PATCH PANEL 24 PORTS Cat.6 AND Cat.5E, AND AMPTRAC* AND 24P Cat.6 0,5U COMPACT PATCH PANEL

1. SCOPE

1.1 Content

This specification covers performance, tests and quality requirements for PATCH PANEL 24 PORTS Cat.6 AND Cat.5E, SHIELDED AND UNSHIELDED, AMPTRAC* READY, FULL AMPTRAC* VERSION AND AMPTRAC* UPGRADE KIT, 24P Cat.6 0,5U COMPACT PATCH PANEL.
Cat.6 and Cat.5E System used to connect building wiring for data and voice networking systems.
AMPTRAC System used as an Intelligent Infrastructure Management.

1.2 Qualification

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

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

A. 109-197:	AMP Test Specification vs EIA and IEC Test Methods
B. 501-93008:	Qualification Test Report 24 Ports Patch Panel, Cat 5E.
C. 501-93009:	Qualification Test Report 24 Ports Patch Panel, Cat 6
D. 501-93010:	Qualification Test Report AMPTRAC* Upgrade kit.
E. C-336695:	24 Ports Patch Panel, Unshielded, Cat. 5E
F. C-336671:	24 Ports Patch Panel, Shielded, Cat. 5E
G. C-336663:	24 Ports Patch Panel, Unshielded, Cat. 6
H. C-336560:	24 Ports Patch Panel, Shielded, Cat. 6
I. C-1711147:	24 Ports Patch Panel AMPTRAC* Ready and Full, Unshielded, Cat 6
J. C-1644042:	24 Ports Patch Panel AMPTRAC* Ready and Full, Shielded, Cat 6
K. C-1711148:	AMPTRAC* Upgrade kit.
L. 114-93001:	Application Specification
M. 114-22018:	Application Specification
N. 114-93011	Application Specification.
O. C-1711544	24 Ports Patch Panel, Compact 0,5U, Cat.6

2.2 Industrial Standards:

A. ISO / IEC 11801:	Generic Cabling for Customer Premises (2002/E)
B. EN 50173:	Information Technology; Generic Cabling Systems
C. ANSI/TIA/EIA 568-B.2-1:	Commercial Building Telecommunications Cabling Standard
D. IEC 60512:	Basic testing Procedures and measuring methods for Electromechanical components for Electronic equipment. Test Specifications as indicated in Fig. 1.
E. IEC 60068:	Basic Environmental testing procedures. Test Spec as indicated in Fig.1
P. 230-702 hazardous Substances'	Design for environment standard `Supplier requirement for the elimination of

3. REQUIREMENTS

3.1 Design and Construction

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

3.2 Materials

Materials shall be as specified on applicable product drawings.

3.3 Wire Range

A. Conductor range (mm): 0.51 – 0.64
B. Conductor range (AWG): 24 – 22
C. Insulation range (mm): 0.8 – 1.6

3.4 Ratings

A. Voltage: 150 Vac max.
B. Current: Signal application only
C. Temperature: -40 to 70ºC

3.5 Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions in accordance with 5.3.1. of IEC 60068-1.

3.6. Test Requirements and Procedures Summary:

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
	ELECTRICAL	
Input-Output Resistance.	For Cat.6 and Cat.5E system 200 milliohms maximum initial and final. See figure 3. For Upgrade kit, 20 ohms maximum initial and final. See figure 4.	IEC 60512-2 Test 2a. Subject terminated samples to 20 mV max. open circuit at 100 mA max.
Insulation Resistance.	500 Mohm minimum	IEC 60512-3, Test 3a Test at 100 Vdc between adjacent contacts.
Shielded termination resistance (For Shielded version only).	100 milliohms maximum initial and final.	IEC 60512-2, Test 3a Subject terminated samples to 20 mV open circuit at 100 mA maximum. See figure 3.
Dielectric withstanding voltage.	1000 Vdc or a.c. peak between contact to contact 1500 Vdc or a.c. peak between contact to screen and test panel. (Shielded version) 1 minute hold 5 mA maximum leakage current.	IEC 60512-2 Test 4a. Method A. Between adjacent contacts.

Current-carrying capacity	0.75 A (d.c.) Applicable for an ambient temp. of 60º C.	IEC 60512-3 Test 5b. All contacts, connected in series.
NEXT loss (crosstalk)	Class D link requirements according to ISO/IEC 11801 for Cat.5E panels. Class E link requirements according to ISO/IEC 11801 for Cat.6 panels.	According to IEC 60512-25-1
Return loss	Class D link requirements according to ISO/IEC 11801 for Cat.5E panels. Class E link requirements according to ISO/IEC 11801 for Cat.6 panels.	According to IEC 60512-25-5
ENVIRONMENTAL		
Stress Relaxation.	See Note	IEC 68-2-2 Test Method Ba. Subject mated samples to temperature life at 70ºC for 500 hours. Inspect and measure cont. Resist. At (168±10) hours intervals. 0.5 A, 5 connectors. No connect, 5 connectors.
Corrosion Testing.	See Note	IEC 68-2-60 Test Method C. Test Conditions: SO_2 0,5 ppm (Volume) H_2S 0,1 ppm (Volume) T=(25±2)ºC HR=(75±3)% Test time 4 days.

NOTE *Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.*

Figure 1

3.7. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)		
	1	2	3
	Test sequence (b)		
Examination of product	1,6, 8,13	1,10	1,3
Input-Output Resistance	2,11	2,8	
Insulation resistance	3,10	3,7	
Shielded Termination Resistance **(for Shielded version only)**	4	4	
Transmission Parameters	9(c)	6(c)	
Stress Relaxation(d)	5(e) 7(f)		
Dielectric Withstanding Volt.	12	9	
Corrosion Test(d)		5	
Current Capacity			2

NOTE

*(**a**) See Para 4.1.A.*
*(**b**) Numbers indicate sequence in which tests are performed.*
*(**c**) Perform NEXT and Return Loss in a 15m and 90m Link configuration*
(the Link must be mounted during the measure of the transmission parameters)
*(**d**) Mated (x6) and Unmated (x6) plugs in each PCB.*
*(**e**) 100 hours.*
*(**f**) 400 hours.*

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Samples 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 a minimum of 5 ports.

B. Test Sequence

Qualification inspection shall be verified by testing samples 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 in verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

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

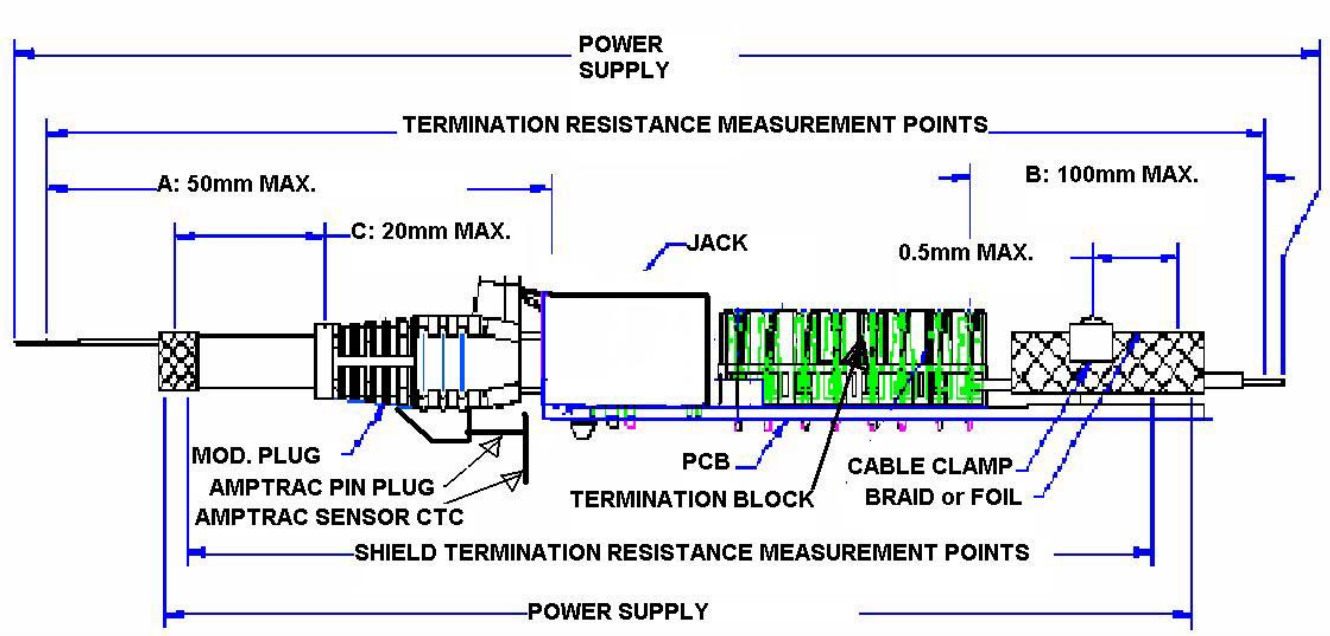

Figure 3
Cat.6 or Cat.5E System

- Measure Termination Resistance between points shown.
- Subtract Bulk resistance due to lengths ‘A’ and ‘B’, and ‘C’ and ‘D’
- NOTE: Use AMPTRAC Plug for AMPTRAC patch panels ONLY.

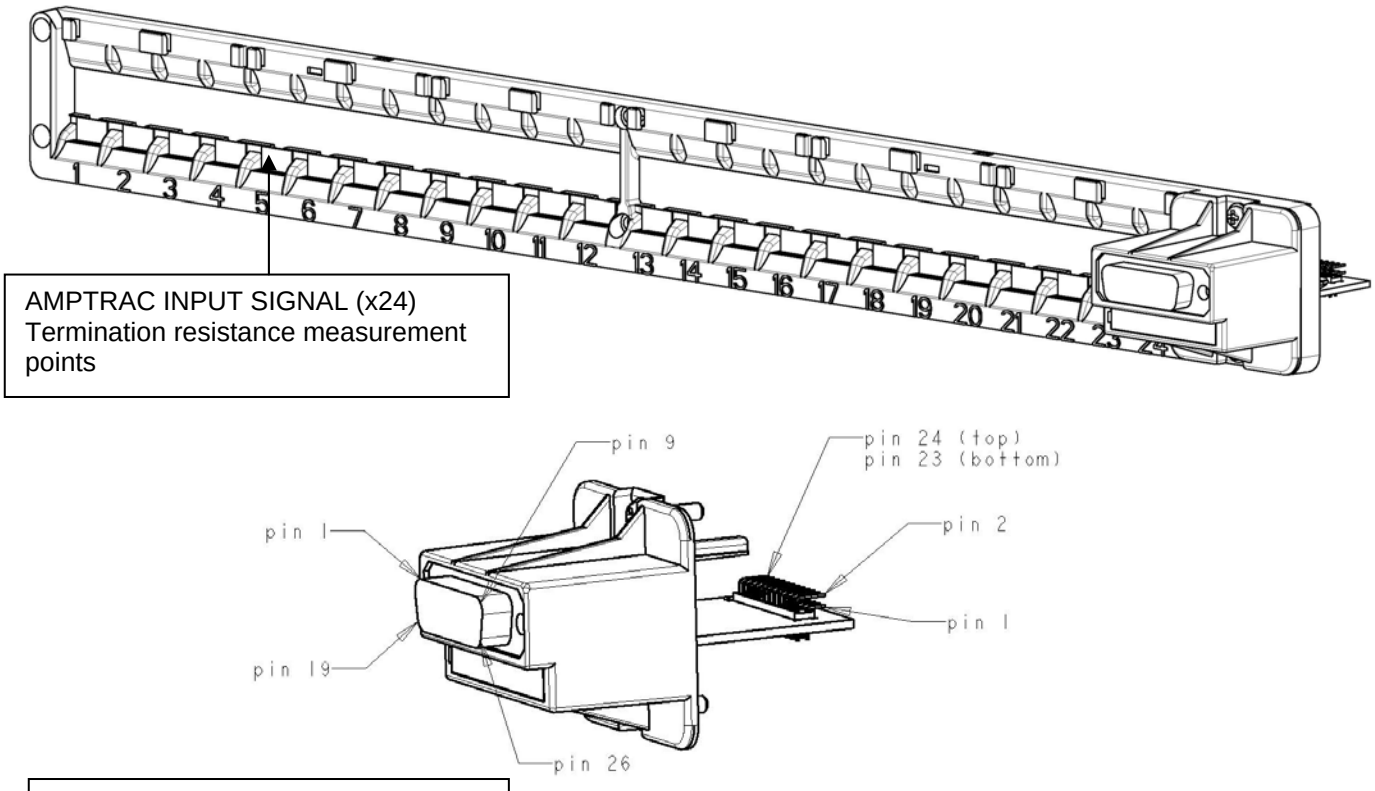

Figure 4
AMPTRAC SYSTEM