VALUSEAL SEALED CONNECTOR SYSTEM

1.0 SCOPE

This Product Specification covers 4.0 mm centerline pitch wire to wire sealed connector system terminated with 16 to 18 AWG wire using Crimp technology with Tin plating

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

PLUG HSG WITH INTEGRATED SEAL	172877
RECEPTACLE HSG WITH INTEGRATED SEAL	172878
VOID PLUG	173061
MALE CRIMP TERMINAL	173041
FEMALE CRIMP TERMINAL	173042

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

As per Sales Drawing: SD-172877-0001, SD-172878-0001, SD-173061-0001, SD-173041-0001 & SD-173042-0001

2.3 SAFETY AGENCY APPROVALS

UL FILE NUMBER: E29179

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Product Specification: 1728770001-PS

Sales Drawing: SD-172877-0001, SD-172878-0001, SD-173061-0001, SD-173041-0001 &

SD-173042-0001

4.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with **EIA-364**.

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5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.1.1	Contact Resistance(Low level) TR 52455	Mate connectors and apply maximum voltage of 20mV and a maximum current of 100 mA per EIA-364-23C.(Wire and terminal resistance shall be removed from the measured value)	10 milliohms Maximum [Initial]	2.07 mΩ	1.88 mΩ	2.52 mΩ
5.1.2	Insulation Resistance TR 52455	Mate connectors, Apply a voltage of 500V DC between adjacent terminals or ground per EIA-364-21C	1000 Mega ohms Minimum	50.0GΩ		
	Dielectric		No breakdown	Meets Requirement		nent
5.1.3	Withstanding Voltage TR 52455	1000 VAC plus twice rated voltage Per UL 1977 (1.5KVAC)	Current Leakage; 5 milliamps MAXIMUM	0.025	0.024mA	0.028 mA

5.1.4 CURRENT RATING AND APPLICABLE WIRES*

Wire to Wire Current Rating (Amp Max.)					
(Tested wit	th TIN plated terminals)				
Connector fully loaded with all circuits powered					
AWG Wire Size	Circuit Size (Single Circuit Si Row) Row				
	2	4			
16	11.5***	11.0**			
18	10.0***	9.5**			

^{*}For maximum cable outside diameter details refer applicable sales drawing.

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^{**}Ratings represent maximum current carrying capacity, based on 30°C maximum temperature rise (t-rise) above ambient. Current rating is application dependent and should be evaluated for each specific application.

^{***}Estimated values

5.1.5 18-DAY CURRENT CYCLING

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.1.5	18- Day current Cycling TR 52455	Measure the temperature rise Per EIA-364-55 Test condition A	+30°C MAXIMUM RISE	11	0 A @ 30.88	o° C

5.2 MECHANICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
		Mating (Max)	50 N MAX	32.90 N	26.20 N	42.40 N
5.2.1	Connector mate	Unmating with Lock engaged (Min)	90 N MIN	142.00N	138.00 N	146.00 N
5.2.1	and unmate	Unmating with Lock disengaged (Min)	14 N Min	26.50 N	18.30 N	33.00 N
5.2.2	Crimp Terminal Insertion Force(into Housing)	Initial	45 N MAXIMUM	14.50 N	9.30 N	33.20 N
5.2.3	Crimp Terminal Retention Force(from Housing)	Initial	35 N MINIMUM	44.40 N	35.20 N	68.50 N
5.2.4	Thumb latch operational force at 1.8mm deflection TR 52455	First Cycle	53 N MAXIMUM	31.44 N	28.79 N	37.49 N
5.2.5	Thumb Latch Yield Strength TR 52455		89 N MINIMUM	145.33 N	143.60 N	146.80 N

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5.2 MECHANICAL PERFORMANCE RESULTS (continued)

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.2.6	Wire crimp Pullout Force	16 AWG	133 N MINIMUM	149.90N	134.44 N	172.82 N
5.2.0	(Axial) TR 52455	18 AWG	89 N MINIMUM	127.27N	93.23N	191.16 N
F 0.7	Durability	See Section 6.0 for Test	DWV-1500 V AC	Meets requirement		
5.2.7	TR 52455	Sequence EIA- 364-1000 Test Group 7A	IR-1000 Megaohms Min	Meets requirement		ment
5.2.8	Durability TR 52455	See Section 6.0 for Test Sequence EIA- 364-1000 Test Group 7B	10 milli ohms Maximum (Change from Initial)	0.12mΩ	0.05 mΩ	0.22 mΩ
5.2.9	Mechanical shock &	See Section 6.0 for Test Sequence EIA-	10 milliohms Maximum (change from initial)	0.07mΩ	0.03 mΩ	0.14 mΩ
	Vibrations TR 52455	364-1000, Test Group 3	Discontinuity < 1 microsecond	Meets requirement		ment

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5.3 ENVIRONMENTAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
	Temperature	See Section 6.0 for Test Sequence EIA-364-	10 milliohms Maximum(change from initial)	0.11mΩ	0.09 mΩ	0.21 mΩ
5.3.1.1	Life TR 52455	1000 Test Group 1 (without reseating step)	Visual: No Damage	Meets requireme		nent
		See Section 6.0 for Test Sequence	15 milliohms Maximum(change from initial)	2.54 mΩ	0.61 mΩ	13.83mΩ
5.3.1.2	Temperature Life TR 52455	EIA-364- 1000 Test Group 1 Y (with reseating step)	Visual: No Damage	Me	Meets requirement	
5.3.2	Thermal shock & Humidity TR 52455	See Section 6.0 for Test Sequence EIA-364-	10 milliohms Maximum(change from initial)	0.02mΩ	-0.12 mΩ	0.22 mΩ
	11(32433	1000 Test Group 2	Visual: No Damage	Me	ets requirer	nent
5.3.3	Thermal cycling	See Section 6.0 for Test Sequence EIA-364-	10 milliohms Maximum(change from initial)	1.30mΩ	0.51 mΩ	5.28 mΩ
	TR 52455	1000 Test Group 5	Visual: No Damage	Meets requirement		nent
5.3.4	Cold Resistance TR 52455	See Section 6.0 for Test Sequence EIA-364- 1000 Test Group 1A	10 milliohms Maximum(change from initial)	0.07mΩ	-0.01 mΩ	0.11 mΩ

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5.3 ENVIRONMENTAL PERFORMANCE RESULTS (continued)

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	16 AWG 1061	18 AWG 1007	18 AWG 1095
5.3.6	Dust Test IP 6X - Fully populated (Report No:478763346 5-S1 and 4788124881- S1)	IP6X Per IEC 60529 (Category 2)	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of dust inside the connector post test	PASS	PASS	PASS
5.3.7	Dust Test IP 6X - Void plug populated (Report No:478763346	IP6X Per IEC 60529 (Category 2)	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	PASS	PASS	PASS
	5-S1 and 4788124881- S1)		No trace of dust inside the connector post test	PASS	PASS	PASS
5.3.8	Dust Test IP 6X - Fully populated (Report No:478763346 5-S1 and 4788124881- S1)	IP6X Per IEC 60529 (samples to be subjected for 85° C for 24 hours and subject it for IP6X) (Category 2)	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of dust inside the connector post test	PASS	PASS	PASS
5.3.9	Spray Test IP X4 - Fully populated (Report No:478763346 5-S1 and 4788124881- S1)	IP X4 Per IEC 60529	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of water drops inside the connector post test	PASS	PASS	PASS

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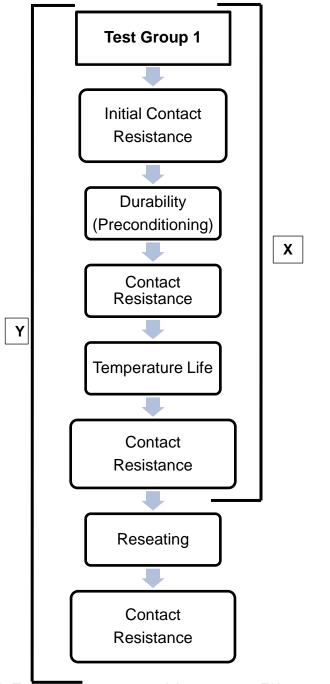
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ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	16 AWG 1061	18 AWG 1007	18 AWG 1095
5.3.10	Spray Test IP X4 - Void plug populated (Report No:4787633465-S1 and 4788124881- S1)	IP X4 Per IEC 60529	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of water drops inside the connector post test	PASS	PASS	PASS
5.3.11	Spray Test IP X4 - Fully populated (Report No:4787633465-S1	Fully populated (samples to be subjected for	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of water drops inside the connector post test	PASS	PASS	PASS
5.3.12	Water jet Test IP X5 - Fully populated (Report No:4787633465-S1 and 4788124881- S1)	IP X5 Per IEC 60529	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of water drops inside the connector post test	PASS	PASS	PASS
5.3.13	Water jet Test IP	IP X5 Per IEC 60529	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	PASS	PASS	PASS
			No trace of water drops inside the connector post test	PASS	PASS	PASS
5.3.14	Water jet Test IP X5 - Fully populated (Report No:4787633465-S1	IPX5 Per IEC 60529 (samples to be subjected for 85° C for 24	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	PASS	PASS	PASS
	and 4788124881- S1)	hours and subject it for IPX5)	No trace of water drops inside the connector post test	PASS	PASS	PASS

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Reliability Test Sequences Per 364-1000.01



Test Group 1A **Initial Contact** Resistance Durability (Preconditioning) Contact Resistance Temperature life - 40°C, 96 Hours Contact Resistance Reseating Contact

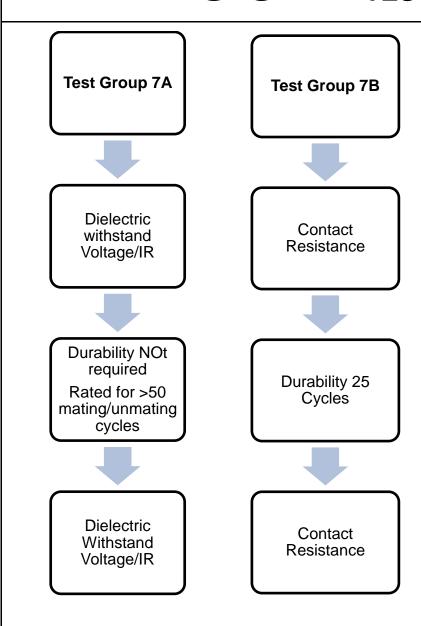
Resistance

*- Test sequence group 1A is not as per EIA -364-1000.01

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Test Group 5 Initial Contact Resistance **Test Group 3 Test Group 2** Durability (Preconditioning) **Initial Contact Initial Contact** Resistance Resistance Contact **Durability** Durability Resistance (Preconditioning) (Preconditioning) **Contact Resistance** Contact Resistance Temperature Life Temperature Life Thermal Shock Contact (preconditioning) Resistance Contact Resistance Contact Resistance Thermal Cycling (Low Level) 15°C to 85°C Cyclic Temperature & Humidity Vibration Contact Resistance Contact Resistance Contact Resistance Reseating Reseating Mechanical Shock Contact Contact Resistance Contact Resistance Resistance **REVISION:** ECR/ECN INFORMATION: TITLE: SHEET No. EC No: 167947 **Test summary for 9** of **10** Valuseal sealed connector system DATE: 10/11/2017 DOCUMENT NUMBER: CREATED / REVISED BY: CHECKED BY: APPROVED BY: 1728770001-TS Muttanna B Muttanna B Ishwar G



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