

.093 STANDARD PIN AND SOCKET TERMINALS

<p align="center">Female Terminal</p>	<p align="center">Male Terminal</p>
	
<p>Series: 1189 , 1381 , 1433 , 4550</p>	<p>Series: 1190 , 1380 , 1434 , 4549</p>
<p align="center">Male terminal, large insulation</p>	<p align="center">Male terminal, long Pin length</p>
	
<p>Series: 42138</p>	<p>Series: 1973</p>

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<p>DOCUMENT NUMBER: PS-02-09</p>	<p>CREATED / REVISED BY: RPA</p>	<p>CHECKED BY: MKIPPER</p>	<p>APPROVED BY: FSMITH</p>

Receptacle Housing, 1 Circuit	Plug Housing, 1 Circuit
	
Series: 1619	Series: 1619

Receptacle Housing, 2 Circuits	Plug Housing, 2 Circuits
	
Series: 1545	Series: 1545

Receptacle Housing, 3 Circuits, Single Row	Plug Housing, 3 Circuits, Single Row
	
Series: 1396	Series: 1396

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Receptacle Housing, 4 Circuits, Single Row	Plug Housing, 4 Circuits, Single Row
	
Series: 1490	Series: 1490

Receptacle Housing, 6 Circuits, Dual Row	Plug Housing, 6 Circuits, Dual Row
	
Series: 1261	Series: 1261

Receptacle Housings, 9 Circuits, 3 Rows	Plug Housings, 9 Circuits, 3 Rows
	
Series: 1292	Series: 1292

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Receptacle Housing, 12 Circuits, 3 Rows	Plug Housing, 12 Circuits, 3 Rows
	
Series: 1360	Series: 1360

Receptacle Housing, 15 Circuits, 3 Rows	Plug Housing, 15 Circuits, 3 Rows
	
Series: 1375	Series: 1375

Receptacle Housing, 15 Circuits, 3 Rows	Plug Housing, 12 Circuits, 3 Rows
	
Series: 1991	Series: 1991

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1.0 SCOPE

This specification covers the .093 diameter pin and socket terminal product line with their associated connector housings designed for use on copper wire.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

2.1.1 The standard connector is made in 1, 2, 3, 4, 5, 6, 9, 12, and 15 circuit sizes. Connector plugs and receptacle are nylon and provided with optional mounting ears for snap-in panel mounting. The housing accepts wire ranges 30 thru 14 AWG wires and insulation diameter range of .030 thru .160 inches.

Crimp Terminals

Description	Series Number
Female terminal, 14-20 AWG	1189
Male terminal, 14-20 AWG	1190
Male terminal, 18-22 AWG	1380
Female terminal, 18-22 AWG	1381
Female terminal, 24-28 AWG	1433
Male terminal, 24-28 AWG	1434
Male terminal, grounding pin, 1973, 1973-1, 18-22 AWG	1973
Male terminal, grounding pin, 1973-2, 14-18 AWG	1973
Male terminal, large insulation 14-18 AWG	42138
Male terminal, phos. bronze 14-20 AWG	4549
Female terminal, phos. bronze 14-20 AWG	4550

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Standard .198" Nylon connector housing

Description	Circuits	Rows	Series Number
Receptacle housing	1	1	1619
Plug housing			
Receptacle housing	2	1	1545
Plug housing			
Receptacle housing	3	1	1396
Plug housing			
Receptacle housing	4	1	1490
Plug housing			
Receptacle housing	6	2	1261
Plug housing			
Receptacle housing	9	3	1292
Plug housing			
Receptacle housing	12	3	1360
Plug housing			
Receptacle housing	15	3	1375
Plug housing			

2.1.2 Besides the standard connector housing, a special housing is available that has .250" center to center spacing between terminals and is approved for use in the European market (VDE). The connector is made in 3,4,6,9 and 15 circuit sizes. Terminals are identical to standard housing terminals

Special .250-inch Nylon connectors

Description	Circuits	Rows	Series Number
Receptacle housing	3	1	1991
Plug housing			
Receptacle housing	4	1	
Plug housing			
Receptacle housing	6	2	
Plug housing			
Receptacle housing	12	3	
Plug housing			
Receptacle housing	15	3	
Plug housing			

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2.2 DIMENSIONS, MATERIALS, PLATING AND MARKINGS

Dimensions & Plating: See individual sales drawings.

Material: RoHS compliant materials*.

*Refer to the "Product Environmental Compliance" section in Molex.com to know the individual PN RoHS compliance status

2.3 SAFETY AGENCY APPROVALS

2.3.1 Underwriters Laboratories: E29179

2.3.2 Canadian Standards Association: 19980

2.3.3 European Standards Association: VDE approval (connector mentioned in 2.1.2 only)

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

[Molex Quality Crimping Handbook Order No. 63800-0029](#)

[Molex Moisture Technical Advisory AS-45499-001](#)

[Molex Package Handling Specification 454990100-PK](#)

ATS – Application Tooling Specification*

*Application Tooling Specification for terminals is not provided in this document. ATS for terminals can be available from respective terminal part number page in Molex.com

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4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 SAFETY AGENCY RATINGS

Standard Housings, .198" Pitch

Series Number	No. of Circuits	Agency voltage rating (AC RMS or DC)			Agency Current Rating (single circuit) Amps		
		UL	CSA	IEC	UL	CSA	IEC
1619	1	N/A	600vac	N/A	8A	15A- 2 poles	N/A*
1545	2	N/A	600vac	N/A	N/A	15A- 2 poles	N/A
1396	3	350vac	600vac	N/A	N/A	15A- 2 poles	N/A
1490	4	N/A	600vac	N/A	N/A	15A- 2 poles	N/A
1261	6	N/A	250vac	N/A	9A	9A	N/A
1292	9	N/A	250vac	N/A	9A	9A	N/A
1360	12	N/A	600vac	N/A	N/A	15A- 2 poles	N/A
1375	15	N/A	600vac	N/A	N/A	15A- 2 poles	N/A

Special .250" spacing housings

Series Number	No. of Circuits	agency voltage rating (AC RMS or DC)			Agency Current Rating (single circuit) Amps		
		UL	CSA	IEC	UL	CSA	IEC
1991	3	N/A	600vac	N/A	N/A	15A- 2 poles	N/A*

4.2 MOLEX RATED VOLTAGE, CURRENTS

4.2.1 Standard Housings, .198" Pitch

Series Number	No. of Circuits	*Per Circuit	
		Max. Amp.	Max. Volts
1619	1	12	250
1545	2	12	250
1396	3	12	250
1490	4	9	250
1261	6	9	250
1292	9	9	250
1360	12	7.5	250
1375	15	7.5	250

*For 30° C Rise

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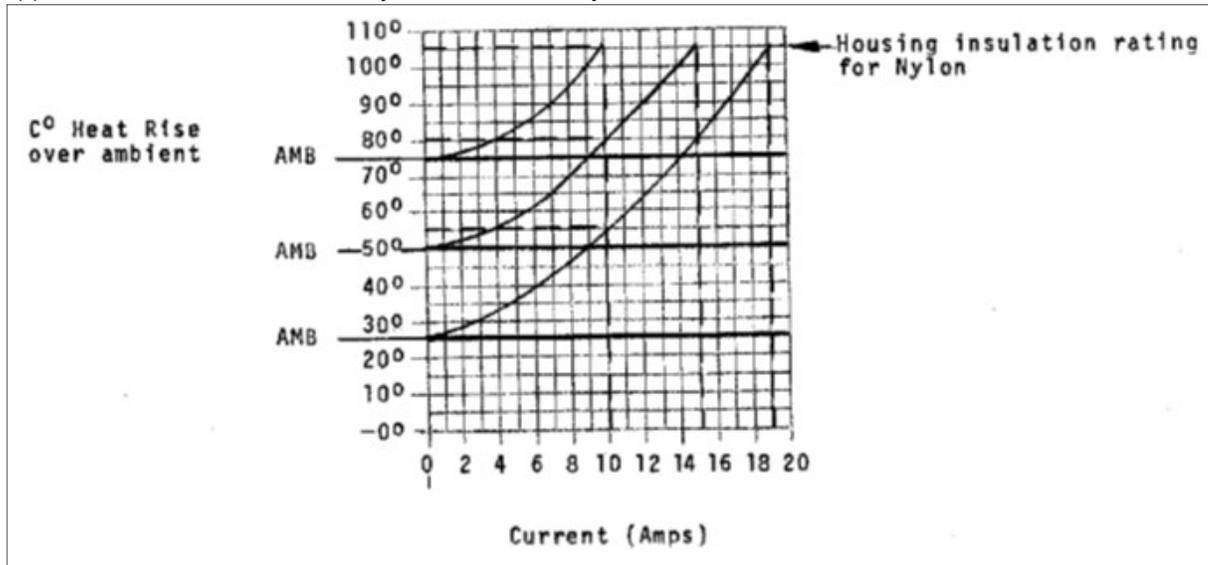
4.2.2 Special .250" spacing housings

SERIES	No. OF CIRCUITS	*PER CIRCUIT	
		MAX. AMP	MAX. VOLT
1991	3	11	600
	4	9	600
	6	9	600
	9	8	600
	15	6	600

*For 30° C Rise

4.3 HEAT RISE VS. CURRENT TO 105°C/221°F.

(Typical temperatures for 1360 connector, same current all circuits, 14 AWG wire)
Applications requiring current levels over the recommended values in 4.1 are possible. However, those applications must be reviewed by Molex before any recommendations can be made.



4.4 TEMPERATURE

Ambient temperature range: -40°C to 105°C

4.5 GLOW WIRE

Following series have GW capable parts: 1545 & 1991

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5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Terminal Resistance (Voltage Drop) MV Drop/Amp	Voltage drop includes the mated terminals plus both crimps. The probe should be placed on the wire approximately 1" from the crimp barrel	1 st Terminal Engagement 8.0 MV ± 10% 10 th Terminal Engagement 8.1 MV ± 10%
2	Dielectric Withstanding Voltage (High Voltage Test)	Terminals mounted in a connector must withstand 1500 volts RMS applied between adjacent terminals for 60 seconds without breakdown. Reference: QC Spec M-50-001	No breakdown

5.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	DESCRIPTION	REQUIREMENT		
			ENGAGE	DISENGAGE	
3	Connector Engage/ Disengage Force (No Dimple)	Engage/Disengage Forces for standard Terminal (.010 stock 70/30 brass)	Single circuit	3.5 lbs.	2.75 lbs.
			2 circuit	7.0 lbs.	5.5 lbs.
			3 circuit	10.5 lbs.	8.25 lbs.
			4 circuit	14.0 lbs.	11.0 lbs.
			5 circuit	17.5 lbs.	13.75 lbs.
			6 circuit	21.0 lbs.	16.5 lbs.
			9 circuit	31.5 lbs.	24.75 lbs.
4	Connector Engage/ Disengage Force (with Dimple)	Engage/Disengage Forces for standard Terminal (.010 stock 70/30 brass)	Single circuit	ENGAGE	DISENGAGE
			Min.	2	.9
			Max.	6.4	5.6
5	Terminal Insertion and Retention in connector housing		Male & Female	INSERTION 3 lbs. 8 Ozs.Max	RETENTION 20 Lbs. Min

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MECHANICAL PERFORMANCE Cont..				
ITEM	DESCRIPTION	DESCRIPTION	REQUIREMENT	
6	Wire Pullout Force	Minimum pullout force in pounds is given in the table	<u>Wire Gauge</u>	
			<u>Pull out force</u>	
			14	35 lbs.
			16	30 lbs.
			18	25 lbs.
			20	15 lbs.
			22	10 lbs.
			24	8 lbs.
			26	5 lbs.
			28	3 lbs.
30	2 lbs.			

5.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
7	Humidity	Expose period shall be 96 hours with a 95% to 100% relative humidity & a temperature of 100° ± 5% F. A one ampere current shall be placed through a male/female assembly within one hour after removing from the Humidity Chamber. (18 AWG stranded wire)	The maximum MV drop across both terminals shall be 15MV. The probe should be placed on the wire approximately 1" from the crimp barrel.

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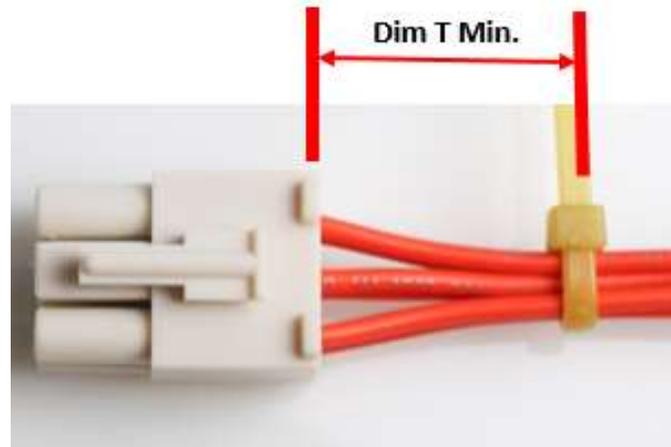
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6.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. "For specific part packaging details, refer to the packaging specification called out on the applicable product sales drawing.

7.0 CABLE TIE AND/ OR TWIST LOCATION

Circuit Sizes			Dimension T Minimum
2	4	6	0.50" (12.7mm)
8			0.75" (19.1mm)
10	12		1.00" (25.40mm)
14	16		1.25" (31.75mm)



The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket. This dimension is general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.

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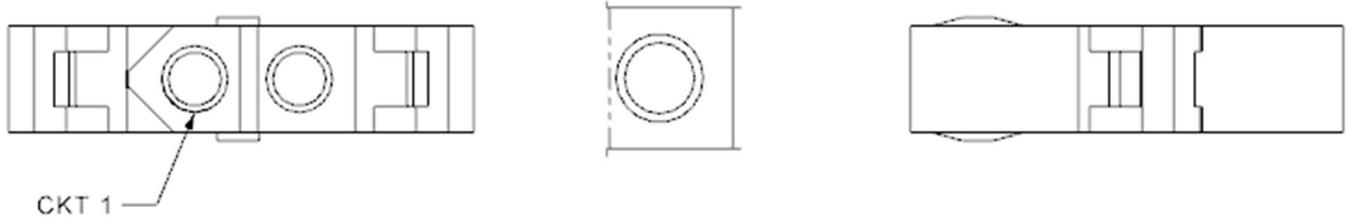


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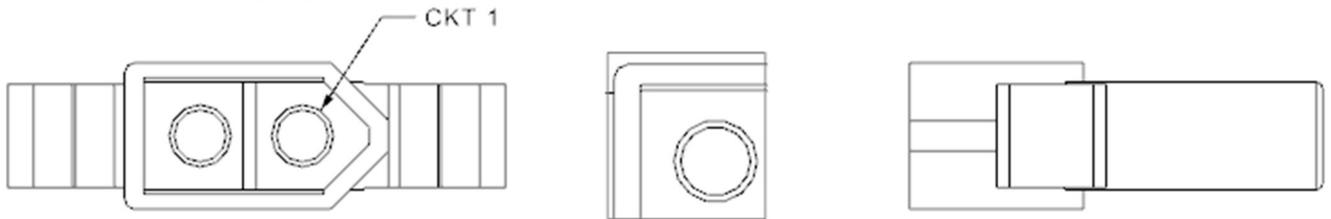
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9.0 POLARIZATION AND KEYING OPTIONS

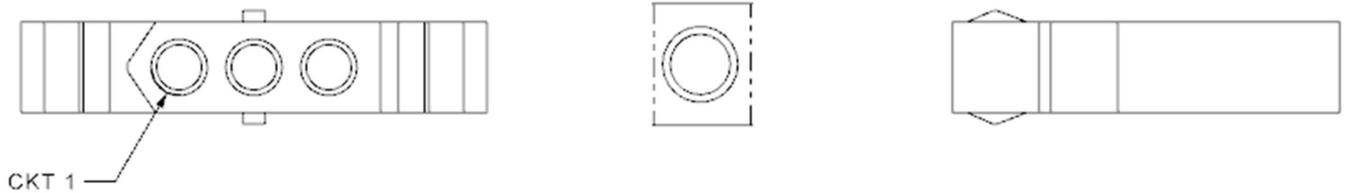
8.1 Receptacle (Series: [1545](#))



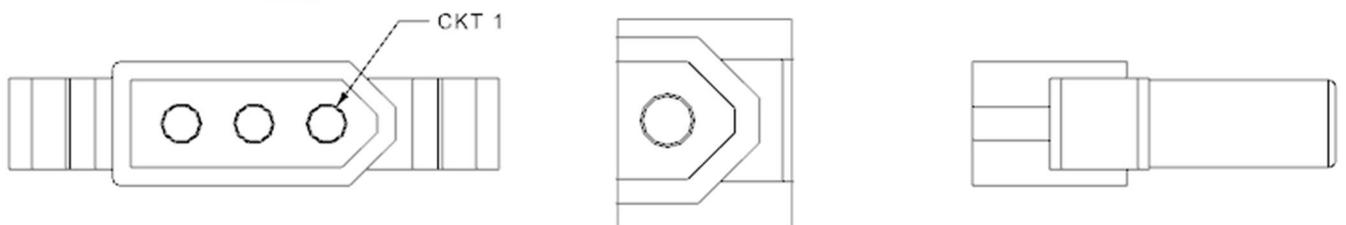
8.2 Plug (Series: [1545](#))



8.3 Receptacle (Series: [1396](#))



8.4 Plug (Series: [1396](#))



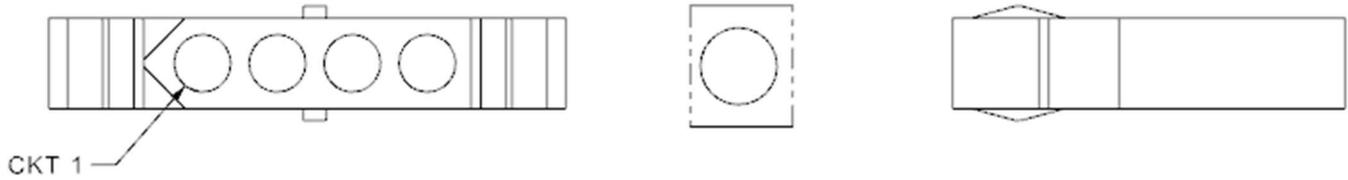
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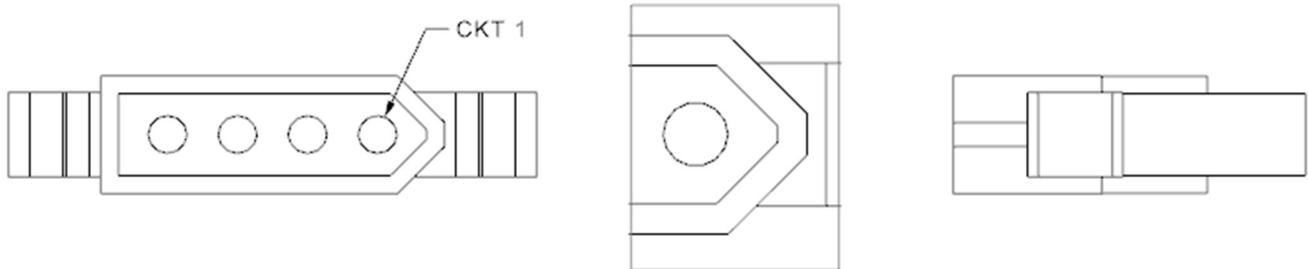
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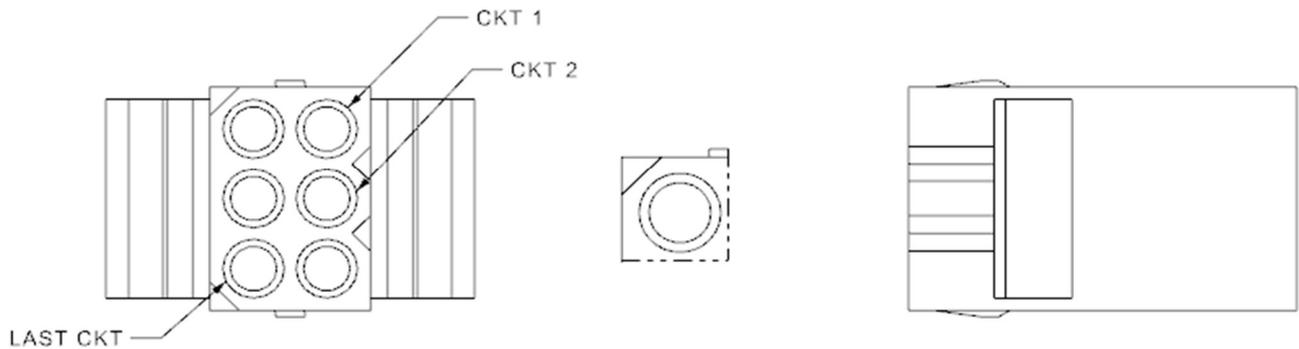
8.5 Receptacle (Series: [1490](#))



8.6 Plug (Series: [1490](#))



8.7 Receptacle (Series: [1261](#))



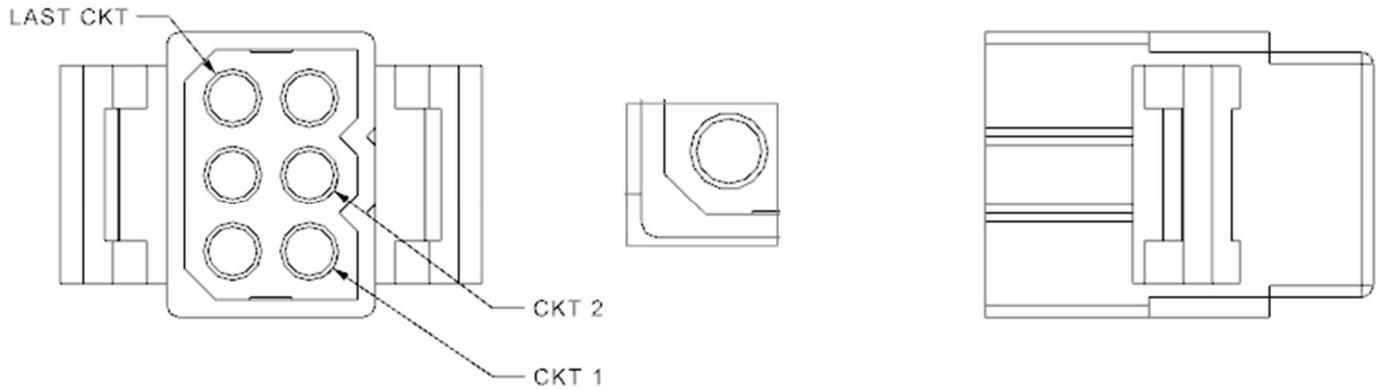
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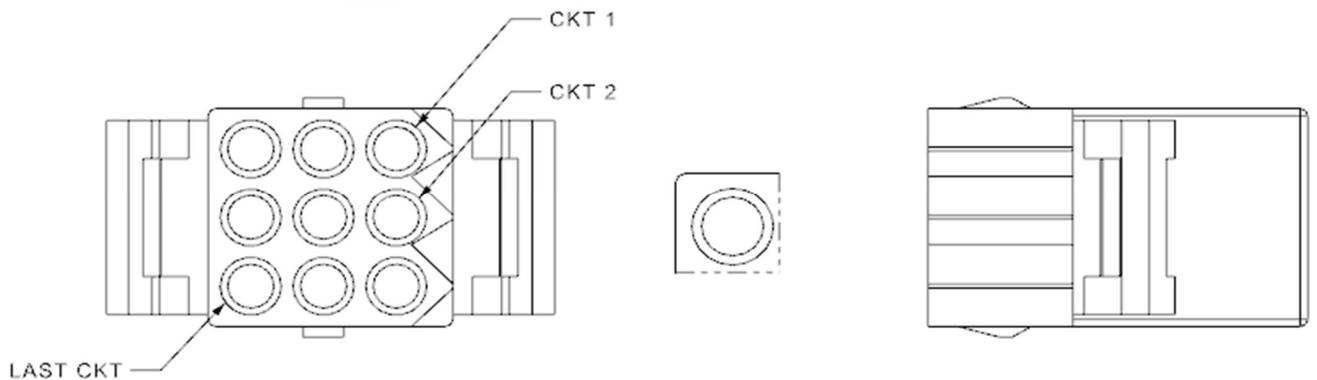
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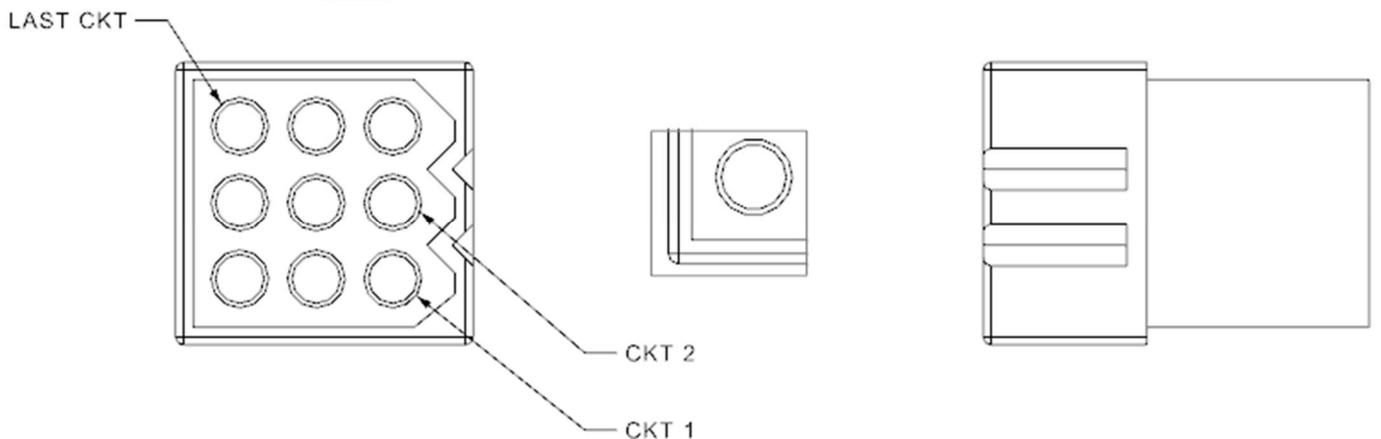
8.8 Plug (Series: [1261](#))



8.9 Receptacle (Series: [1292](#))



8.10 Plug (Series: [1292](#))



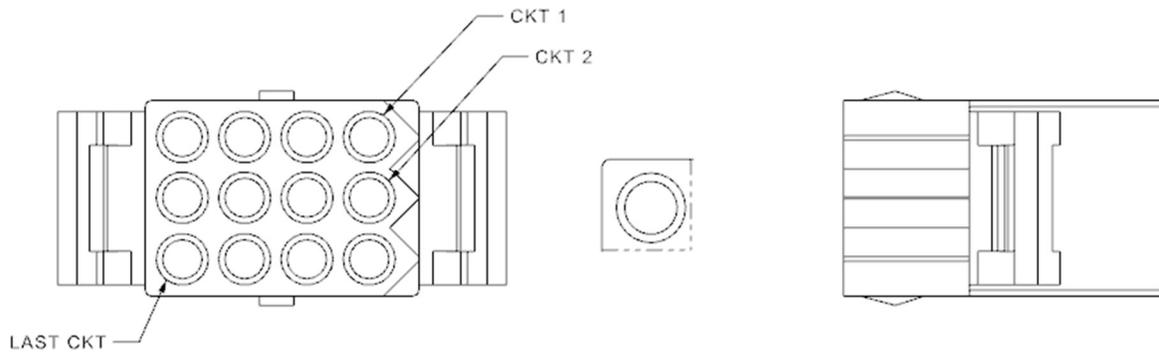
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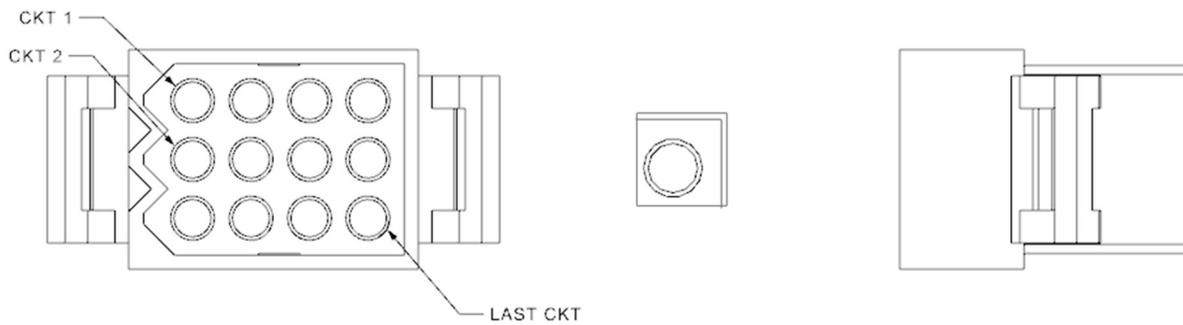
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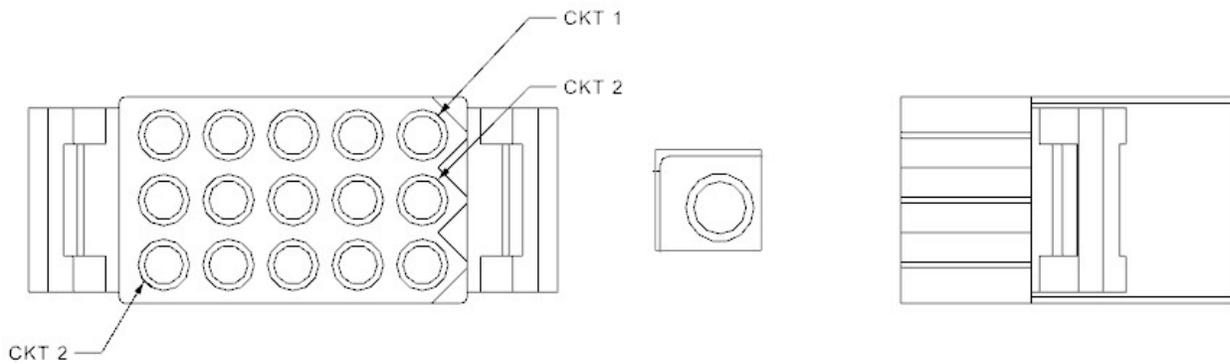
8.11 Receptacle (Series: [1360](#))



8.12 Plug (Series: [1360](#))



8.13 Receptacle (Series: [1375](#))



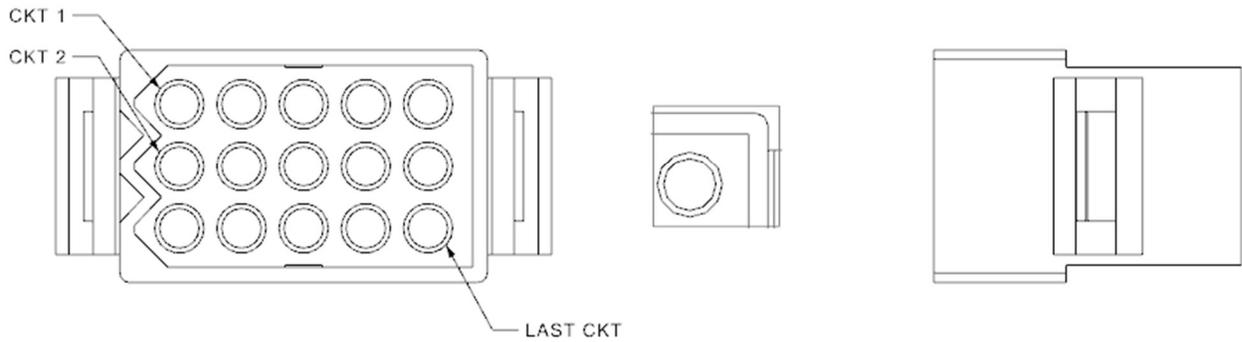
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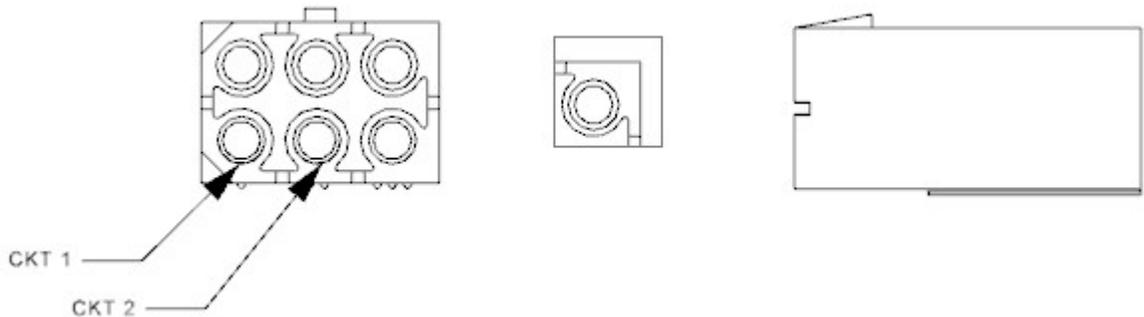
8.14 Plug (Series: [1375](#))



8.15 Receptacle 4 Ckt (Series: [1991](#))



8.16 Receptacle 6 Ckt (Series: [1991](#))



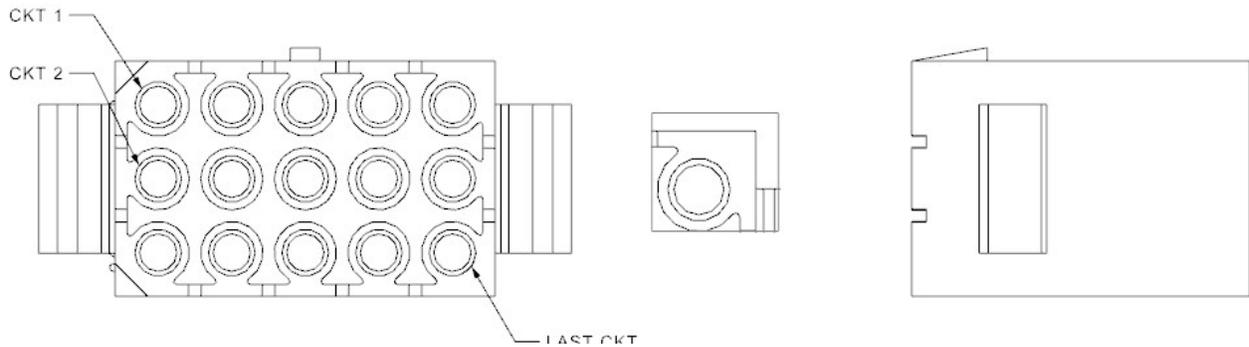
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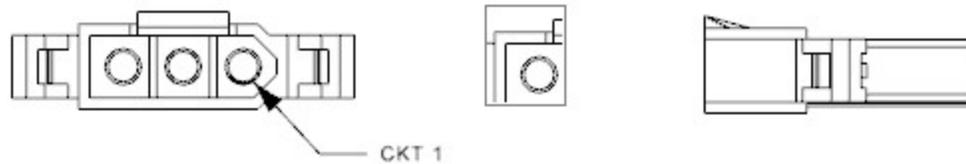
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8.17 Receptacle 15 Ckt (Series: [1991](#))



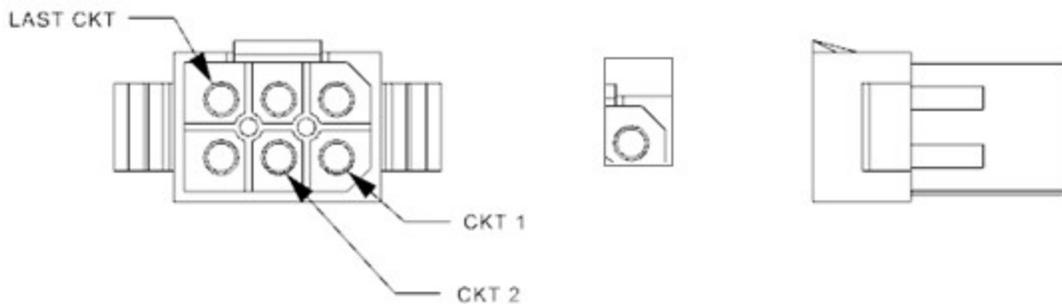
8.18 Plug 3 CKT (Series: [1991](#))



8.19 Plug 4 CKT (Series: [1991](#))



8.20 Plug 6 CKT (Series: [1991](#))



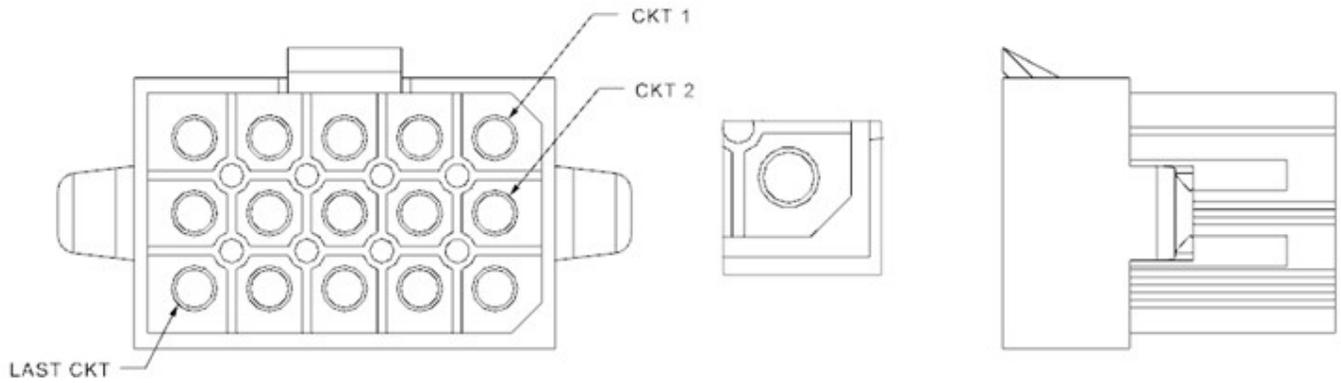
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8.21 Plug 15 CKT (Series: [1991](#))



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