

AP-10

Part No. Plug: 3531-**01-00T, 3539-**01-00*

Receptacle: 3532-**01-00T

Test Report

Product Specification no.PRS-2616

3	T23063	December 18, 2023	T.Ito	S.Kamada	Y.Hashimoto
2	T23047	November 30,2023	K.Mizobuchi	S.Kamada	Y.Hashimoto
1	T22059	March 15, 2022	K.Tanaka	-	Y.Hashimoto
0	T20014	January 28, 2020	T.Yamauchi	-	Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of AP-10Connector in accordance with PRS-2616.

2. Specimen

- (1) AP-10 PLUG (Part No. 3531-**01-00T, 3539-**01-00*)
- (2) AP-10 RECEPTACLE (Part No. 3532-**01-00T)

3. Test Sequence

All the evaluations were performed in accordance with Table 1.Test Sequence.

4. Result

See Table 3-1 to 3-3, Graph 1 to 14. For the details of the testing conditions and requirements, see PRS-2616.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2616.

Table 1 Test Sequence and Sample Quantity

Test Item	Group													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
Contact Resistance	2,5		1,3	1,3		1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Temperature rising		1												
Mating Force/Unmating Force	1,4													
Durability	3													
Vibration			2											
Shock				2										
Electrode fastness test					1									
High Temperature Life						2								
High Temperature Life (Energization)							2							
Low Temperature Life								2						
Low Temperature Life (Energization)									2					
High Temperature and humidity										2				
High Temperature and humidity (Energization)											2			
Temperature cycling												2		
Temperature and humidity cycling													2	
SO ₂ Gas														2
Specimen Quantity.	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 Pcs	5 pcs	5 pcs	5 pcs	5 pcs

※Numbers indicate sequence in which tests are performed.

Table 2 Test Sequence and Sample Quantity

Test Item	Group			
	Q	R	S	T
Solder ability	1			
Soldering Heat Resistance(Reflow)		1		
Soldering Heat Resistance(Soldering iron)			1	
Solder junction life				1
Specimen Quantity	5 pcs	5 pcs	5 pcs	5 pcs

※Numbers indicate sequence in which tests are performed.

Table 3-1 /Test Result

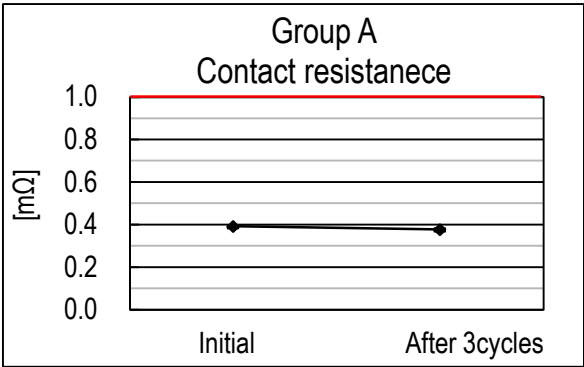
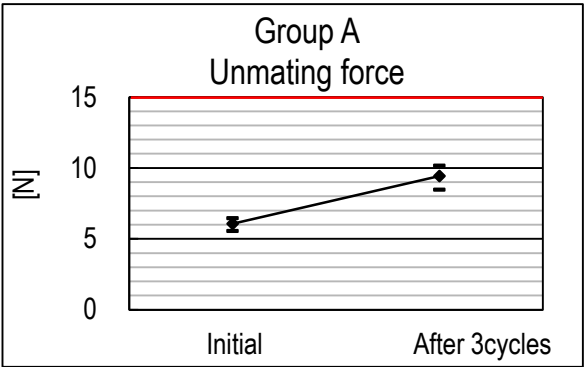
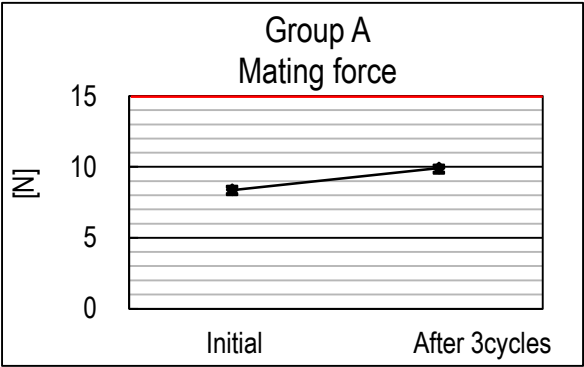
Group	Test items	Pass criteria	n	Unit	AVE.	MAX.	MIN.	Judgement
	Measurements							
A	Mating force							
	Initial	15N MAX.	5	N	8.38	8.6	8.1	Pass
	After 3cycles				9.93	10.1	9.6	Pass
	Unmating force							
	Initial	15N MAX.	5	N	6.08	6.5	5.6	Pass
	After 3cycles				9.45	10.2	8.5	Pass
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.3927	0.395	0.389	Pass
After 3cycles	0.3777				0.380	0.374	Pass	
B	Temperature rising							
	Initial	ΔT15℃ MAX.	5	℃	3.340	3.60	2.90	Pass
C	Vibration							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.3880	0.400	0.377	Pass
	After testing				0.3822	0.395	0.376	Pass
	Electrical discontinuity							
	During test	No discontinuity greater than 1μs.	5	-	No discontinuity		Pass	
	Appearance							
	After testing	No abnormality	5	-	No abnormality		Pass	
D	Shock							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.3956	0.408	0.384	Pass
	After testing				0.3896	0.412	0.376	Pass
	Electrical discontinuity							
	During test	No discontinuity greater than 1μs.	5	-	No discontinuity		Pass	
	Appearance							
	After testing	No abnormality	5	-	No abnormality		Pass	
E	Electrode fastness test							
	Appearance							
	Pass criteria: No abnormality adversely affecting the performance shall not occur.							
	After testing	No abnormality	5	-	No abnormality		Pass	
F	High Temperature Life							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4144	0.434	0.399	Pass
	After testing				0.4762	0.515	0.453	Pass
	Appearance							
After testing	No abnormality	5	-	No abnormality		Pass		
G	High Temperature Life (Energization)							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4130	0.448	0.391	Pass
	After testing				0.4550	0.493	0.429	Pass
Appearance								
	After testing	No abnormality	5	-	No abnormality		Pass	

Table 3-2 Test Result

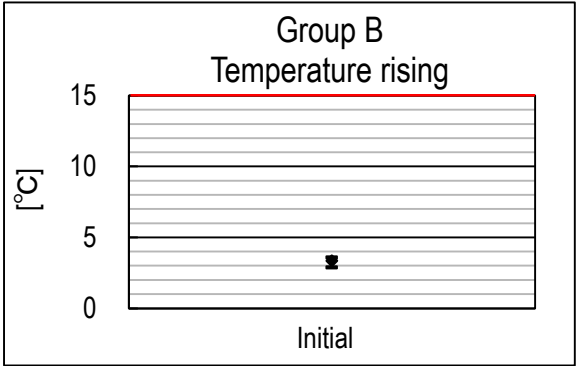
Group	Test items	Pass criteria	n	Unit	AVE.	MAX.	MIN.	Judgement
	Measurements							
H	Low Temperature Life							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4120	0.420	0.400	Pass
	After testing				0.4070	0.414	0.395	Pass
	Appearance							
After testing	No abnormality	5	-	No abnormality		Pass		
J	Low Temperature Life (Energization)							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4020	0.420	0.390	Pass
	After testing				0.3897	0.396	0.378	Pass
	Appearance							
After testing	No abnormality	5	-	No abnormality		Pass		
K	High Temperature and humidity							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4048	0.417	0.391	Pass
	After testing		5		0.3900	0.406	0.371	Pass
	Appearance							
After testing	No abnormality	5	-	No abnormality		Pass		
L	High Temperature and humidity (Energization)							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4203	0.437	0.407	Pass
	After testing				0.4091	0.432	0.391	Pass
	Appearance							
After testing	No abnormality	5	-	No abnormality		Pass		
M	Temperature cycling							
	Contact resistance							
	Initial	1mΩ MAX.	5	mΩ	0.4136	0.432	0.398	Pass
	After testing				0.4176	0.457	0.400	Pass
	Appearance							
After testing	No abnormality	5	-	No abnormality		Pass		

Table 3-3 Test Result

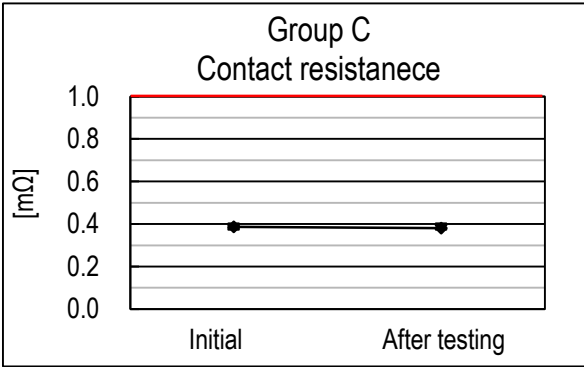
Group	Test items		Pass criteria	n	Unit	AVE.	MAX.	MIN.	Judgement
	Measurements								
N	Temperature and humidity cycling								
	Contact resistance								
	Initial	1mΩ MAX.	5	mΩ	0.4155	0.434	0.400	Pass	
	After testing				0.4000	0.426	0.389	Pass	
	Appearance								
After testing	No abnormality	5	-	No abnormality			Pass		
P	SO2 Gas								
	Contact resistance								
	Initial	1mΩ MAX.	5	mΩ	0.4172	0.420	0.407	Pass	
	After testing				0.3904	0.403	0.381	Pass	
	Appearance								
Initial	No abnormality	5	-	No abnormality			Pass		
After testing	No abnormality			No abnormality			Pass		
Q	Solder ability								
	Appearance								
	Pass criteria: No abnormality adversely affecting the performance shall not occur.								
	After testing	No abnormality	5	-	No abnormality			Pass	
R	Soldering Heat Resistance(Reflow)								
	Pass criteria: No abnormality adversely affecting the performance shall not occur.								
	After testing	No abnormality	5	-	No abnormality			Pass	
S	Soldering Heat Resistance(Soldering iron)								
	Pass criteria: No abnormality adversely affecting the performance shall not occur.								
	After testing	No abnormality	5	-	No abnormality			Pass	
T	Solder junction life								
	Pass criteria: Electrical continuity is confirmed after the test,and no abnormality adversely affecting the performance shall not occur.								
	After testing	No abnormality	5	-	No abnormality			Pass	



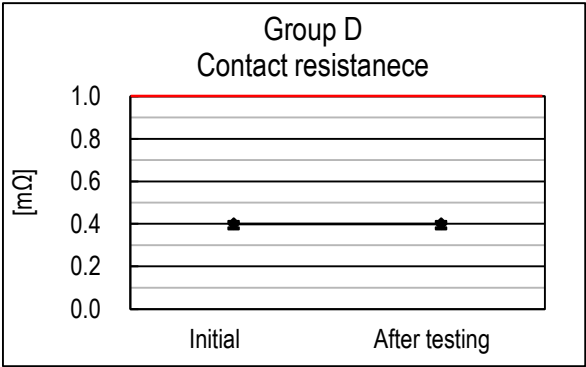
(Graph 1) Group A: Durability



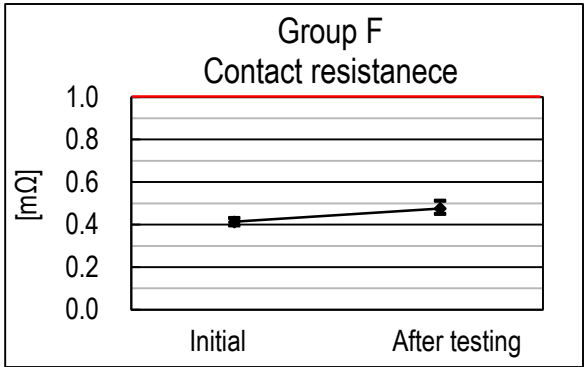
(Graph 2) Group B: Temperature rising



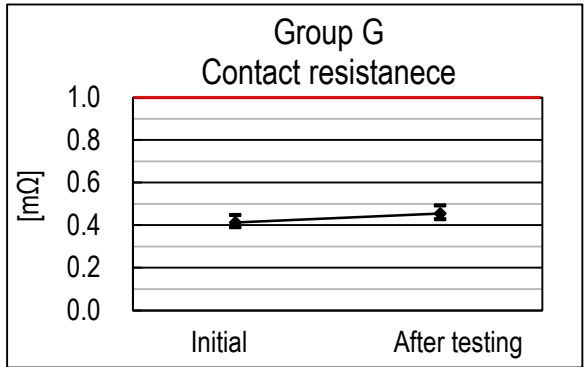
(Graph 3) Group C: Vibration



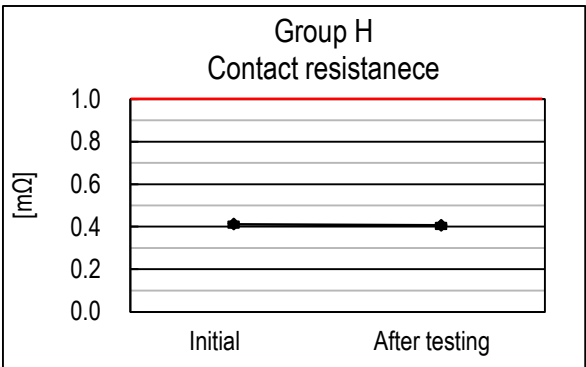
(Graph 4) Group D: Shock



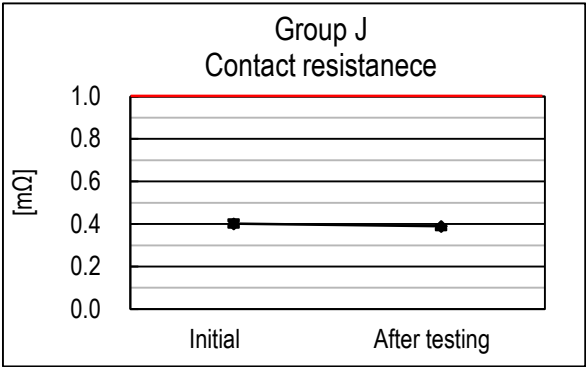
(Graph 5) Group F: High Temperature Life



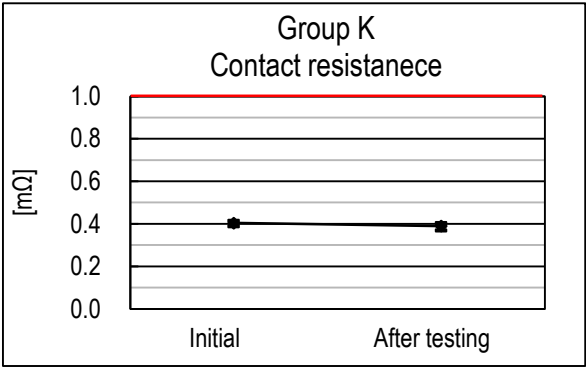
(Graph 6) Group F: High Temperature Life (Energization)



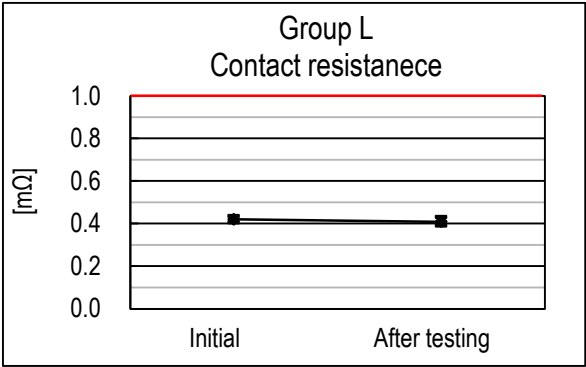
(Graph 7) Group H: Low Temperature Life



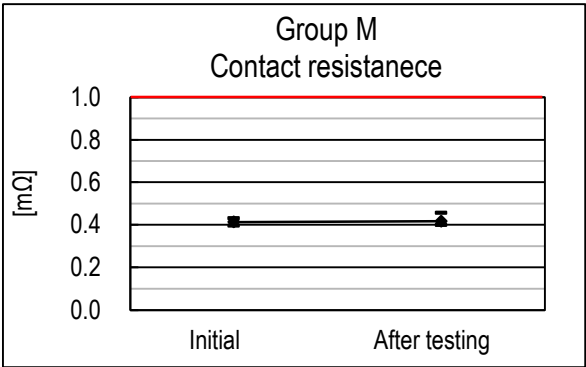
(Graph 8) Group J: Low Temperature Life (Energization)



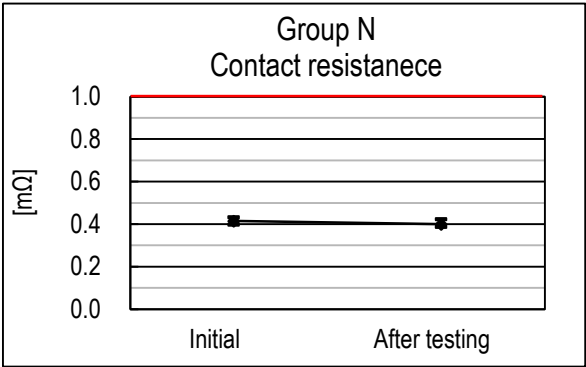
(Graph 9) Group K: High Temperature and humidity



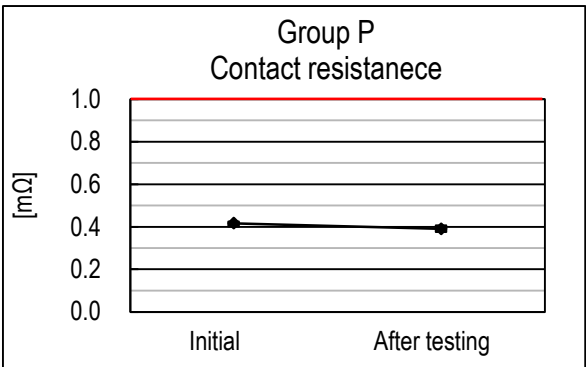
(Graph 10) Group L: High Temperature and humidity (Energization)



(Graph 11) Group M: Temperature cycling



(Graph 12) Group N: Temperature and humidity cycling



(Graph 13) Group P: SO₂ Gas