1. SCOPE

This specification covers the performance, tests and quality requirements for the AMP Street Light Connectors .

2. QUALIFICATION

When tests are performed on the subject product line , the procedures specified in Tyco 109 series specifications shall be used . All inspections shall be performed using the applicable inspection plan and product drawing .

3. 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 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 .

3.1 Tyco Documents

a) 109-1	General Requirements for Test Specifications
b) 109 Series	Test Specifications as indicated in Figure 1 (Comply with MIL-STD-202 , MIL-STD-1344 and EIA RS-364) .
c) Corporate Bulletin 401-76	Cross-reference between Tyco Test Specifications and Military or Commercial Documents .
d) 108-18025	Standard Power Timer Specification .
e) 108-37015	Fastin-on Terminals Specification .
f) 501-37001	Qualification Test Report .

4. PRODUCT PART NUMBERS AND DESCRIPTIONS

The products of the following part numbers shall be governed under this specification .

Part Number	Description
444402-1/-2	Assembly 2p Standard Power Timer Receptacle
444404-1/-2	Housing 2p Standard Power Timer Tab
444405-1	Housing 4p Fastin-on .110 Series Tab

5. REQUIREMENTS

5.1 Design and Construction

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

5.2 Materials

- Housing : Polyamide 6.6
- Connector Seal : Silicone Rubber

5.3 Ratings

- Operating Temperature : - 40º C to 105º C
- Cable Range and Test Current :

Contact Part Number		Contact Description	Wire Range (mm^2)	Insulation Dia. (mm)	Wire Seal P/N	Test Current	
Rec.	Tab					Wire Size (mm^2)	A
927836-2	1-962917-1	Std. P. Timer	0,5 - 1,0	1,4 - 2,1	963243	0,5 - 1,0	6 - 11
927835-2	1-962918-1	Std. P. Timer	1,5 - 2,5	2,2 - 3,0	963244	1,5 -,2,5	14 - 20
928966-2	1-962919-1	Std. P. Timer	4,0	3,4 - 3,7	963245	4,0	28
----------	880688-2	Fastin-on 6,3mm	0,5 - 1,0	1,4 - 2,1	---	0,5 - 1,0	6 - 11
----------	880636-2	Fastin-on 6,3mm	1,5 - 2,5	2,2 - 3,0	---	1,5 - 2,5	14 - 20
----------	444153-2	Fastin-on 6,3mm	4,0	3,4 - 3,7	---	4,0	28

Table 1

5.4 Performance and test Description

The product is designed to meet the electrical , mechanical and environmental performance requirements specified in Figure 1 . All tests are performed at ambient environmental conditions per Tyco Specification 109-1 unless otherwise specified .

5.5 Test Requirements and Procedures Summary

Description	Requirements	Procedure
Examination of Product	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
Electrical		
Voltage Drop	6mV/A max.	Measure potential drop of mated contacts. See table 1 for wire sizes and test currents. See figure 3. Tyco Spec. 109-25.
Insulation Resistance	200 MΩ min	Test between adjacent contacts of unmated connector assembly. Tyco Spec. 109-28-4.
Dielectric Withstanding Voltage	No break down or flash-over when 2KV AC is applied for one minute.	Test between adjacent contacts of unmated connector assembly; Tyco Spec. 109-29-1.

Figure 1

Current Cycling	See note (a)	Subject mated contacts to 500 cycles at rated current for 45 minutes "on" - 15 minutes "off". Test with 2,5 mm² wire size. Tyco Spec. 109-51 Condition C. Test Method 4.
Temperature Rise	ΔT = 50º C max. temperature at specified current.	Measure temperature rise versus current. Tyco Spec. 109-45-1. Test current: max. current for each contact. See table 1.
Mechanical		
Contact Engaging Force	15 N max.	Measure force to engage the tab into rec. contact. at rate of 25mm/min.
Contact Disengaging Force	4 N min.	Measure force to disengage the tab. from rec. contact at rate of 25mm/min.
Contact Retention Force	60 N min.	Measure contact retention force. Tyco Spec. 109-30.
Crimp Tensile	Wire Size (mm²) / Force (N) 0,5 / 80 1,0 / 160 1,5 / 200 2,5 / 250 4,0 / 350	Determine crimp tensile at a rate of 25mm/min. Tyco Spec. 109-16.
Mating Force	100 N max.	Measure force necessary to mate connector assembly with locking latches at rate of 25mm/min. Tyco Spec. 109-42 condition A.
Unmating Force	50 N min.	Measure force necessary to unmate connector assembly with locking latches at rate of 25mm/min. Tyco Spec. 109-42 condition A.
Environmental		
Thermal Shock	See note (a)	Subject mated connectors to: 14 cycles each consisting of: - 16 hours at 40 ± 2º C - 90-95% humidity - 2 hours at - 40 ± 2º C - 2 hours at 125 ± 2º C - 4 hours at 23 ± 2º C (max. time to change condition 3 min), 15th cycle: exposure for 24 hours at 40 ± 2º C - 90-95% humidity
Temperature Life	See note (a)	Subject mated connectors to temperature life at 125ºC for 96 hours duration Tyco Spec. 109-43.
Salt-Spray Corrosion	See note (a)	Subject mated connectors to 5% NaCl concentration for 150 hours (35 ± 2º C).
Water-Tight Sealing	No water leakage into housing	According to IEC 529 IPX. 4. 30 minutes for each axis.
UV Protection	No evidence of abnormalities such as cracks, damages, breakage, loose and loss of component parts, fusion and deformation that are detrimental to connector functions.	Subject mated connector to u.v. exposure in a Atlas weather-ometer during 292 cycles according to ASTM G53. Each cycle consists of: - 102 min u.v. exposure at 45º C and 50% humidity. - 18 min u.v. and water exposure at 45º C.

Figure 1 (end)

Note (a) : *Shall meet visual requirements, show no physical damage, and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.*

6. TEST SEQUENCE

All tests shall be performed in the sequence specified in Figure 2 .

***Note** : Numbers indicate sequence in which tests shall be performed*

TEST DESCRIPTION	GROUPS AND SEQUENCE								
	A	B	C	D	E	F	G	H	I
Examination of Product	1,5	1,3	1,5	1,11	1,11	1,6	1,3	1,3	1,4
Voltage Drop	2,4			2,7	2,7	4			
Insulation Resistance				3,8	3,8	2,5			
Dielectric Withstanding Voltage									2
Current Cycling	3								
Temperature Rise		2							
Contact Engaging Force			2						
Contact Disengaging Force			3						
Contact Retention Force									3
Crimp Tensile			4						
Mating Force				4,10	4,10				
Unmating Force				5,9	5,9				
Thermal Shock				6					
Temperature Life					6				
Salt-Spray Corrosion						3			
Water Tight Sealing							2		
U. V. Protection								2	

Figure 2

7. QUALITY ASSURANCE PROVISIONS

7.1 Qualification Testing

Connector housings and contacts shall be prepared in accordance with applicable Instructions Sheets . They shall be selected at random from current production . Each group of the sample contacts shall consist of more than 30 sets of prepared contacts and connector sample group shall consist of more 5 sets of assembled connectors .

7.2 Requalification Testing

If changes significantly affecting form , fit or function are made to the product or to the manufacturing process , product assurance shall coordinate requalification testing consisting of all or part of the original testing sequence as determined by Product Engineering .

7.3 Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 2 . Failures attributed to equipment , test set-up 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 resubmitted .

7.4 Quality Conformance Inspection

The applicable Tyco Quality Inspection Plans will 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 .

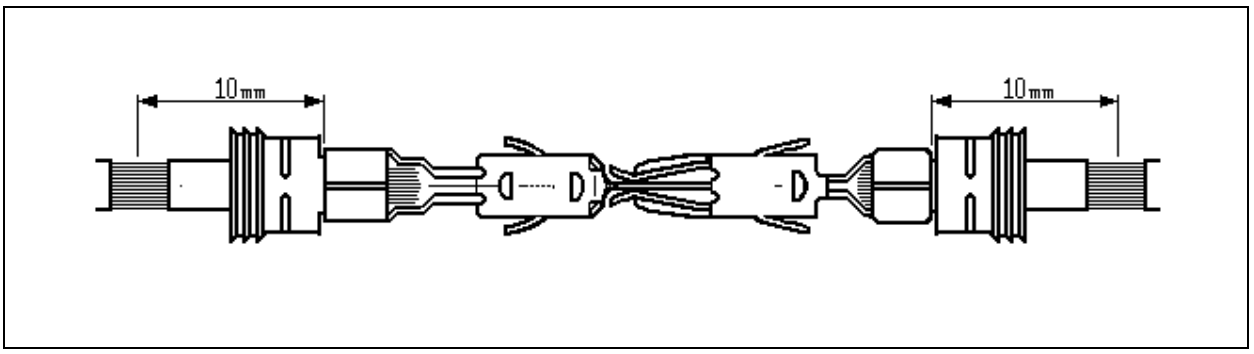

Figure 3

Revision Record		
Revision	**Date**	**Description**
O	17-Oct-1995	Released
A	13-Jun-1996	Revised by EC LB00-0223-96
B	31-May-2004	Revised by EC LE10-0039-04