R255/3 Series High & Low Frequency Integrated Connector **Brief introduction**

- Comply with L711A (Equivalent to MIL-DTL-38999) Ⅲ series
- Power, high speed, high frequency and optical contacts can be mixed
- Different contacts with the same size can be interchanged
- Microwave signal, high speed data, optical fiber and power signal can be integratedly connected
- A quick screw coupling with anti-decoupling mechanism
- 100% scoop-proof
- Excellent EMI/RFI shielding
- Application: aviation, aerospace crafts and other electronic & electrical equipment

Main technical characteristics

[Mechanical]

——Shell: Aluminum alloy, stainless steel, composite material

——Plating:

W—olive green cadmium plating, aluminum alloy

F—electroless nickel plating, aluminum alloy

K—stainless steel passive

J—olive green cadmium plating, composite material

M—electroless nickel plating, composite material

——Insulator: Thermoplastic or thermoset

——Grommet and seal: Silicon rubber

——Contact: gold plating, copper alloy

——Endurance: 500 cycles

——Shock：At 3 ms half sinusoid, peak value of acceleration: 300g

——Vibration：

Sine：60g，with temperature cycling and simulated accessories (36 hours)

Random: 44.1grms in high temperature

49.5grms in ambient temperature

[Electrical]

——shells continuity

W class：2.5 mΩ F class：1 mΩ

——Shielding

——10GHz: 65dB (F)

——10GHz: 50dB (W)

——1GHz: 85dB (F and W)

——Withstanding voltage（Vrms）

Service rating	Sea level	21000m
M	1300	800
N	1000	600
Ⅰ	1800	1000
Ⅱ	2300	1000

——Insulation resistance:

≥5000MΩ at 500Vdc

WEB SITE: www.tech-arma.com E-MAIL: sales@tech-arma.com

——Contact retention (mini force in N)

22D#: 45N, 20#: 67N, 8 #: 111N, 12#：111N,

16 #：111N

[**Environmental**]

——Operating temperature：

W and J class：-65℃～175℃

F, K and M class：-65℃～200℃

——Sealing: mated connectors meet altitude immersion requirements of MIL-C 38999

——Salt spray：According to GJB 1217, method 1001

F class: 48 h W and K class：500 h J and M class：2000 h

——Damp heat：according to MIL-C-38999：24 hours, 10 cycles

——Fluid resistance: Various fuels, coolant, solvent

[Electrical characteristics of contact]

——Power contact

—Contact resistance:

22D#：14.6mΩ 20#：7.3 mΩ

16#：3.8 mΩ 12#：1.7 mΩ

—Current rating:

22D#：5A 20#：7.5A

16#：13A 12#：23A 10#：40A

——16# shielding contact

—Low level contact resistance (only for inner contact)

Max contact resistance（mΩ）	
Initial	After test
170	204

—Test current and voltage drop：

Contact	Test current（A）	Max voltage drop（mV）		
		25℃		175℃
		Initial	After test	After test
Inner contact	1	170	204	290
Outer contact	12	150	180	255

—Voltage rating :(Between inner contact and outer contact):

Sea level：800 Vrms; 15240m：250 Vrms

——12# shielding contact

—Low level contact resistance (only for inner contact): initial : 55mΩ；after test: 66mΩ。

—Contact resistance (test current and voltage drop):

Contact	Test current （A）	Max voltage drop（mV）max		
		25_{0}^{+3} ℃		200_{0}^{+3} ℃
		Normal	After test	
Inner contact	1	170	204	290
Outer contact	12	150	180	255

—Withstanding voltage: Sea level：750V；15240m（11.59KPa）：250 Vrms

——12# coaxial contact

—Nominal impedance：50Ω

—Low level contact resistance (only for inner contact)

Max contact resistance（mΩ）	
Initial	After test
55	66

—Withstanding voltage: Sea level:：1000V；15240m（11.59KPa）：250 Vrms

—Contact resistance (Voltage drop and test current)：

Contact	Test current （A）	Max voltage drop（mV）		
		25_{0}^{+3} ℃		200_{0}^{+3} ℃
		Normal	After test	
Inner contact	1	55	66	94
Outer contact	12	75	90	128

—VSWR：

Frequency: 500MHz～3GHz, under the following three conditions, VSWR≤1.20+0.04F(F unit: GHz)

（1）Pin and socket are mated completely

（2）Pin/ socket contact: 1.27±0.13mm；

（3）Pin/ socket contact:2.54±0.13mm；

—Insertion loss：dB max=0.11$\sqrt{F}$

(F unit: GHz), When F is at 3GHz and tested in accordance with MIL-C-39012., insertion loss should not be more than 0.20dB

——8# twinaxial contact

—Low level contact resistance (only for center contact and intermediate middle contact)

Max contact resistance（mΩ）	
Initial	After test
55	66

—Contact resistance (Test current and voltage drop)：

Contact	Test current（A）	Max voltage drop (mV)		
		25℃		175℃
		Initial	After test	After test
Center contact	1.0	55	66	94
Intermediate contact	1.0	55	66	94
Outer contact	12	75	90	128

—Operating frequency:：0～20MHz

—Voltage rating: Sea level：500 Vrms; 21336m：125 Vrms

—Withstanding voltage：

Contact	Height	Test voltage（V）rms
From center to intermediate	Sea level	500
From intermediate to outer		1000

——TDB4 contact

—Impedance:：50Ω

—Operating frequency：0～10GHz

—VSWR：≤1.3

—Withstanding voltage（Between center conductor and outer conductor）：750（Vrms）

—Insulation resistance：≥ 1000MΩ at 500Vdc

——8# differential contact

2 types: 2 contacts & 4 contacts

—Withstanding voltage（Vrms）

Normal: from center conductor to outer conductor：500V AC

Between center conductor：1000V AC

—Contact resistance: ≤15mΩ (only for center contact)

—Insulation resistance（Between center conductors）: ≥1000MΩ at 500Vdc

—Rated current: Center conductor 1A

—Data rate: 1.65Gbps

High frequency contact

Contact size	GJB P/N	International P/N	Applicable wire	
			National wire	International wire
16# shielding pin	J1216/76-424	M3	SFF-50-1.5-1	M17/113-RG316
16# shielding socket	J1216/77-428	M3	SFF-75-1.5-1	
12# shielding pin	J1216/28-211	M39029/28-2 1	SFF-50-1.5-1	M17/113-RG316
	J1216/28-412	M3		M17/173-RG316D
12# shielding socket	J1216/75-416	M3	SYV-50-2-51	M17/113-RG316
	J1216/75-422	M3		M17/173-RG316D
12# coaxial pin	J1216/102-558	M39029/102-558	SFF-50-1.5-1	M17/113-RG316
12# coaxial socket	J1216/103-559	M39029/103-559	SFF-75-1.5-1	
8# twinaxial shielding pin	J1216/90-529	M3	SEFF-78-1-51	M17/176-00002
8# twinaxial shielding socket	J1216/91-530	M3		
TDB4 high frequency pin	TDB4-Ka		670-141	
TDB4 high frequency socket	TDB4-Ja		670-141	
8# differential (2-pin, 100Ω)	CF81/211-01	—		HDP700001070
8# differential (2-socket,100Ω)	CF82/211-01	—		
8# differential (4-pin, 100Ω)	CF81/411-01	—		CEC-RWC-18664
8# differential (4-socket, 100Ω)	CF82/411-01	—		ABS1503KD24

High Frequency Contact Assembly Instruction

For high frequency contact assembly note, see appendix 2

Ordering information

Basic series						**R255/**		**20**	**W**	**B**	**10**	**P**	**N**
Type	20- Square flange receptacle 24- Jam nut receptacle 26-RFI-shielding plug													
Plating	W –Olive green cadmium plating F –Electroless nickel plating K–Stainless steel passive J–Composite, olive green cadmium plating M–Composite, electroless nickel plating													
Shell size	A to J	09	11	13	15	17	19	21	23	25				
Index No.		A	B	C	D	E	F	G	H	J				
Insert arrangement	See insert arrangement													
Contact type*	P – pin S – socket	A designated pin B designated socket PF—8# differential pin SF—8# differential socket												
Polarization	N –Normal A/B/C/D/E –alternative													

Note：When the pin or socket is normal, contact type should be P (or S); When the pin or socket is special, P (or S) should be changed to A (or B) and the quantity of contacts should be noted after P/N, but the quantity should not marked on product marking.

[Part number example]

Square flange receptacle, electroless nickel plating, 06 insert arrangement, pin, N polarization; P/N should be R255/20FE06PN. If six 12# power pins are changed to six 12# coaxial pins, P/N should be R255/20FE06AN（6-J1216/102-558）

Polarization and outline dimension

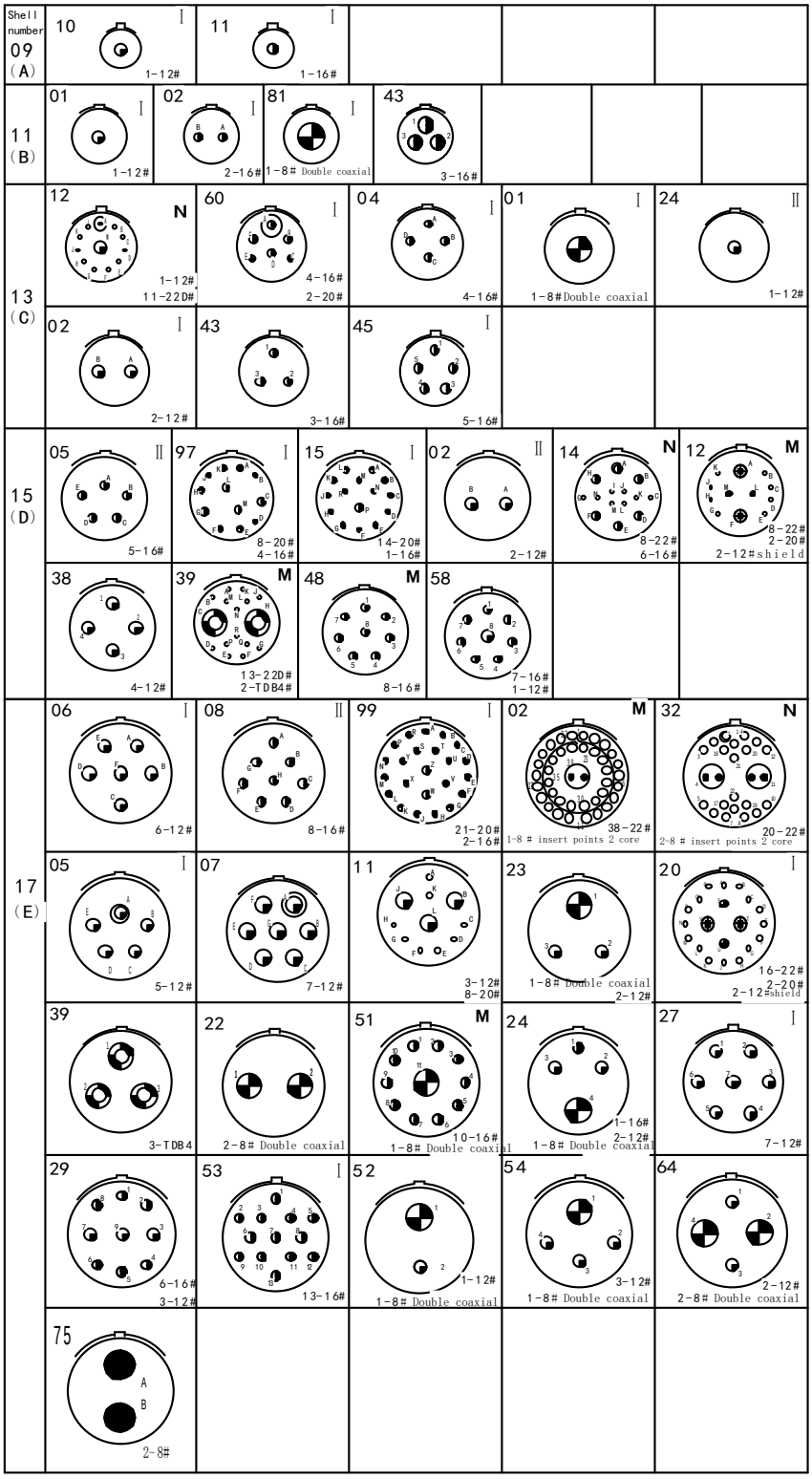
[Same as R255/3 Series electrical connector]

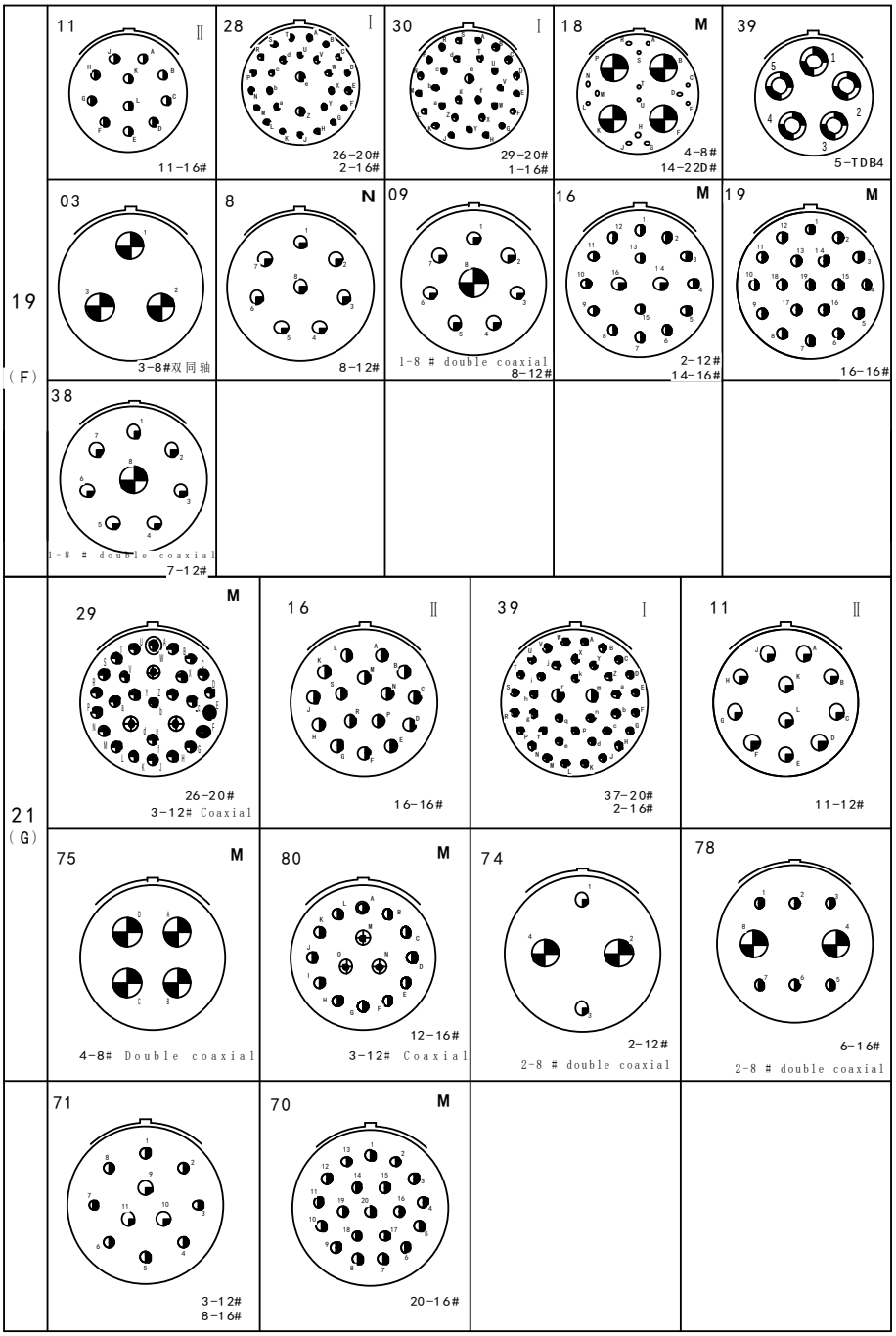
Insert arrangement（viewed from front face of male insulator）

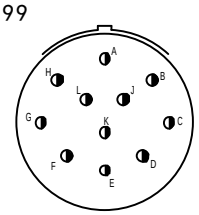
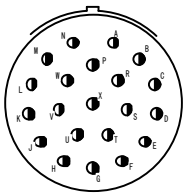
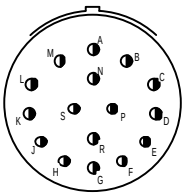
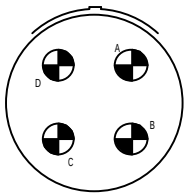
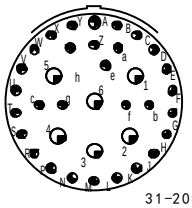
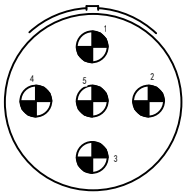
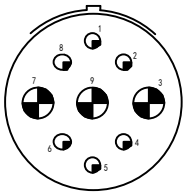
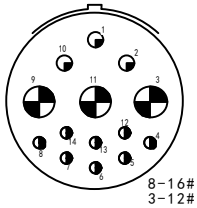
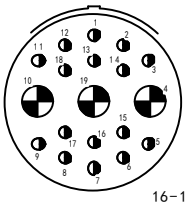
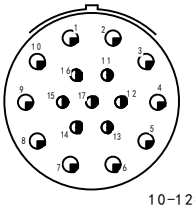
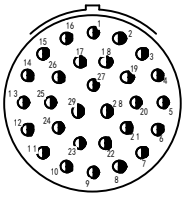
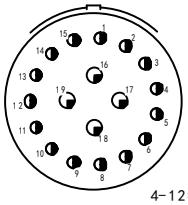
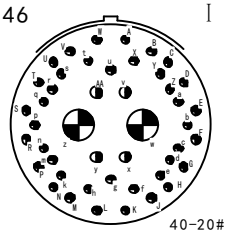
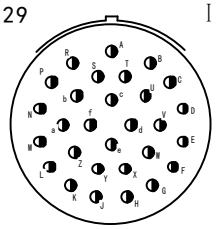
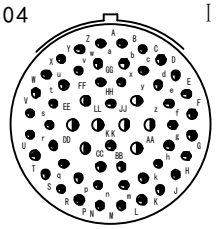
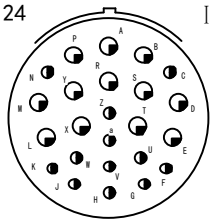
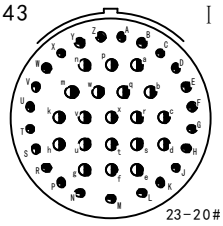
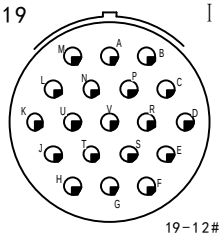
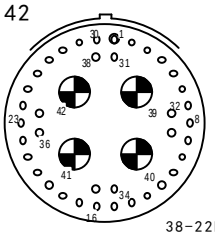
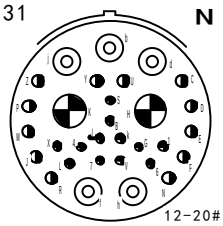
Note：12# power contacts, 12# shielding contacts and 12# coaxial contacts are in 12# cavity.

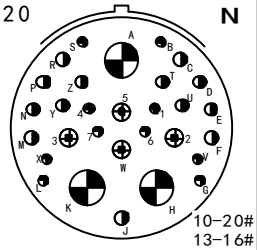
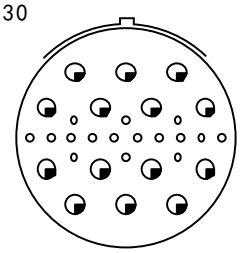
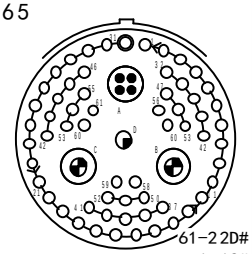
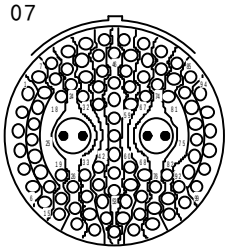
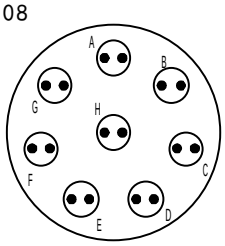
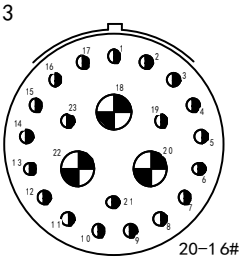
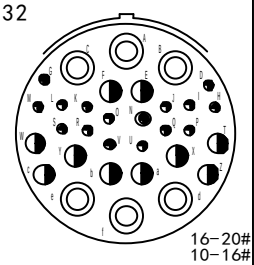
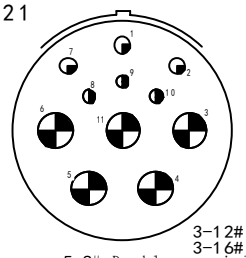
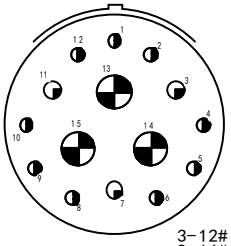
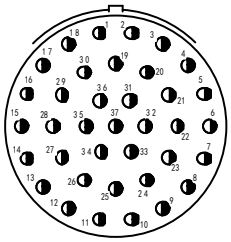
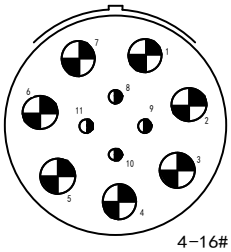
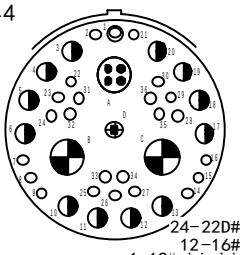
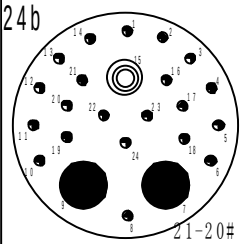
16# power contacts and 16# shielding contacts are in 16# cavity.

8# power contacts, 8# twinaxial contacts and 8# differential contacts are in 8# cavity.





23 (H)	99 Ⅱ  11-16#	21 Ⅱ  21-16#	97 Ⅰ  16-16#	04 N  4-8 # double coaxial
	37  31-20# 6-12#	05 N  5-8# Double coaxial	09  6-12# 3-8# Double coaxial	14 Ⅰ  8-16# 3-12# 3-8# Double coaxial
	15  16-16# 3-8# Double coaxial	17  10-12# 7-16#	29  29-16#	19  4-12# 15-16#
25 (J)	46 Ⅰ  40-20# 4-16# 2-8# Double coaxial	29 Ⅰ  29-16#	04 Ⅰ  48-20# 8-16#	24 Ⅰ  12-16# 12-12#
	43 Ⅰ  23-20# 20-16#	19 Ⅰ  19-12#	42  38-22D 4-8# Double coaxial	31 N  12-20# 12-16# 5-10# 2-8# Double coaxial

25 (J)	20 N  10-20# 13-16# 3-12#shield 1-12# Coaxial 3-8# Double coaxial	30  14-12# 16-22D#	65  61-22D# 1-12# 1-8 # insert points 4 core 2-8# Double coaxial	07  97-22D# 2-8 # insert points 2 core
	08  Insert 8-8 # 2 core	23  20-16# 3-8# Double coaxial	32  16-20# 10-16# 6-10#	21  3-12# 3-16# 5-8# Double coaxial
	15  3-12# 9-16# 3-8# Double coaxial	37  37-16#	51  4-16# 7-8# Double coaxial	44  24-22D# 12-16# 1-12#shield 1-8 # differential 4 core 2-8# Double coaxial
	24b  21-20# 2-8# Double coaxial 1-10 # coaxial			

Power contact specifications