



Test Report: RCP-3K1U-48

1000 ~ 3000W 1U Distributed Power System

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	MAX. OUTPUT CURRENT	63A	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	63A
2	MAX. OUTPUT POWER	3024W	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	3024W

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C I/P : LOW-LINE-3V= 87V HIGH-LINE+15%=300 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	83 V~264V TEST : OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P : 100 VAC ~ 264 VAC O/P : FULL~MIN LOAD Ta : 25°C	TEST : OK
3	INPUT CURRENT(Typ.) FOR EACH UNIT	230V/ 5.5 A (TYP) 115V/ 11 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	S.P.S1: 5.11A / 230VAC 10.1A /115VAC S.P.S2: 5.1A / 230VAC 10.15A / 115VAC S.P.S3: 5.1A / 230VAC 10.1A / 115VAC
4	LEAKAGE CURRENT	< 3.5 mA / 230 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 2.9 mA N-FG : 2.9 mA

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	AUXILIARY POWER (AUX)	5V @ 0.3A (4.5V~5.3V)	I/P: 230 VAC O/P:0.3A LOAD Ta:25°C	4.94V
2	REMOTE ON/OFF CONTROL	Rc+ / Rc- ON/OFF&- S SHORTS POWER ON ON/OFF&- S OPEN POWER OFF	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	S.P.S1:SHORT POWER ON OK OPEN POWER OFF OK S.P.S2: SHORT POWER ON OK OPEN POWER OFF OK S.P.S3: SHORT POWER ON OK OPEN POWER OFF OK
3	REMOTE SENSE	S+ / S- >0.5V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	>0.5 V
4	OUTPUT VOLTAGE PROGRAMMABLE	Adjustment of output voltage is allowable to 90 ~ 110% of nominal output voltage. Please refer to the Function Manual	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	External Resistor 90% Voltage= 1.1MΩ 110% Voltage= 13 KΩ
5	DC OK SIGNAL DC FAIL SIGNAL	High : When Vout ≤ 80% ± 5% Low : When Vout ≥ 80% ± 5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	S.P.S1:HIGH : 4.6V LOW: 0.2V S.P.S2:HIGH : 4.6V LOW: 0.2V S.P.S3:HIGH : 4.6V LOW: 0.2V
6	AC OK SIGNAL AC FAIL SIGNAL	Low : When input voltage is ≥ 82Vrms ± 4V. High : When input voltage in ≤ 82Vrms ± 4V.	I/P: TESTING O/P: FULL LOAD Ta:25°C	AC ≥ 84V : 0 V AC ≤ 82V : 4.86 V
7	OVER TEMP WARNING	T OK : When the internal temperature (TSW1 & TSW2 short) is within safe limit T-ALARM : When the internal temperature (TSW1 or TSW2 open) exceeds the limit of temperature alarm	I/P: 230 VAC O/P:FULL LOAD Ta:TEST	S.P.S1:HIGH : 4.98V LOW: 0V S.P.S2:HIGH : 4.99V LOW: 0V S.P.S3:HIGH : 4.98V LOW: 0V
8	FAN SPEED CONTROL	Fan Voltage : NO LOAD:8.7V ± 1V 100% LOAD:11.8V ± 0.6V	I/P: 230 VAC O/P:TESTING Ta:25°C	Fan Voltage: NO LOAD: 8.16 V 100% LOAD: 11.8 V
9	CURRENT SHARING	RACK1-RACK2 -RACK3 < 10%	I/P : 230 VAC O/P : FULL/50% LOAD Ta : 25°C	O/P : 100% RACK1 PIN W : 1112.9W RACK2 PIN W : 1107.1W RACK3 PIN W : 1112.1W O/P : 50% RACK 1 PIN W : 580.9 W RACK 2 PIN W : 544.5 W RACK 3 PIN W : 549.2 W

■ SAFETY & E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P : 3 KVAC/min I/P-FG : 2 KVAC/min O/P-FG : 0.7 KVDC/min	I/P-O/P : 3.6 KVAC/min I/P-FG : 2.4 KVAC/min O/P-FG : 0.84 KVDC/min Ta : 25°C	I/P-O/P : 12.63 mA I/P-FG : 8.81 mA O/P-FG : 0.002 mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P : 500VDC>100MΩ I/P-FG : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ	I/P-O/P : 500 VDC I/P-FG : 500 VDC O/P-FG : 500 VDC Ta : 25°C /70%RH	I/P-O/P : 16 GΩ I/P-FG : 30 GΩ O/P-FG : 8 GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	7 mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare			

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																												
1	TEMPERATURE RISE TEST	MODEL : RCP-3K1U-24 1. ROOM AMBIENT BURN-IN : 1.5HRS I/P: 230VAC O/P: FULL LOAD Ta= 36.5°C 2. HIGH AMBIENT BURN-IN : 3HRS I/P: 230VAC O/P: FULL LOAD Ta= 53.7°C	<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 36.5 °C</th> <th>HIGH AMBIENT Ta= 53.7°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>D2</td><td>38.7°C</td><td>51.9°C</td></tr> <tr><td>2</td><td>TSW1</td><td>44.6°C</td><td>58.4°C</td></tr> <tr><td>3</td><td>U1</td><td>40.7°C</td><td>54.3°C</td></tr> <tr><td>4</td><td>Q1</td><td>45.7°C</td><td>59.4°C</td></tr> <tr><td>5</td><td>BD1</td><td>49.1°C</td><td>62.6°C</td></tr> <tr><td>6</td><td>L2</td><td>59.2°C</td><td>72.4°C</td></tr> <tr><td>7</td><td>LF1</td><td>47.6°C</td><td>61.2°C</td></tr> <tr><td>8</td><td>C7</td><td>38.8°C</td><td>52.4°C</td></tr> <tr><td>9</td><td>D901</td><td>44.1°C</td><td>59.2°C</td></tr> <tr><td>10</td><td>T2 COIL</td><td>47.5°C</td><td>61.3°C</td></tr> <tr><td>11</td><td>Q906</td><td>61.1°C</td><td>74.9°C</td></tr> <tr><td>12</td><td>L100</td><td>62.7°C</td><td>76.8°C</td></tr> <tr><td>13</td><td>D101</td><td>63.9°C</td><td>77.8°C</td></tr> <tr><td>14</td><td>U2</td><td>42.4°C</td><td>58.1°C</td></tr> <tr><td>15</td><td>TSW2</td><td>58.1°C</td><td>71.8°C</td></tr> <tr><td>16</td><td>C110</td><td>56.1°C</td><td>69.7°C</td></tr> <tr><td>17</td><td>C75</td><td>40.1°C</td><td>54.2°C</td></tr> <tr><td>18</td><td>U507</td><td>46.1°C</td><td>59.4°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 36.5 °C	HIGH AMBIENT Ta= 53.7°C	1	D2	38.7°C	51.9°C	2	TSW1	44.6°C	58.4°C	3	U1	40.7°C	54.3°C	4	Q1	45.7°C	59.4°C	5	BD1	49.1°C	62.6°C	6	L2	59.2°C	72.4°C	7	LF1	47.6°C	61.2°C	8	C7	38.8°C	52.4°C	9	D901	44.1°C	59.2°C	10	T2 COIL	47.5°C	61.3°C	11	Q906	61.1°C	74.9°C	12	L100	62.7°C	76.8°C	13	D101	63.9°C	77.8°C	14	U2	42.4°C	58.1°C	15	TSW2	58.1°C	71.8°C	16	C110	56.1°C	69.7°C	17	C75	40.1°C	54.2°C	18	U507	46.1°C	59.4°C	
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 118% LOAD Ta:25°C	TEST : OK																																																																												
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100% LOAD Ta= -20°C	TEST : OK																																																																												
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 272 VAC O/P: FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK																																																																												
5	TEMPERATURE COEFFICIENT	± 0.02 % (0~50°C)	I/P: 230 VAC O/P: FULL LOAD	± 0.003 % (0~50°C)																																																																												
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		OK																																																																												
7	THERMAL SHOCK TEST	1. Thermal shock Temperature : -25°C~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec ; turn off 2sec		OK																																																																												



8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C	TEST : OK
9	CAPACITOR LIFE CYCLE	RCP-3K1U-24 : SUPPOSE C110 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 777098 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 176323 HRS	

TEST RESULT	TESTER	APPROVAL
PASS	SANFORD SU	VINCENT TSENG

12.10.30 A50-F031