

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of DYNAMIC D1100 Clamp kit. Applicable product description and part numbers are as shown in Fig. 7 in Appendix 1.

2. Applicable Documents:

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP Specifications :

- A. 109-5000 Test Specification, General requirements for Test Methods
- B. 501-106051 Test report
- C. 114-5377 Application Specification

2.2 Commercial Standards and Specifications :

- A. MIL-STD-202
- B. IEC 512 Test Specification

3. Requirements :

3.1 Design and Construction :

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 Materials :

A. Contact

Material : Tab: Cooper alloy Receptacle: Phosphor Bronze
Finish : Nickel plating all over
Contact Point : Gold plating

B. Receptacle Housing

Material : NOVADUR5010GN1-15 8S
Color : Black
Flammability : UL 94V-0

Tab Housing

Material: NOVADUR5010GN1-15 8S
Color: Black
Flammability: UL 94V-0

C. Upper Cable Hood and Lower Cable Hood

Material : LEONA FG172-X61
Color :Black
Flammability : UL 94V-0

3.3 Ratings :

- A. Voltage Rating : 125 V AC/DC (2mm Pitch connector)
- B. Current Rating : See fig.1
- C. Temperature Rating : -55 centigrade to 105 centigrade
(Include temperature rising by energized current)
- D. Minimum Rating: 1mV, 1μA Minimum

Unit: A

Contact	Rec Contact and Tab Contact						
Wire Size	AWG #18	AWG #20	AWG #22	AWG #24	AWG #26	AWG #28	AWG #30
Pos.							
10 Pos.	-	-	-	-	-	1	-

Fig. 1

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig.2. All tests shall be performed in the room temperature unless otherwise specified.

3.5 Test Requirements and Procedures Summary :

No.	3.5.1
Test Items	Examination of Product
Requirements	Meets requirements of product drawing and AMP Specification (114-5377) After test, no corrosion influence performance.
Procedures	Visual inspection No physical damage
Electrical Requirements	
No.	3.5.2
Test Items	Termination Resistance (Low Level)
Requirements	10 mΩ Max. (Initial) 20 mΩ Max. (Final)
Procedures	Subject mated contacts assembled in housing to 20mV Max. open circuit at 10mA. Take the resistance of the wire only away from measurement Fig. 6. AMP Spec. 109-5311-1
No.	3.5.3
Test Items	Insulation Resistance
Requirements	1000 MΩ Min. (Initial) 100 MΩ Min. (Final)
Procedures	Impressed voltage 500 V DC. Test between adjacent circuits contact of mated connectors. AMP Spec. 109-5302 MIL-STD-202, Method 302 Condition B

No.	3.5.4
Test Items	Dielectric withstanding Voltage
Requirements	No creeping discharge nor flashover shall occur. Current leakage: 0.5 mA Max.
Procedures	1000V AC for 1 minute. Test between adjacent circuits contact of mated connectors.
No.	3.5.5
Test Items	Temperature Rising
Requirements	30 centigrade Max. under loaded specified current.
Procedures	Install Contact in the housing, energize, and measure the rise in heat by energizing. The measurement is measured on the condition of not receiving the influence of the convection of air. The thermo-couple is measured attaching to Crimp of the wire barrel of Contact. (Fig. 6) Wire selection refers AWG 28. AMP Spec. 109-5310
<u>Mechanical Requirements</u>	
No.	3.5.6
Test Items	Vibration (High Frequency)
Requirements	No electrical discontinuity greater than 1 μ sec. shall occur. 20 m Ω Max. (Final)
Procedures	Subject mated connectors to 10-500-10 Hz traversed in 1cycle per 15 minutes at 1.52mm amplitude 3 hours each of 3 mutually perpendicular planes. 100 mA applied. AMP Spec : 109-5202, Condition A MIL-STD-202 : Method 204, Condition A
No.	3.5.7
Test Items	Physical Shock
Requirements	No electrical discontinuity greater than 1 μ sec. shall occur. 20 m Ω Max. (Final)
Procedures	Mated connectors Accelerated Velocity : 490m/s ² Waveform: Sign Curve Duration : 11 m sec. Number of Drops : 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. AMP Spec. 109-5208 MIL-STD-202, Method 213 Condition A
No.	3.5.8
Test Items	Connector Mating/Unmating Force
Requirements	Mating Force (2.94 \times Pos.)N Max. (300 \times Pos.)g Max.

	Unmating Force (0.12×Pos.)N Min. (1 st) (12×Pos.)g Min. (1 st) (0.08×Pos.)N Min. (50 th) (8×Pos.)g Min. (50 th)
Procedures	Operation Speed : 25 mm/min. Measure the force required to mate/unmate connectors. However, It is measure without HSG Lock
No.	3.5.9
Test Items	Contact Insertion Force
Requirements	7.84N (0.8 kgf) Max. per contact
Procedures	Measure the force required to insert contact into housing. AMP Spec. 109-5211
No.	3.5.10
Test Items	Contact Retention Force
Requirements	14.7N(1.5kgf) Min.
Procedures	Apply an axial pull-off load to crimped wire. Operation Speed : 100 mm / min. AMP Spec. 109-5210
No.	3.5.11
Test Items	Contact Mate/Unmating Force
Requirements	Mate 2.94N(300g)Max.(1 st ~50 th) Unmating 0.12N(12g)Min. (1 st) 0.08N (8g)Min. (50 th)
Procedures	Operation speed 100 mm/min AMP Spec. 109-5206
No.	3.5.12
Test Items	Durability (Repeated Mate/Unmating)
Requirements	20 mΩ Max.
Procedures	No. of Cycles : 50 cycles
No.	3.5.13
Test Items	Housing Locking Strength
Requirements	24.5 N (2.5 kgf) Min.
Procedures	Measure connector locking strength. Operation Speed : 100 mm/min. AMP Spec. 109-5210
No.	3.5.14
Test Items	Thermal Shock
Requirements	20 mΩ Max. (Final)

Procedures	Mated connector -55 centigrade/30 min., 85 centigrade/30 min. Making this a cycle, repeat 25 cycles. AMP Spec. 109-5103 Condition A MIL-STD-202 Method 107-1 Condition A-1 The measurement is held after being left indoor for 3 hours.
No.	3.5.15
Test Items	Humidity-Temperature Cycling
Requirements	Dielectric withstanding voltage 1 minute.(Final) 2.0mm pitch : 1000V AC 2.5 & 3.5mm pitch : 1500V AC Current leakage : 0.5 mA Max. Insulation resistance: 100 MΩ Min. (Final) Termination resistance: 20 mΩ Max. (Final)
Procedures	Mated connector, 25~65 centigrade 80~98 % R. H. 10 cycles Cold shock – 10 centigrade(not) performed AMP Spec. 109-5106 MIL-STD-202, Method 106 The measurement is held after being left indoor for 3 hours. 1cycle=24hours
<u>Environmental Requirements</u>	
No.	3.5.16
Test Items	Salt Spray
Requirements	20 mΩ Max. (Final) No corrosion influence performance
Procedures	Subject mated connectors to 5±1% salt concentration for 48 hours. MIL-STD-202, Method 101 Condition B The measurement is held after remove the salt and dry up at indoor.
No.	3.5.17
Test Items	Temperature Life (Heat Aging)
Requirements	20 mΩ Max. (Final)
Procedures	Mated Conn. 105±2 centigrade Duration :96 hours AMP Spec. 109-5104-3 Condition A The Measurement is held after being left indoor for 3 hours.
No.	3.5.18
Test Items	SO2 Gas
Requirements	20 mΩ Max. (Final) No corrosion influence performance
Procedures	Mated conn. SO2 Gas : 10ppm. 95%RH 25 centigrade, 96hours. AMP Spec. 109-5107 Condition C
No.	3.5.19
Test Items	Cable Pullout
Requirements	CCA&A shall have no physical damage or electrical discontinuities greater than 1.0 microsecond. See Fig 8
Procedures	Apply 8 kgf ; AMP spec 109-46.

Fig. 2

Product must be without rust, corrosion transformation, crack and discoloration.

3.6 Product Qualification Test Sequence

Test or Examination	Test Group												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Test Sequence (a)												
Confirmation of Product	1,5	1,3	1,3	1,3	1,3	1,6	1,7	1,4	1,4	1,4	1,4	1,4	1,3
Termination Resistance (Low Level)						2,5	2,6	2,5	2,6	2,5	2,5	2,5	
Dielectric withstanding Voltage									4,8				4
Insulation Resistance									3,7				5
Temperature Rising				2									
Vibration (High Frequency)						3							
Physical Shock						4							
Connector Mating Force							3						
Connector Unmating Force							4						
Contact Insertion Force			2										
Contact Mating Force	2												
Contact Unmating Force	4												
Durability (Repeated Mating/Unmating)	3						5						
Housing Locking Strength		2											
Humidity-Temperature Cycling									5				
Thermal Shock								3					
Salt Spray										3			
Contact Retention Force					2								
Temperature Life(Heat Asing)											3		
SO2												3	
Cable Pullout													2

(a) Numbers indicate the sequence in which the tests are performed.

Fig.3

4. Quality Assurance Provisions :

4.1 Test Conditions :

Unless otherwise specified, all the test shall be performed in any combination of the following test conditions.

Temperature :	15~35 centigrade
Relative Humidity :	45~75 %
Atmospheric Pressure :	86.6~106.6 Kpa

Fig. 4

4.2 Tests :

4.2.1 Test Specimens :

The test specimens to be employed for the tests shall be conforming to the requirements specified in the applicable product drawings. The crimped contacts shall be prepared in accordance with the requirements of applicable application Specification, 114-5377, Crimping of DYNAMIC CONNECTOR D1000 Series, on the wires specified in Fig.6 of this specification.

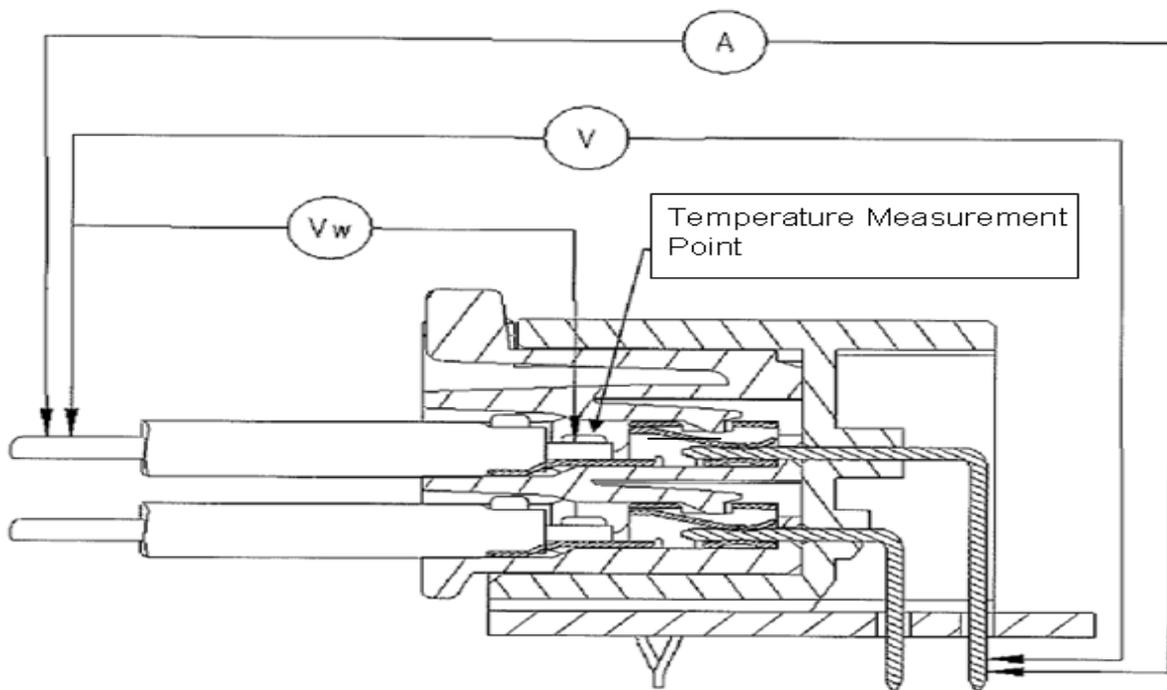
4.2.2 Applicable Wires :

The wires to be used for crimping the samples for performance testing shall be conforming to the requirements specified in Fig. 6.

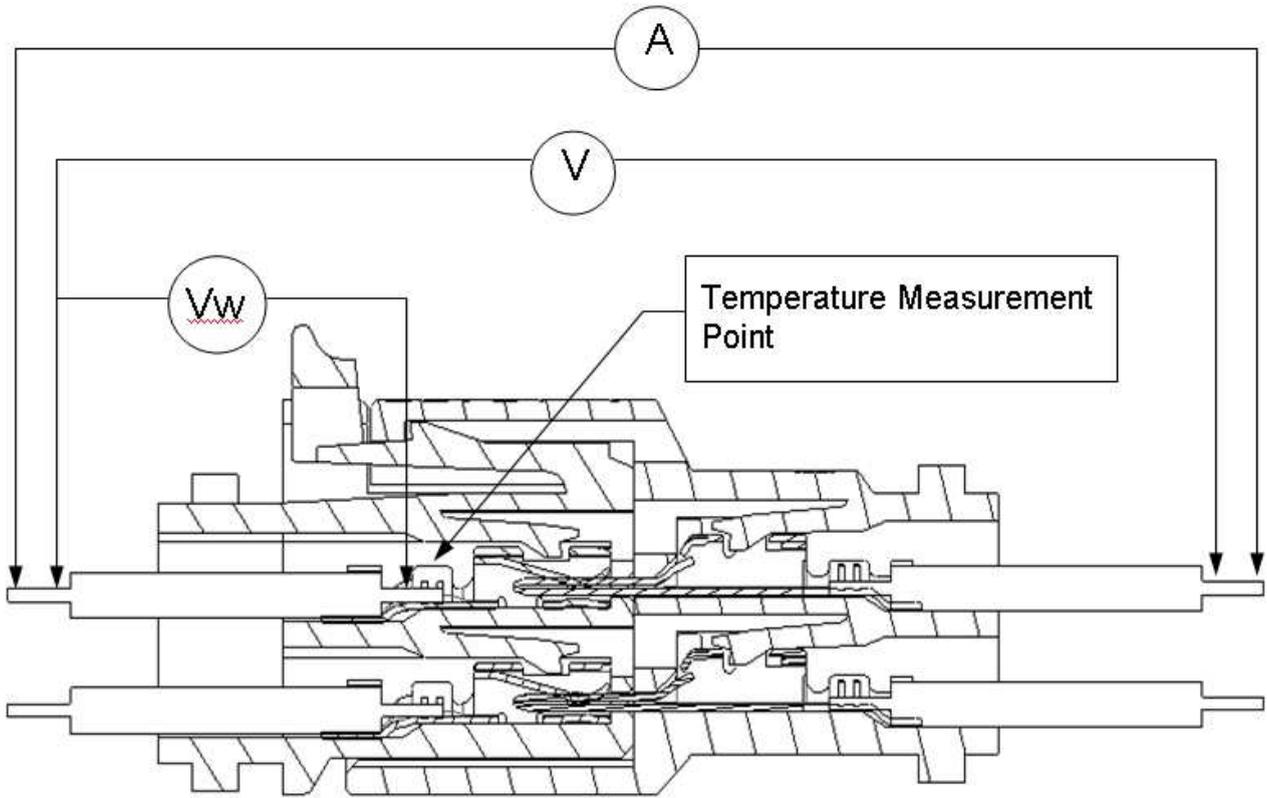
Calculated Cross-sectional Area(mm ²)	AWG	Diameter of a Conductor (mm)	Number of Conductors	Insulation Outer Diameter (mm)
0.09	28	0.127	7	1.08

Fig. 5

$$m\Omega = (V - V_w) / A$$



Wire to board



Wire to wire

Take the resistance of wire only away

Fig. 6 Termination Resistance (Low Level) and Temperature Rising Vs. Current Measuring Methods

Description	Part No.	Remarks
D1100 TAB HSG 10P WITH CABLE CLAMP	1971573-1	
D1100 REC HSG 10P WITH CABLE CLAMP	1971574-1	
D1100D CLAMP KIT LOWER CABLE HOOD ASSEMBLY	1971588-1	
LOWER CABLE HOOD	1971585-1	
M2.5 NUT	1971578-1	
UPPER CABLE HOOD	1971584-1	
TAB HOUSING	1971582-1	
REC HOUSING	1971583-1	
M2.5 SCREW	1971579-1	
CABLE CLAMP	1971587-1	
DYNAMIC D1000 SERIES TAB Contact AU	1903112-2	
DYNAMIC D1000 SERIES REC CONTACT	1827570-2	
D1100D 2.0 PITCH HDR ASSY (H-TYPE) 10 POS	1-1827873-5	

Fig. 7 Appendix 1

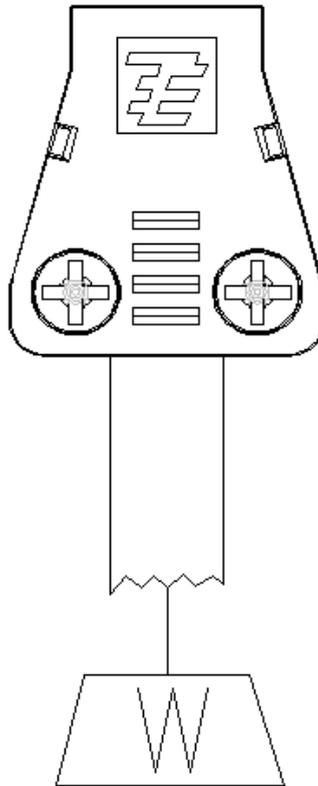


Fig. 8

LTR	REVISION RECORD	DR	CHK	APVD	DATE
A	Release	Leo Liu	Rock Lv	Julian Zhou	16NOV2009
A1	Correct the test flow	Leo Liu	Rock Lv	Julian Zhou	22FEB2010
B	Change to new format	Leo Liu	Rock Lv	Shaomin Liang	29APR2011