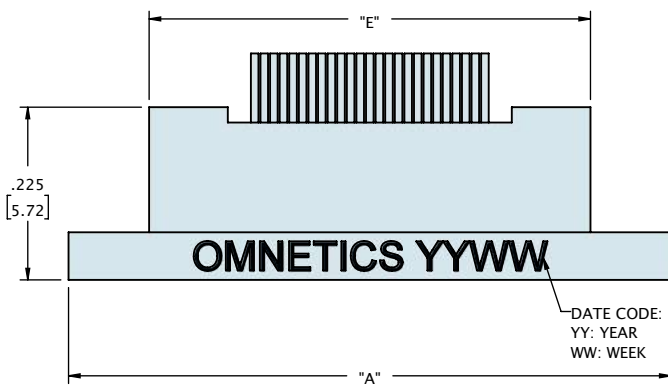
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



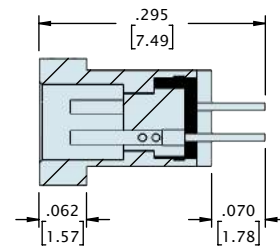
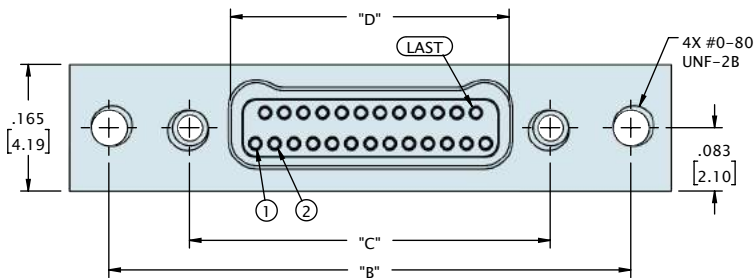
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"G"
09	.585 [14.86]	.480 [12.19]	.270 [6.86]	.163 [4.14]	.375 [9.53]	.100 [2.54]	.075 [1.91]
15	.660 [16.76]	.555 [14.10]	.345 [8.76]	.238 [6.05]	.450 [11.43]	.175 [4.45]	.150 [3.81]
21	.735 [18.67]	.630 [16.00]	.420 [10.67]	.313 [7.95]	.525 [13.34]	.250 [6.35]	.225 [5.72]
25	.785 [19.94]	.680 [17.27]	.470 [11.94]	.363 [9.22]	.575 [14.61]	.300 [7.62]	.275 [6.99]
31	.860 [21.84]	.755 [19.18]	.545 [13.84]	.438 [11.13]	.650 [16.51]	.375 [9.53]	.350 [8.89]
37	.935 [23.75]	.830 [21.08]	.620 [15.75]	.513 [13.03]	.725 [18.42]	.450 [11.43]	.425 [10.80]
51	1.110 [28.19]	1.005 [25.53]	.795 [20.19]	.688 [17.48]	.900 [22.86]	.625 [15.88]	.600 [15.24]
65	1.285 [32.64]	1.180 [29.97]	.970 [24.64]	.863 [21.92]	1.075 [27.31]	.800 [20.32]	.775 [19.69]
85	1.535 [38.99]	1.430 [36.32]	1.220 [30.99]	1.113 [28.27]	1.325 [33.66]	1.050 [26.67]	1.025 [26.04]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW PANEL MOUNT (TYPE DD)



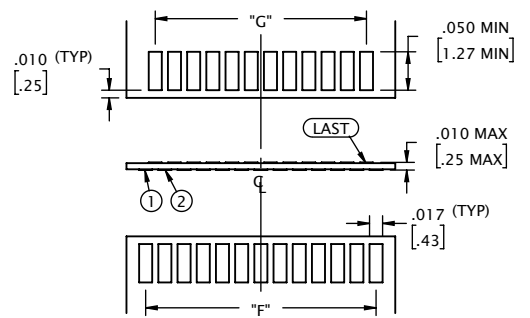
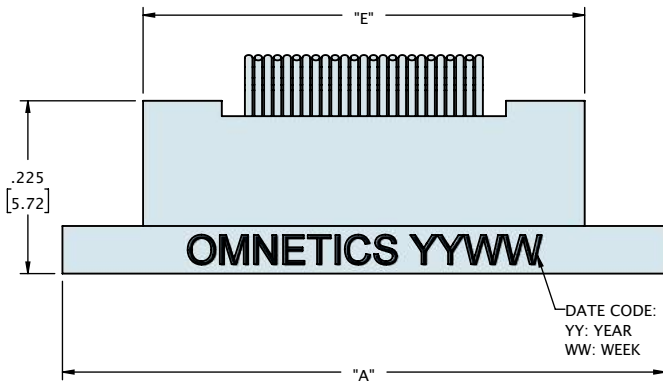
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



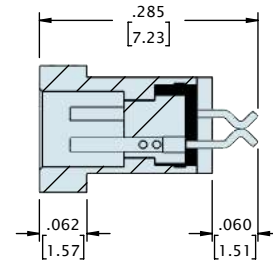
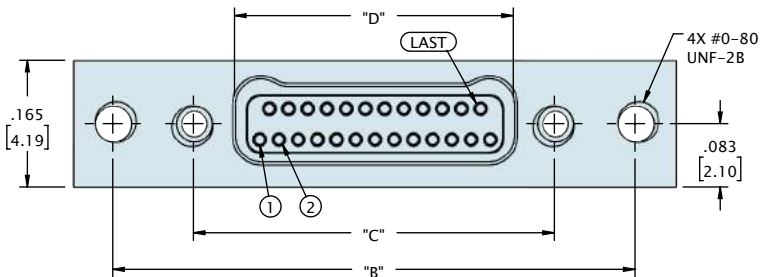
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"G"
9	.585 [14.86]	.480 [12.19]	.270 [6.86]	.163 [4.14]	.375 [9.53]	.100 [2.54]	.075 [1.91]
15	.660 [16.76]	.555 [14.10]	.345 [8.76]	.238 [6.05]	.450 [11.43]	.175 [4.45]	.150 [3.81]
21	.735 [18.67]	.630 [16.00]	.420 [10.67]	.313 [7.95]	.525 [13.34]	.250 [6.35]	.225 [5.72]
25	.785 [19.94]	.680 [17.27]	.470 [11.94]	.363 [9.22]	.575 [14.61]	.300 [7.62]	.275 [6.99]
31	.860 [21.84]	.755 [19.18]	.545 [13.84]	.438 [11.13]	.650 [16.51]	.375 [9.53]	.350 [8.89]
37	.935 [23.75]	.830 [21.08]	.620 [15.75]	.513 [13.03]	.725 [18.42]	.450 [11.43]	.425 [10.80]
51	1.110 [28.19]	1.005 [25.53]	.795 [20.19]	.688 [17.48]	.900 [22.86]	.625 [15.88]	.600 [15.24]
65	1.285 [32.64]	1.180 [29.97]	.970 [24.64]	.863 [21.92]	1.075 [27.31]	.800 [20.32]	.775 [19.69]
69	1.335 [33.91]	1.230 [31.24]	1.020 [25.91]	.913 [23.19]	1.125 [28.58]	.850 [21.59]	.825 [20.96]
85	1.535 [38.99]	1.430 [36.32]	1.220 [30.99]	1.113 [28.27]	1.325 [33.66]	1.050 [26.67]	1.025 [26.04]
91	1.636 [41.55]	1.531 [38.89]	1.321 [33.55]	1.188 [30.16]	1.400 [35.56]	1.125 [28.58]	1.100 [27.94]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL RAW PANEL MOUNT (TYPE FF)



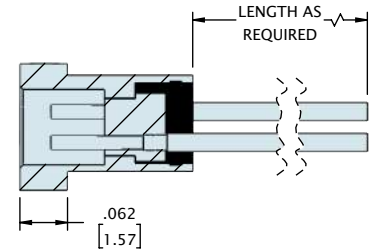
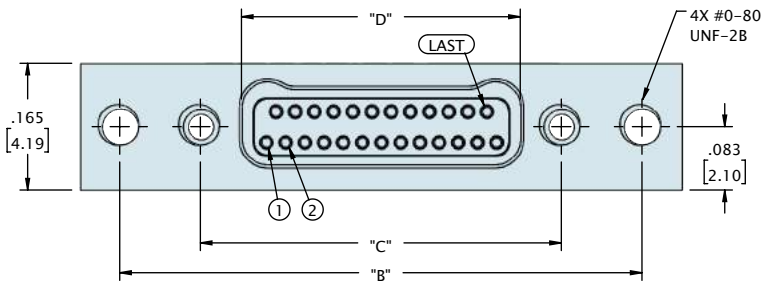
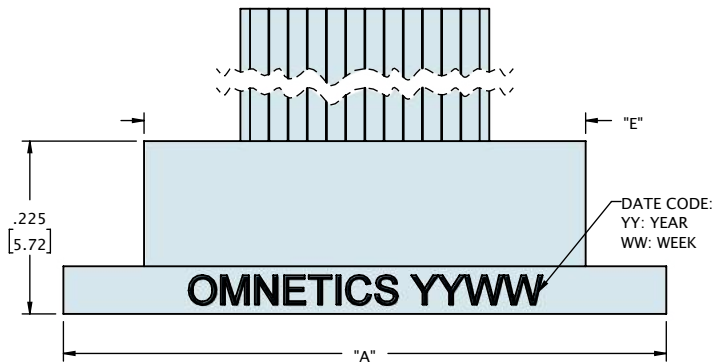
SUGGESTED PAD LAYOUT
(VIEW FROM MOUNTING SIDE OF BOARD)



CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"G"
9	.585 [14.86]	.480 [12.19]	.270 [6.86]	.163 [4.14]	.375 [9.53]	.100 [2.54]	.075 [1.91]
15	.660 [16.76]	.555 [14.10]	.345 [8.76]	.238 [6.05]	.450 [11.43]	.175 [4.45]	.150 [3.81]
21	.735 [18.67]	.630 [16.00]	.420 [10.67]	.313 [7.95]	.525 [13.34]	.250 [6.35]	.225 [5.72]
25	.785 [19.94]	.680 [17.27]	.470 [11.94]	.363 [9.22]	.575 [14.61]	.300 [7.62]	.275 [6.99]
31	.860 [21.84]	.755 [19.18]	.545 [13.84]	.438 [11.13]	.650 [16.51]	.375 [9.53]	.350 [8.89]
37	.935 [23.75]	.830 [21.08]	.620 [15.75]	.513 [13.03]	.725 [18.42]	.450 [11.43]	.425 [10.80]
51	1.110 [28.19]	1.005 [25.53]	.795 [20.19]	.688 [17.48]	.900 [22.86]	.625 [15.88]	.600 [15.24]
65	1.285 [32.64]	1.180 [29.97]	.970 [24.64]	.863 [21.92]	1.075 [27.31]	.800 [20.32]	.775 [19.69]
85	1.535 [38.99]	1.430 [36.32]	1.220 [30.99]	1.113 [28.27]	1.325 [33.66]	1.050 [26.67]	1.025 [26.04]

DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

DUAL ROW PANEL MOUNT (TYPE WD)



CONTACTS	"A"	"B"	"C"	"D"	"E"
9	.585 [14.86]	.480 [12.19]	.270 [6.86]	.163 [4.14]	.375 [9.53]
15	.660 [16.76]	.555 [14.10]	.345 [8.76]	.238 [6.05]	.450 [11.43]
21	.735 [18.67]	.630 [16.00]	.420 [10.67]	.313 [7.95]	.525 [13.34]
25	.785 [19.94]	.680 [17.27]	.470 [11.94]	.363 [9.22]	.575 [14.61]
31	.860 [21.84]	.755 [19.18]	.545 [13.84]	.438 [11.13]	.650 [16.51]
37	.935 [23.75]	.830 [21.08]	.620 [15.75]	.513 [13.03]	.725 [18.42]
51	1.110 [28.19]	1.005 [25.53]	.795 [20.19]	.688 [17.48]	.900 [22.86]
65	1.285 [32.64]	1.180 [29.97]	.970 [24.64]	.863 [21.92]	1.075 [27.31]
85	1.535 [38.99]	1.430 [36.32]	1.220 [30.99]	1.113 [28.27]	1.325 [33.66]

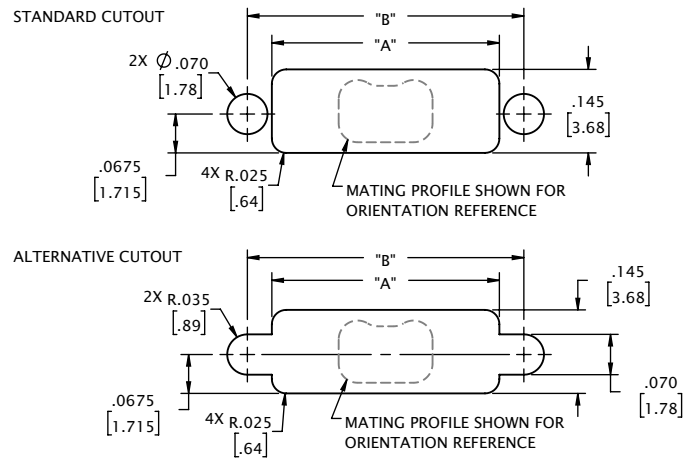
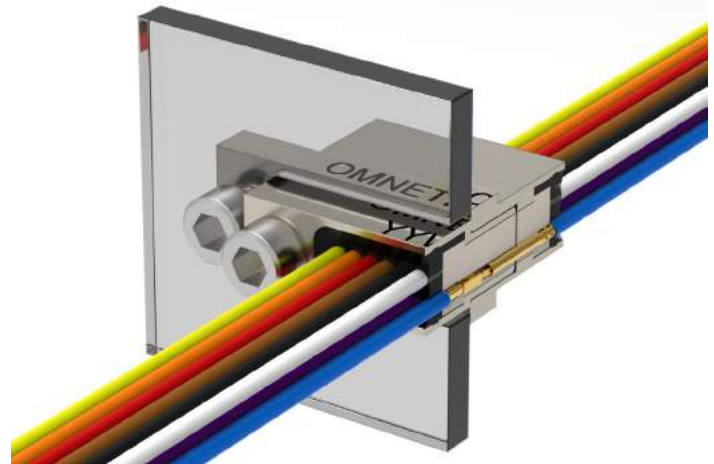
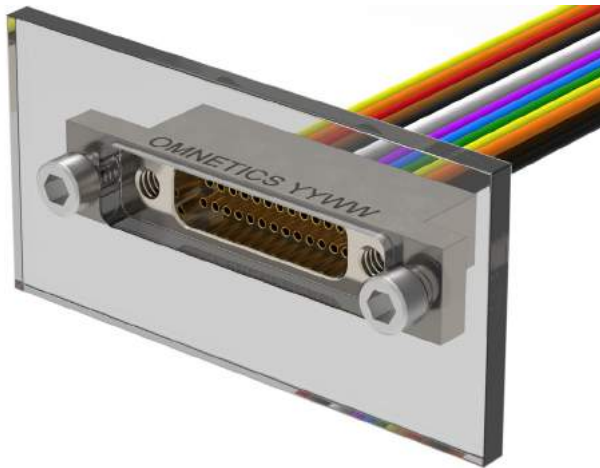
DIMENSIONS IN [] ARE IN MILLIMETERS AND ARE FOR REFERENCE ONLY

ORDERING GUIDE



1 Series	MNSOP Metal Nano Socket Offset Panel											
2 Number Of Contacts	09	15	21	25	31	37	51	65	69	85	91	
3 Termination Type	A Horizontal Surface Mount						DD Thru-Hole Straight					
	FF Flex Mount						WD Discrete Wires					
4 Wire Gage*	0 30 AWG (STD)					2 32 AWG						
5 Wire Type*	Q NEMA HP3 (formerly M16878/4 and /6)							XX.X M22759/33 (30 AWG only)				
6 Wire Length*	18.0 18.00" (STD)							XX.X Custom Length				
7 Color Scheme*	C 10 repeating colors per MIL STD 681							Y All other wire colors				
8 Shell Material & Finish	N Aluminum Shell, Electroless Nickel Plated						CD Aluminium shell, Cadmium Plated					
	B Aluminium Shell, Black Anodized						S Stainless steel Shell, Passivated					
	T Titanium Shell, Unplated											
9 Common Options	ETH End Threaded Hole, #0-80						EJS End Jack Screw					
	NTH Non-Threaded Holes for mounting to the board											
	YY Non Standard Hardware (threaded holes, thumb screws, #2-56 screw)											
	HT High Temp. Epoxy						RH RoHS Compliant					
	CS Customer Supplied Material											
10 Shield / Jacket*	D Slip-on Braid	E Machine Braid	F Flexo Braid	J Nomex Braid	ST Shrink Tube							
11 Mod Codes	M10 Keyed					M30 Ground Spring						
	M50 Space Grade Nano-D, SPT1					M53 Space Grade Nano-D, SPT2						
12 Special Instructions	YYY Describe anything that is not covered in standard options											

* WD only



CONTACTS	"A"	"B"
09	.395 [10.03]	.480 [12.19]
15	.470 [11.94]	.555 [14.10]
21	.545 [13.84]	.630 [16.00]
25	.595 [15.11]	.680 [17.27]
31	.670 [17.02]	.755 [19.18]
37	.745 [18.92]	.830 [21.08]
51	.920 [23.37]	1.005 [25.53]
65	1.095 [27.81]	1.180 [29.97]
85	1.345 [34.16]	1.430 [36.32]

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