
PAI* .050 Inch Centerline Contact System

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the Tyco Electronics Pad Array Interface (PAI*) .050 inch centerline contact system.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 12Oct95. The Qualification Test Report number for this testing is 501-516. This documentation is on file at and available from Engineering Practices and Standards (EPS).

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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. Tyco Electronics Documents

- 114-13063: Application Specification
- 501-516: Qualification Test Report

2.2. Commercial Standard

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Industrial Standard

S-020: Augat Qualification Test Plan for .050 Inch Centerline PAI Contact System

2.4. Government Standard

MIL-STD-1344: Test Methods for Electrical Connectors

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

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Ratings

- Voltage: 240 volts AC
- Current: 1 ampere maximum
- Temperature: -55 to 85°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Specimens shall meet requirements of the applicable product drawings and specifications. There shall be no evidence of poor machining, no damaged or improperly assembled contacts, no peeled plating, and no porous finishes.	Augat Spec S-020.
ELECTRICAL		
Low level contact resistance.	20 milliohms maximum initial. ΔR 10 milliohms following any test sequence.	MIL-STD-1344A, Method 3002.1. (100 milliamperes maximum and 20 millivolts maximum open circuit voltage)
MECHANICAL		
Vibration.	No discontinuities of 5 nanoseconds or longer duration. See Note.	MIL-STD-1344A, Method 2005.1. (10 G's, 10-500 Hz)
Shock.	No discontinuities of 5 nanoseconds or longer duration. See Note.	MIL-STD-1344A, Method 2004.1, Test Condition A. (50 G's, half-sine)
Durability.	See Note.	MIL-STD-1344A, Method 2016. (mate and unmate specimens for 50 cycles)
Contact/plunger normal force.	80 grams minimum at .007 inch deflection following 10 cycles. See Note.	Augat Spec S-020.

Figure 1 (cont)

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal shock.	See Note.	MIL-STD-1344A, Method 1003.1, Test Condition A. (-55 to 85°C)
Humidity.	See Note	MIL-STD-1344A, Method 1002.2, Type II, Condition A. (10 days)
Temperature life.	See Note.	MIL-STD-1344A, Method 1005.1, Test Temperature Condition 3, Test Time Condition D. (85°C, 1000 hours)
Gas tight.	See Note.	EIA-364-36, Method II.

NOTE *Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,6	1,9	1,5	1,5	1,5
Low level contact resistance	2,5	3,5,7	2,4	2,4	2,4
Vibration	4				
Shock	3				
Durability		4			
Contact/plunger normal force		2,8			
Thermal shock					3
Humidity		6			
Temperature life				3	
Gas tight			3		

NOTE (a) *See paragraph 4.1.A.*
 (b) *Numbers indicate sequence in which tests are performed.*

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall each consist of 6 specimens, 336 contacts.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.