


NUMBER GS-12-1232	TYPE PRODUCT SPECIFICATION		
Minitek Pwr4.2 High Current Connectors		PAGE 1 of 6	REVISION B
		AUTHORIZED BY Kenny Tai	DATE 2014/07/17
		CLASSIFICATION UNRESTRICTED	

1 SCOPE

This specification defines the detailed requirements for the Minitek Pwr4.2 high current rating terminals when terminated with 16 to 20 AWG wires using crimp technology.

2 PRODUCT DESCRIPTION

2.1 Product Name and Applicable Series Numbers

<u>Product Name</u>	<u>Series Numbers</u>
Wire Connector, Receptacle HSG	10127815, 10122956
Wire Connector, Receptacle Crimp Terminal	10130517
Board Connector, V/T Header	10130671

2.2 Dimensions, Materials, Plating and Markings

See the appropriate drawings for the information on dimensions, materials, platings and markings.

3 APPLICABLE DOCUMENTS AND SPECIFICATIONS


- 3.1 See sales drawings and the other sections of this specification for the necessary referenced documents and specifications.
- 3.2 Application Specification: GS-20-0401

4 RATINGS

- 4.1 Ratings: 600 Volts AC (RMS) (or 600 Volts DC)
- 4.2 Applicable Wires and Current Rating

Applicable Wires

Applicable Wire Gauges and Maximum Insulation Diameter	16-20 AWG : 3.10mm MAX.
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Current Rating

MAXIMUM CURRENT RATING (Amperes)				
Circuits	2~3	4~6	7~10	12~24
AWG 16	12A	11A	10A	9A
AWG 18	12A	11A	* 10A	* 8.5A
AWG 20	9A	9A	8A	* 7.5A

Note: Current of remarked * are verified. The others are estimated and wait for verification.

4.3 Temperature

Operating: * -40°C ~ 105°C


Nonoperating: -40°C ~ 105°C

** Including 30°C terminal temperature rise at rated current*

5 PERFORMANCE


5.1 Electrical Requirements

Item	Description	Test Condition	Requirement
1	Contact Resistance (Low Level)	Mate connectors. Apply a maximum voltage of 20mV and a current of 100mA. Wire resistance shall be removed from the measured value.	10 milliohms MAXIMUM [initial]
2	Insulation Resistance	Mate connectors. Apply a voltage of 500VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
3	Dielectric Withstanding Voltage	Mate connectors. Apply a voltage of 1500VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown. Current leakage < 5mA
4	Temperature Rise (via Current Cycling)	Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state.	Temperature rise: +30°C MAXIMUM

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5.2 Mechanical Requirements

Item	Description	Test Condition	Requirement
1	Terminal Mate and Unmate Forces	Insert and withdraw terminal (male to female) at a rate of 25±6mm per minute.	14.7N MAXIMUM insertion force & 1.0N MINIMUM withdrawal force
2	Crimp Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25±6mm per minute.	30N MINIMUM retention force
3	Durability	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	20 milliohms MAXIMUM
4	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm	16 Awg: 88.0N Min. 18 Awg: 88.0N Min. 20 Awg: 59.0N Min. 22 Awg: 39.0N Min. 24 Awg: 29.0N Min. 26 Awg: 19.0N Min. 28 Awg: 9.80N Min.
5	Crimp Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm.	15.0N MAXIMUM insertion force
6	Receptacle Thumb Latch Strength	Mate connectors. Measure the force to pull connectors apart at a rate of 25 ± 6 mm per minute.	68N min.

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5.3 Environmental Requirements

Item	Description	Test Condition	Requirement
1	Thermal Shock	Mate connectors. Expose for 5 cycles between -55 and 105°C; Dwell 0.5 hours at each temperature	20 milliohms MAXIMUM; Visual: No Damage; Dielectric Strength per Section 5.1, item 5; Insulation Resistance per Section 5.1, item 4;
2	Humidity (Steady State)	Mate connectors. Expose to a teperature of 60 ± 2°C with a relative humidity of 90-95% for 96 hours.	20 milliohms MAXIMUM; Visual : No Damage; Dielectric Strength per Section 5.1, item 5; Insulation Resistance per Section 5.1, item 4;
3	Solderability	Solder Wetting 95% of immersed area must show no voids & pin holes.	Dip solder tails into the moiten solder(hold at 245 ± 5°C) up to 0.5mm from the tip of tails for 5 ± 0.5 sec.
4	Solder Resistance	Dip connector terminal tails in solder. Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 260 ± 5°C	Visual: No Damage to insulator material

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6 PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

Test of Examination	Test Group							
	A	B	C	E	F	G	H	
	Test Sequence							
Examination of Product	1	1, 11	1	1, 3	1,3	1,3	1	
Low Level Contact Resistance	2, 6	2, 6, 8						
Insulation Resistance		3, 9						
Dielectric Withstanding Voltage		4, 10						
Insertion Force (Max.)	3							
Extraction Force (Min.)	4							
Crimping Terminal Retention Force (Min.)							2	
Durability	5							
Wire Pull out force							3	
Thermal Shock		5						
Humidity Temperature Cycling		7						
Solderability					2			
Temperature Rise				2				
Resistance to soldering heat						2		
Receptacle Thumb Latch Strength			2					
Sample Size / Test Group	5	5	5	5	5	5	5	

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REVISION RECORD

<u>Rev</u>	<u>Page</u>	<u>Description</u>	<u>EC#</u>	<u>Date</u>
A	ALL	New Release		2014/06/12
B	2	Revise current rating spec. per test result	ELX-T-18326	2014/07/17