



The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

CONNECTOR SYSTEM HV 100

1. SCOPE

This specification covers the performance and tests requirements and quality assurance provisions for the HV 100 Connector.

The connector consists of a flame-retardant insulator with phosphor bronze contacts on a 2,54 (.100) * centerline.

The contacts are preloaded to reduce mating forces and stubbing and have a short-point-of-contact design.

The mating part should be a header with 0.63 (.025) * square of round posts with or without insulating housing.

For the preparation of this detail specification the sectional specification IEC 603-1 / DIN 41650-1 is used.

2. APPLICABLE DOCUMENTS AND FORMS

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.

* Values in mm, values in brackets inches

2.1. TE Documents

- | | |
|---------------|--|
| A. 108-18012 | Product Specification for AMPMODU II Pin header |
| B. 114-25011 | Application Specification AMPMODU Mod I and II Post |
| C. 502-153447 | Qualification Test Report - HV100 connector – Regrind addition |
| D. 502-19888 | Qualification Test Report - HV100 Connector - Resin change |
| E. 502-153710 | Qualification Test Report - HV100 Connector - Au to PdNi plating change. |
| F. 502-153711 | Qualification Test Report - HV100 Connector – Au to PdNi Plating Change. |

2.2. DIN / IEC Specifications

- | | |
|-------------------|--|
| A. DIN 41 650 T 1 | Sectional Specification for connectors and connectors for printed boards |
| B. IEC 603-1 | Connectors for frequencies below 3MHz for use with printed boards sectional specification for connectors |
| C. DIN 41640 | Basic Testing Procedures and Measuring Methods for electromechanical components |
| D. IEC 512 | Electromechanical components for electronic equipment. Basic Testing Procedures and measuring methods |

3. REQUIREMENTS

3.1. Design and Construction

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

The mating part (post) shall be conformed to figure 1.

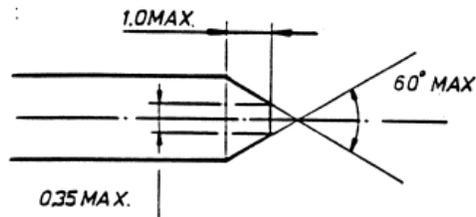


Figure 1

3.2. Materials

- A. Contact: Phosphor Bronze
 Plating: a) Duplex: 1,27 μm Ni underlayer
 0,76 μm PdNi+Au flash on contact area
 2,50 μm Sn on solder area
 b) Tin: 2,00 μm Sn
 c) NiP: 2.0-4.0 μm NiP underlayer
 Min 0.1 μm Au on contact area
 3.0 – 5.0 μm Sn on solder area
- B. Housing: Thermoplastic Polyester glass filled UL 94 V-0

4. PERFORMANCE REQUIREMENTS

The requirements contained herein apply to AMPMODU mated parts.

4.1. Rating

- A. Current: 3 Amperes maximum per contact (see derating graph)
 B. Temperature: -65° to 125° C Gold
 -55° to 105° C Tin

4.2. Test Requirements and Procedure Summary

Table 1

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
Examination of product	Meets requirements of drawing	Dimensional and visual test see IEC / DIN Spec.512-2 / 41 640 T 2
Termination Resistance Low Level	20 milliohms maximum	20 mV maximum open circuit, 100mA maximum short circuit, measured as indicated in table 2 and fig. 2. see IEC / DIN Spec.512-2 / 41 640 T 4
Termination Resistance Rated Current	20 milliohms maximum	Current as indicated but not to exceed 3 amperes, measured as indicated in table 2 and fig. 2. see IEC / DIN Spec.512-2 / 41 640 T 5
Insulation Resistance	1. 1000 gigohms minimum initial; (10 gigohms adapter-measurement) 2. 10 gigohms minimum after moisture cycle. (100 megohms adapter- measurement)	Unmated connectors, test between adjacent contacts and contacts to mounting test voltage 100 ± 15 V DC see IEC / DIN Spec.512-2 / 41 640 T 7
Dielectric Withstanding Voltage	Test Voltage 1000 V AC hold for 1 minute. no breakdown or flashover	Unmated connectors, test between adjacent contacts and contacts to mounting hardware. see IEC / DIN Spec.512-2 / 41 640 T 8
Dielectric Withstanding Current, High Temperature	Test Current 1A hold for 500 h. no breakdown	Temperature 70°C See IEC / DIN Spec. 512-5 / 41 640 R 22IN Spec. 512-5 /
Contact Separating Force (Gage)	Minimum force per Contact Type Gold 0,15 N Tin 0,20 N NiP 0,60 N	Size 3 times using gage P 1 as indicated in fig. 3 then separation force with gage P 2 see IEC / DIN Spec.512-8 / 41 640 T 45
Connector Unmating Force	Minimum force per Contact Type Gold 0,15 N Tin 0,20 N NiP 0,60 N	Connector unmating force divided by number of contacts. see IEC / DIN Spec.512-7 / 41 640 T 36

* Test group BP:
2 x 100 (2 x 40) mating are tested.

Table 1 (Cont'd)

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
Connector Mating Force	Maximum force per Contact Type Gold 1.6 N Tin 2.5 N Nip 2.4 N	Connector mating force divided by number of contacts. see IEC / DIN Spec.512-7 / 41 640 T 36
Durability	Termination resistance, dry circuit, individual contact separation force; no mechanical damage	Mate and un mate at a rate of 25 mm/min, 200* cycles for gold 80* cycles for tin see IEC / DIN Spec.512-5 / 41 640 T 21
Vibration, Sine Wave	No interruption of continuity greater than 1 microsecond. no physical damage	Subject wired and mated connectors to 20 G's, 10 - 2000 Hz see IEC / DIN Spec.512-4 / 41 640 T 15
Physical Shock	No interruption of continuity greater than 1 microsecond. no physical damage	Subject rigid mount mated connectors to 50 G's 11 milliseconds sawtooth wave form. 5 drops in each direction See IEC / DIN Spec. 512-4 / 41 640 T 14
Solderability	Solderable areas of the contact shall have a solder coverage of 95% minimum	Use testing method 1. solder bath with 242°C see IEC / DIN Spec.68 T 2-20 41 640 T 70
Thermal Shock	Termination resistance, dry circuit No physical damage.	Subject mated connectors to 5 cycles, quick change of temperature -65° / +125° C (gold contact) -55° / +105° C (tin contact) see IEC / DIN Spec.512-6 / 41 640 T 28
Mixed Flow Gas	Contact resistance shall be met.	Subject mated samples to environment class III for 21 days. IEC 60068-2-60 (method 4).
Dry Heat	Termination resistance, low level insulation resistance, dielectric with standing voltage, no physical damage	Subject mated connectors to 125° C (gold) resp. 105° C (tin) for 16 hours see IEC 512-6 Para 9 / DIN 41 640 T 31
Damp Heat, Cycle	Termination resistance, low level insulation resistance, dielectric with standing voltage, no physical damage	Subject mated connectors temperature humidity 55° C (gold) 40° C (tin) 95% RH for 30 minutes see DIN Spec. 41 640 T 34
Damp Heat, Steady State	Termination resistance, low level insulation resistance, dielectric with standing voltage, no physical damage	Subject mated connectors temperature humidity 40° C 95% RH for 21 days see IEC / DIN Spec. 512-6 / 41 640 T 27
Resistance to Cold	Termination resistance, low level insulation resistance	Temperature -55° C See IEC / DIN Spec. 512-6 / 41 640 T 32

* Testgroup BP:

2 x 100 (2 x 40) matings are tested.

Table 1 (end)

4.3. Connector Tests and Sequence

Table 2

Test or Examination	Test Group			
	P, AP	P, BP	P, CP	P, DP
	Test Sequence			
Examination of Product	(1); 14; 23	(1); 12	(1); 9	(1); 9
Termination Resistance Low level	(2); 20	(2); 7	(2); 7	(2); 7
Insulation Resistance	(3); 12; 16; 19	(3); 9	(3); 6	(3)
Dielectric Withstanding Voltage	(4); 8; 13; 21	(4); 10	(4); 8	(4); 8
Contact Separating Force (Gage)	5	11		
Connector Mating-Unmating Force	6;22			
Solderability	7			
Vibration (sine wave)	9			
Physical Shock	10			
Thermal shock	11			
Dry Heat	15			
Damp Heat Steady State			5	
Damp Heat Cycle	16; 18			
Resistance to Cold	17			
Durability		5; 8		5
Mixed Flow Gas		6		
Dielectric Withstanding Current; High Temperature				6

- 1) Test-Group names see DIN Spec. 41 650 T 1
- 2) Numbers in brackets used for initial tests see DIN 41 650 T 1

Initial test-group shall consist of a minimum of 3 connector assemblies (with a minimum of 20 receptacles of each plating type).

Test-groups AP-DP represent the quantity of all the parts of the initial test-group. See IEC / DIN Spec. 603-1 / 41 650 T 1.

All measurements shall consist of a minimum of 30 random readings from each group. Numbers indicate sequence in which tests are performed.

5. PRODUCT ASSURANCE PROVISIONS

5.1. General Requirements

Connectors present under this specification shall be a product which has passed qualification tests per Para 4.2, and which meet the quality conformance inspection of Para 5.3.

5.2. Qualification Requirements

Qualification requirements shall be in accordance with the test sequence of Table 2 of this specification.

5.3. Quality conformance inspection

Applicable TE quality inspection plan will specify sampling acceptable quality level to be used. Dimensions and functional requirements shall be in accordance with applicable product drawing and this specification.

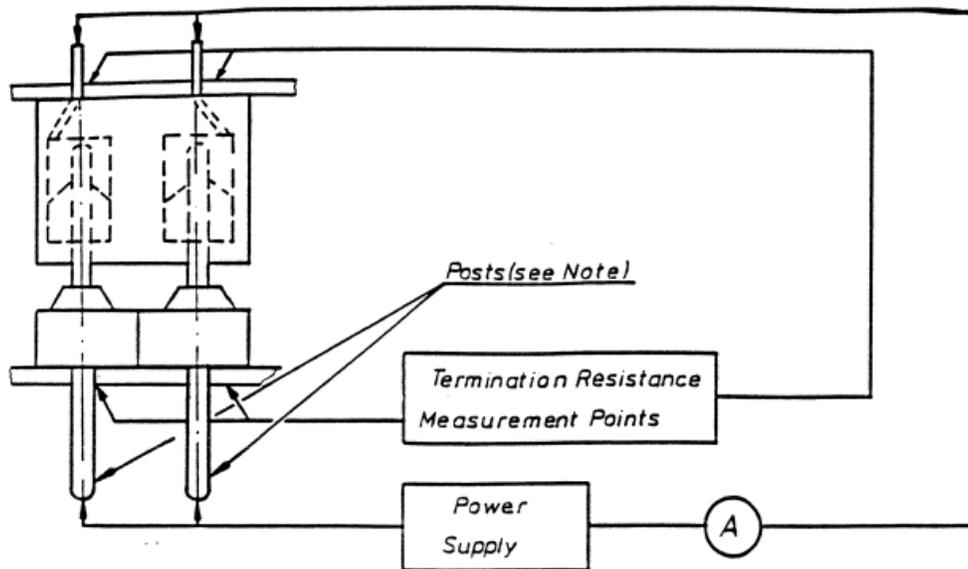


Figure 2

Termination Resistance Measurement points for connectors system HV-100

Note: Post plating shall be identical to receptacle plating when conducting tests (except for underlayer).

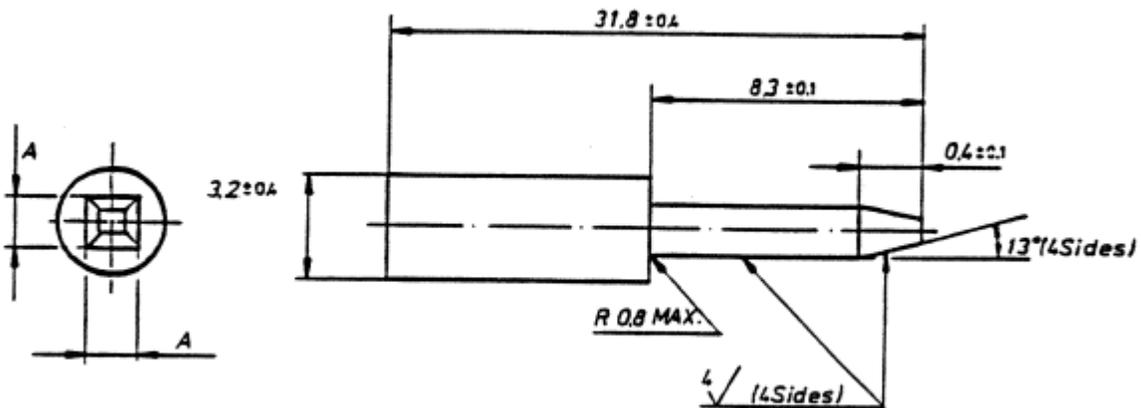


Figure 3

Notes:

1. Tolerance: $\pm .005$ or $\pm 2^\circ$ as applicable, unless otherwise specified.
2. Material: Tool steel, AISI type 02 per TE Specification 100-15.
3. Heat Treat: Rockwell C 50-55
4. Gage surface shall be clean of contaminants or lubricants.

Gage	A	
P1	+0,000*	(+.0000) *
	0,660 -0,003	(.0260 -.0001)
P2	+0,003	(+.0001)
	0,610 -0,000	(.0240 -.0000)

Table 3

- Values in mm, values in brackets in inches