Design Objectives

This product described in this document has not been fully tested to insure conformance to the requirements outlined below. Therefore, TE-Brazil makes no representation or warranty, express or implied that the product will comply with these requirements. Further, TE-Brazil may change these requirements based on the results of additional testing and evaluation.

1. SCOPE

1.1 Content

This specification Fuse Box Frame the requirements for product performance, test method and quality assurance provisions of:

TE P/N	TRADE MARK DESCRIPTION	WIRE RANGE (for contact only)
444308-1 444308-2	FRAME FUSE RELAY BOX	-----
444442-1 444442-2	RELAY ADAPTOR	-----
881569-1 881569-2	FUSE BOX FRAME	-----
444313-1	HSG ASS'Y 9 POSN	-----
444314-1	HSG ASS'Y 9 POSN	-----
493688-1	HSG 12 POS. FUSE CONTACT BUSBAR	-----
493814-1	COVER HSG	-----
1-881570-1	HSG 9 POS.	-----
444309-1	HSG ASS'Y POWER GROUND	-----
444311-1	HSG 12 POS. FUSE CONTACT BUSBAR	-----
444312-1	HSG 12 POS. FUSE CONTACT BUSBAR	-----
444510-1	HSG 12 POS.	-----

Table 1

1.2 Qualification

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

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2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified here. 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 TE Documents

a.	109-1	General Requirements for Test Specifications;
b.	108-37011	Product specification for Fuse Contact;
c.	108-18013-1	Product specification for Jr. Power Timer;
d.	108-18025-1	Product specification for Std Power Timer;
e.	108-18120-1	Product specification for Positive Lock;
f.	108-18055	Product specification for Micro Timer II Rec;
g.	114-18037	Application specification for Standard Power Timer Rec;
h.	114-18081	Application specification for Micro Timer II Rec.

3. QUALITY ASSURANCE PROVISIONS

3.1 Sample Preparation

The test samples to be used for the tests shall be prepared by randomly selecting them from the current production. No sample shall be reused, unless otherwise specified.

3.2 Test conditions

All the tests shall be performed under the combination of the following test conditions, unless otherwise specified.

Room Temperature: 23 ± 5ºC
Relative Humidity: 45-75%
Atmospheric Pressure: 860 –1060 mbar

4. REQUIREMENTS

4.1 Design and Construction

Products shall be according to design, construction and physical dimensions specified on the applicable drawings.

4.2 Materials

According to product drawing.

4.3 Ratings

Working Temperature:	-40℃ to 85℃;
Operating Voltage:	24Vdc;
Vibration Level:	On body or chassis.

4.4 Performance and Test Description

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

4.5 Test Requirements and Procedures Summary

CONNECTOR ELECTRICAL TESTS			
ITEM	**TEST**	**REQUIREMENTS**	**PROCEDURES**
4.5.1	Visual Examination	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part. Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	Visually, dimensionally and functionally inspected per applicable quality inspection plan.
4.5.2	Dielectric Withstanding Voltage	No break down or flash-over when 1KVAC is applied for one minute.	Test between adjacent contacts of mated connector assembly.
4.5.3	Insulation Resistance	200 megohms minimum.	Test between adjacent contacts of mated connector assembly.
CONNECTOR SYSTEM MECHANICAL TESTS			
ITEM	**TEST**	**REQUIREMENTS**	**PROCEDURES**
4.5.4	Vibration Sinusoidal High Frequency	No discontinuities greater than 1 microsecond.	Subject Fuse box assembled with all components (Including fuses and relays) to 10G's, between 10 to 500 Hz traversed in 15 min., 8hours in each of 3 mutually perpendicular planes.
4.5.5	Housings Retention Force (Internal cavities)	300 N minimum	Measure forces necessary to dislodge Blade Fuse Holder, Diode Holder and Automatic Fuse Holder, Std. And Mini Relay Holder from Fuse Box Frame at a rate of 25mm/min.
4.5.6	Housings Retention Force (External cavities)	100 N minimum	Measure force necessary to dislodge Relay Holder and Power-Ground connector at a rate of 25mm/min.

Table 2

CONNECTOR SYSTEM MECHANICAL TESTS			
ITEM	**TEST**	**REQUIREMENTS**	**PROCEDURES**
4.5.7	Relay insertion force	70 N maximum(Std. relay) 55 N maximum(Mini relay)	Measure force necessary to insert the relay into the housing.
4.5.8	Relay extraction force	30 N minimum (Std. relay) 20 N minimum(Mini relay)	Measure force necessary to remove the relay from the housing.
4.5.9	Contact insertion force	17 N maximum (SPT, JPT, Posit. lock, Fuse contact) 40 N maximum-.375 Fastin-on	Measure force necessary to insert the terminal into the housing.
4.5.10	Contact retention force	100 N minimum(SPT) 80 N minimum (JPT, Positive Lock, Fuse contact) 150 N (.375 Fastin-on)	Measure force necessary to remove the terminal from the housing.
4.5.11	Blade Fuse, Automatic Fuse and Diode insertion Force	40 N maximum	Measure force necessary to insert the blade fuse/diode into the housing.
4.5.12	Blade Fuse, Automatic Fuse and Diode retention force	20 N maximum	Measure force necessary to remove the blade fuse/diode from the housing.
UNSEALED CONNECTOR ENVIRONMENTAL TESTS			
ITEM	**TEST**	**REQUIREMENTS**	**PROCEDURES**
4.5.13	Thermal Shock	All mechanical assists and/or other elements required to separate connectors for service must function without breakage	Subject Fuse Box Frame assembled with all components to : 5 cycles each consisting of : - 4 hours at 85 ± 2℃; - 4 hours at - 40 ± 2℃.
4.5.14	Temperature Life	All mechanical assists and/or other elements required to separate connectors for service must function without breakage	Subject mated connectors to temperature life at 90℃ for 200 hours duration.
4.5.15	Flammability	Burn rate < 100mm/min.	Subject Polymeric materials bars to flame acc.

Continuation Table 2

WARNING!

Tested products shall be conforming to the requirements of the visual inspection without physical damage, also meeting the requirements of the additional tests specified in the sequence tests specified in table 4.

4.6 Test Sequence

ITEM	TEST	TEST GROUP					
		1	2	3	4	5	6
		TEST SEQUENCE					
4.5.1	Visual Examination	1, 4	1, 5	1, 8	1, 5	1, 5	1, 3
4.5.2	Dielectric Withstanding Voltage	2					
4.5.3	Insulation Resistance	3					
4.5.4	Vibration		4				
4.5.5	Housing Retention Force (Internal Cavities)			7	4	4	
4.5.6	Housing Retention Force (External Cavities)			6	3	3	
4.5.7	Relay insertion force			4			
4.5.8	Relay extraction force			5			
4.5.9	Contact insertion force			2			
4.5.10	Contact extraction force			3			
4.5.11	Blade fuse / diode insertion force		2				
4.5.12	Blade fuse / diode retention force		3				
4.5.13	Thermal Shock				2		
4.5.14	Temperature Life					2	
4.5.15	Flammability						2

Table 3

WARNING! The numbers in the columns indicate the sequence in which the tests are performed.

History					
Rev.	Date	Description	Prepared	Checked	Approved
A	31-Jan-2014	Released	G. Oliveira	D. Oliveira	J. Meneghin