

TEST DATA OF PLA100F-12

Regulated DC Power Supply
May 23, 2013

Approved by : Katsumi Ishikawa
Katsumi Ishikawa Design Manager

Prepared by : Naoki Fujita
Naoki Fujita Design Engineer

COSEL CO.,LTD.



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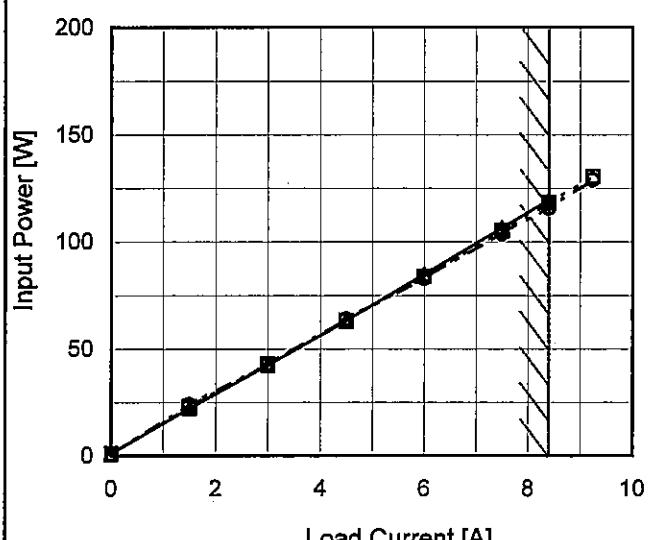
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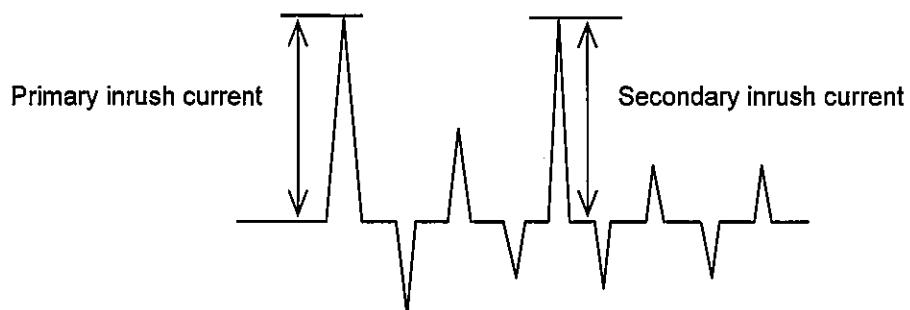
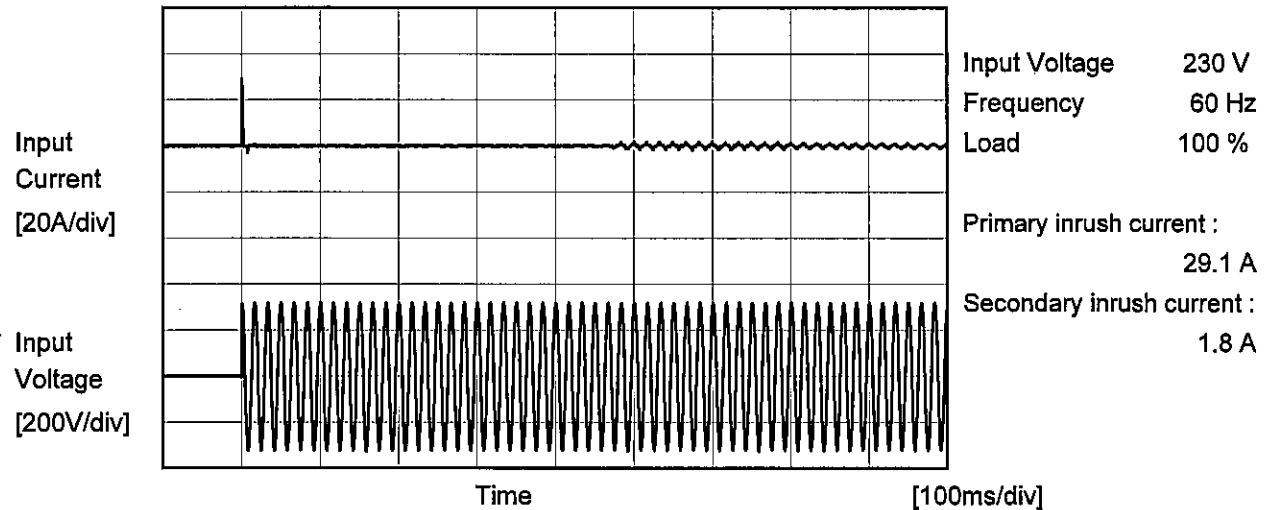
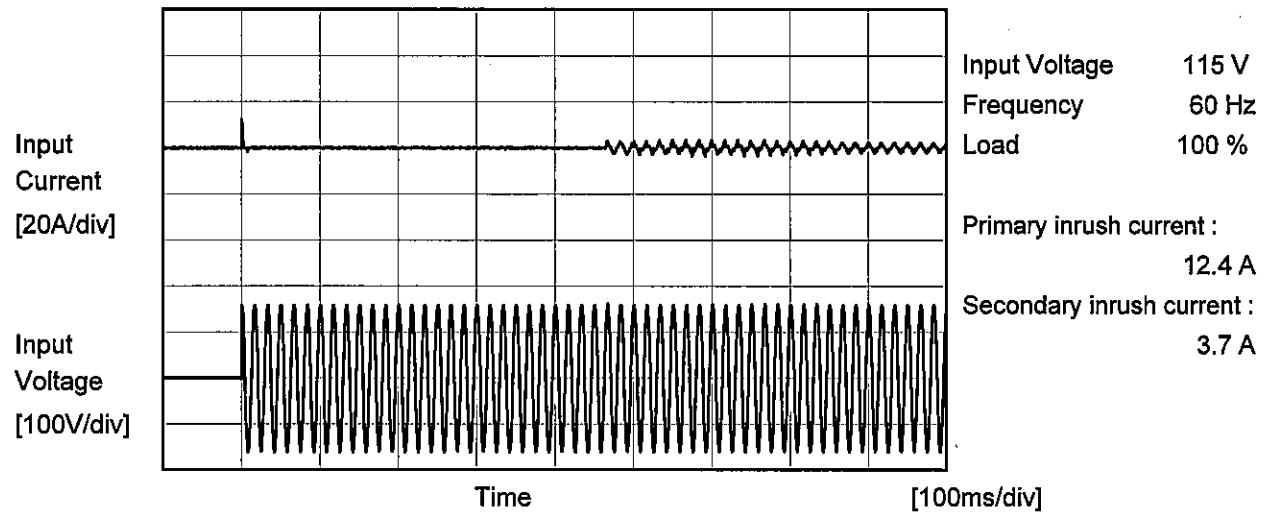
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Item	Inrush Current	
Object	—	





Model	PLA100F-12	Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure B
Object	_____		

1. Results

Standards		Input Volt.			Note
		100[V]	115[V]	240[V]	
DEN-AN	Both phases	0.34	0.34	0.62	Operation
	One of phases	0.30	0.34	0.77	Stand by
IEC60950-1	Both phases	0.25	0.28	0.55	Operation
	One of phases	0.27	0.32	0.71	Stand by

The value for "One of phases" is the reference value only.

2. Condition

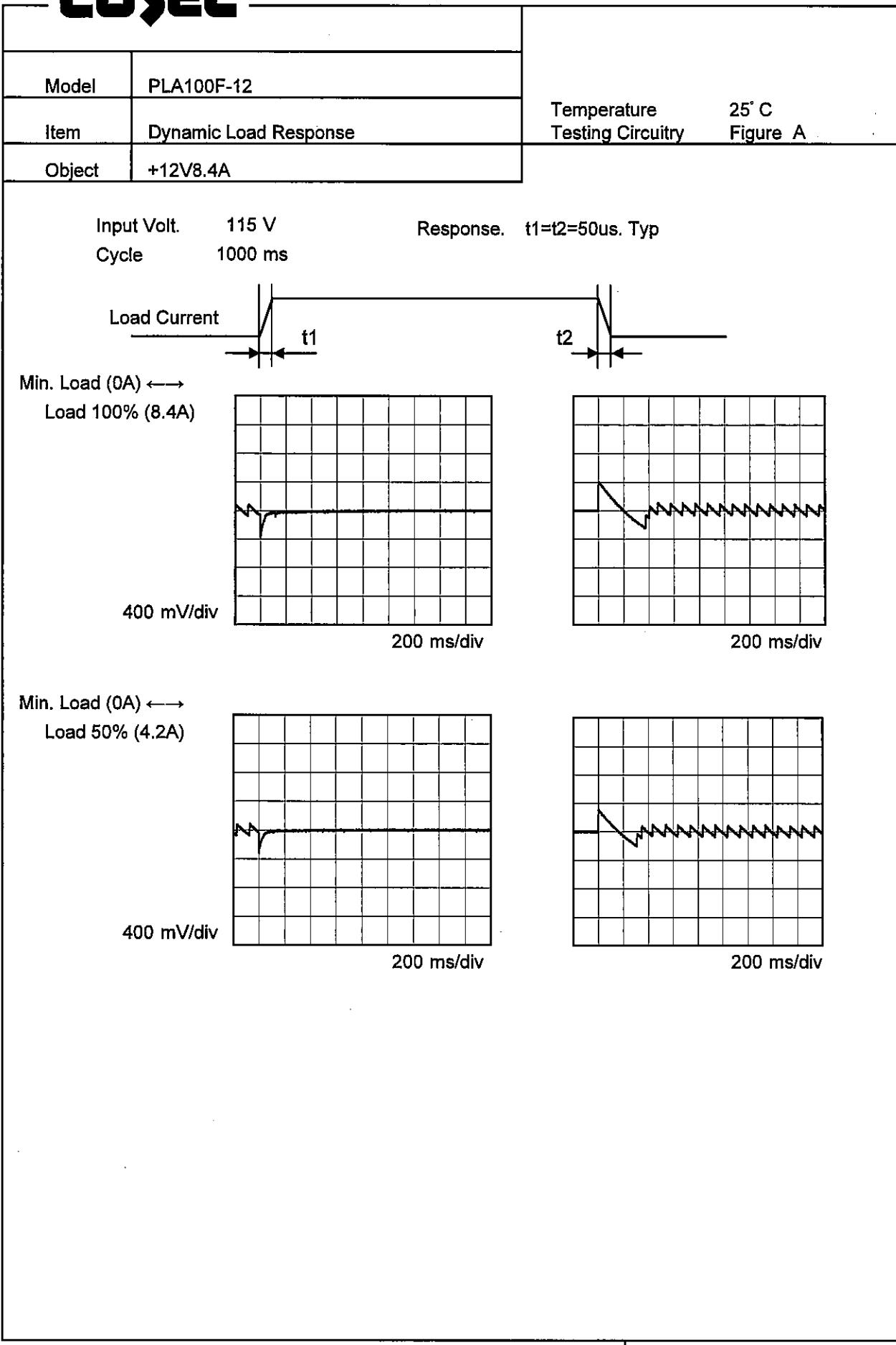
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

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COSEL

Model	PLA100F-12	Temperature Testing Circuitry	25°C Figure A																																																			
Item	Load Regulation																																																					
Object	+12V8.4A																																																					
1. Graph																																																						
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COSEL

Model	PLA100F-12	Temperature	25°C																																				
Item	Ripple Voltage (by Load Current)	Testing Circuitry	Figure C																																				
Object	+12V8.4A																																						
1. Graph			2. Values																																				
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 300 mV, and the X-axis ranges from 0 to 10 A. Two curves are plotted: Input Volt. 115V (solid line with triangle markers) and Input Volt. 230V (dashed line with circle markers). Both curves show a sharp increase in ripple voltage as load current increases beyond 8A.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (Input Volt. 115V)</th> <th>Ripple Voltage [mV] (Input Volt. 230V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>125</td><td>125</td></tr> <tr><td>1.50</td><td>20</td><td>30</td></tr> <tr><td>3.00</td><td>15</td><td>20</td></tr> <tr><td>4.50</td><td>15</td><td>20</td></tr> <tr><td>6.00</td><td>15</td><td>20</td></tr> <tr><td>7.50</td><td>15</td><td>20</td></tr> <tr><td>8.40</td><td>15</td><td>20</td></tr> <tr><td>9.24</td><td>20</td><td>25</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>				Load Current [A]	Ripple Voltage [mV] (Input Volt. 115V)	Ripple Voltage [mV] (Input Volt. 230V)	0.00	125	125	1.50	20	30	3.00	15	20	4.50	15	20	6.00	15	20	7.50	15	20	8.40	15	20	9.24	20	25	--	-	-	--	-	-	--	-	-
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<p>Diagram illustrating a Complex Ripple Wave Form. The Y-axis is labeled "Ripple [mVp-p]". The X-axis shows two time intervals: T1, which spans the entire width of the waveform, and T2, which spans the width of one cycle of the switching component.</p>																																							
<p>Fig. Complex Ripple Wave Form</p>																																							

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Model	PLA100F-12	Temperature 25°C Testing Circuitry Figure C																																						
Item	Ripple-Noise																																							
Object	+12V8.4A																																							
1.Graph		2.Values																																						
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COSEL

Model PLA100F-12 Item Ripple Voltage (by Ambient Temp.) Object +12V8.4A	Testing Circuitry Figure C																																							
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1.Graph	<p>--- □ --- Input Volt. 115V — ▲ — Input Volt. 230V</p> <p>Ripple Voltage [mV]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>																																							
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<p>Model</p> <p>Item</p> <p>Object</p>	<p>PLA100F-12</p> <p>Ambient Temperature Drift</p> <p>+12V8.4A</p>																																																			
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Model	PLA100F-12	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+12V8.4A	

1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -10 - 40°C

Input Voltage : 115 - 264V

Load Current : 2.52 - 8.4A

* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	115	2.52	12.060	±25	±0.2
Minimum Voltage	40	230	8.4	12.011		

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Model	PLA100F-12
Item	Time Lapse Drift
Object	+12V8.4A

1. Graph

Output Voltage [V]	12.016
Time [H]	0 to 8

Input Volt. 230V
Load 100%

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Time since start [H]	Output Voltage [V]
0.0	12.017
0.5	12.016
1.0	12.016
2.0	12.016
3.0	12.016
4.0	12.016
5.0	12.016
6.0	12.016
7.0	12.016
8.0	12.016

* The characteristic of AC115V is equal.

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Model	PLA100F-12	Temperature Testing Circuitry	25°C Figure A		
Item	Rise and Fall Time				
Object	+12V8.4A				
1.Graph					
Output Volt. [2V/div]	Load 100%	Input Volt. 115 V			
Output Volt. [2V/div]	Load 100%	Input Volt. 230 V			
Input Volt.					
	Time [100ms/div]	Time [50ms/div]			
2.Values [ms]					
Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	480.0	24.0	504.0	35.0	17.5
230 V	464.5	24.0	488.5	42.8	17.5

COSEL

Model	PLA100F-12	Temperature Testing Circuitry	25°C Figure A																																
Item	Hold-Up Time																																		
Object	+12V8.4A																																		
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<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>																																			

COSEL

Model	PLA100F-12	Temperature Testing Circuitry	25°C Figure A																																																			
Item	Instantaneous Interruption Compensation																																																					
Object	+12V8.4A																																																					
1. Graph																																																						
<p>Graph showing Instantaneous Compensation Time [ms] vs Load Current [A]. The Y-axis is logarithmic from 1 to 1000 ms. The X-axis is linear from 0 to 10 A. Three curves are shown for Input Volt. 100V (solid line with open squares), Input Volt. 115V (dashed line with open circles), and Input Volt. 230V (dash-dot line with open triangles). A slanted line indicates the rated load current range.</p>																																																						
2. Values																																																						
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Time [ms]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 115[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>1.50</td><td>186</td><td>189</td><td>215</td></tr> <tr> <td>3.00</td><td>94</td><td>97</td><td>120</td></tr> <tr> <td>4.50</td><td>62</td><td>64</td><td>80</td></tr> <tr> <td>6.00</td><td>45</td><td>48</td><td>60</td></tr> <tr> <td>7.50</td><td>33</td><td>35</td><td>44</td></tr> <tr> <td>8.40</td><td>24</td><td>26</td><td>33</td></tr> <tr> <td>9.24</td><td>11</td><td>12</td><td>21</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>				Load Current [A]	Time [ms]			Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]	0.00	-	-	-	1.50	186	189	215	3.00	94	97	120	4.50	62	64	80	6.00	45	48	60	7.50	33	35	44	8.40	24	26	33	9.24	11	12	21	--	-	-	-	--	-	-	-	--	-	-	-
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<p>Note: Slanted line shows the range of the rated load current.</p>																																																						

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Model Item Object	PLA100F-12	Testing Circuitry Figure A 2.Values																																					
	Minimum Input Voltage for Regulated Output Voltage																																						
	+12V8.4A																																						
	1.Graph																																						
<p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Legend:</p> <ul style="list-style-type: none"> Load 50% (Squares) Load 100% (Triangles) 																																							
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																							
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Model	PLA100F-12	Temperature Testing Circuitry 25°C Figure A																																									
Item	Overcurrent Protection																																										
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Note: Slanted line shows the range of the rated load current.

Intermittent operation occurs when the output voltage is from 4.5V to 0V.



Model	PLA100F-12	Testing Circuitry Figure A																																						
Item	Oversupply Protection																																							
Object	+12V8.4A																																							
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<p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p> <p>Legend: —▲— Input Volt. 115V ---□--- Input Volt. 230V</p>		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Operating Point [V]</th> </tr> <tr> <th>Input Volt. 115[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>14.95</td> <td>14.95</td> </tr> <tr> <td>-10</td> <td>14.95</td> <td>14.95</td> </tr> <tr> <td>0</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>10</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>20</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>25</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>30</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>40</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>45</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>50</td> <td>14.94</td> <td>14.94</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Ambient Temperature [°C]	Operating Point [V]		Input Volt. 115[V]	Input Volt. 230[V]	-20	14.95	14.95	-10	14.95	14.95	0	14.94	14.94	10	14.94	14.94	20	14.94	14.94	25	14.94	14.94	30	14.94	14.94	40	14.94	14.94	45	14.94	14.94	50	14.94	14.94	--	-	-
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Note: Slanted line shows the range of the rated ambient temperature.

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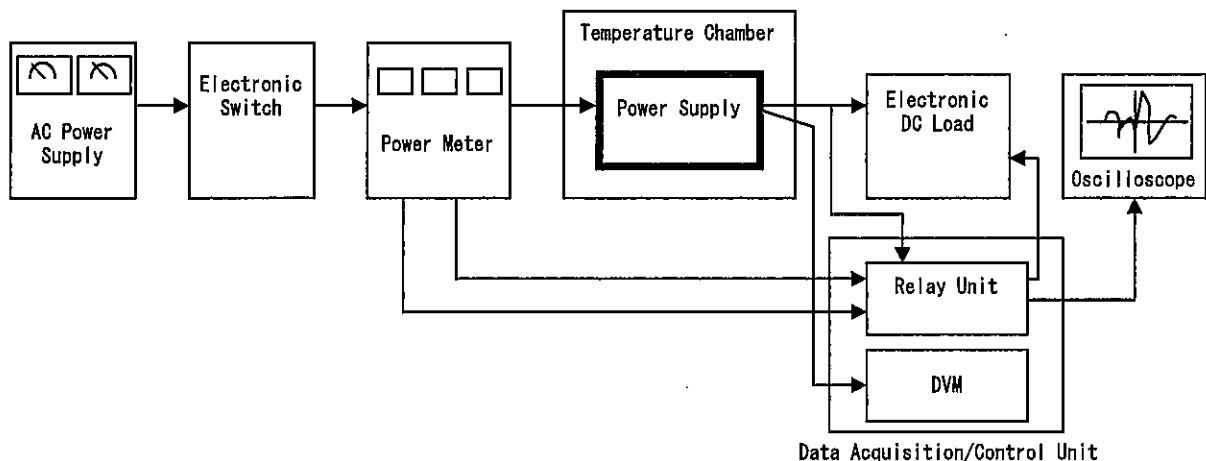


Figure A

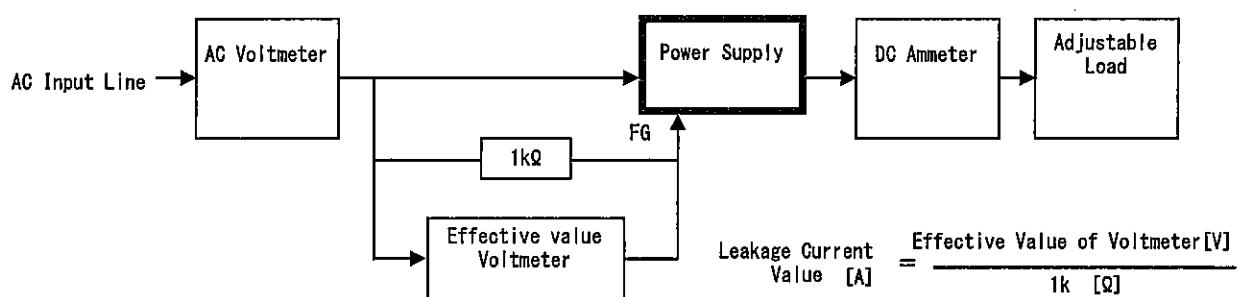


Figure B (DEN-AN)

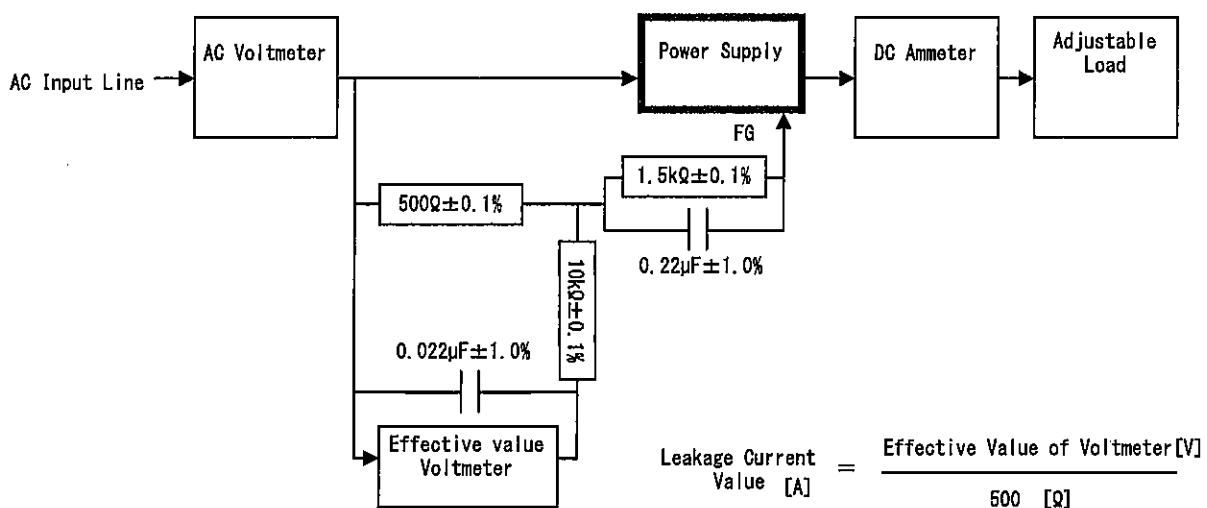


Figure B (IEC60950-1)

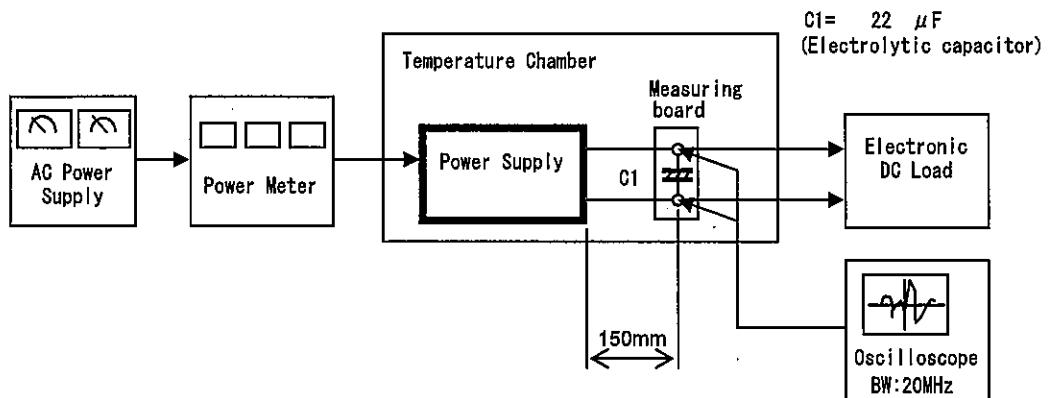
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Figure C