

TEST DATA OF PLA600F-48

Regulated DC Power Supply
August 19, 2011

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COSEL CO.,LTD.

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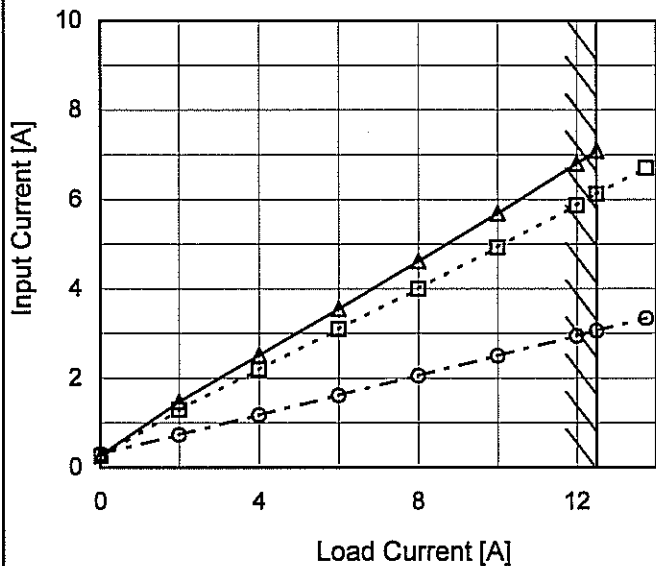
(Final Page 25)



Model	PLA600F-48
Item	Input Current (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1.Graph
 —△— Input Volt. 100V
 - - □ - - Input Volt. 115V
 - - ○ - - Input Volt. 230V



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	0.270	0.254	0.303
2.00	1.474	1.291	0.734
4.00	2.516	2.192	1.171
6.00	3.548	3.093	1.614
8.00	4.620	4.000	2.052
10.00	5.690	4.930	2.498
12.00	6.800	5.870	2.948
12.50	7.090	6.120	3.062
13.75	-	6.700	3.342
--	-	-	-
--	-	-	-

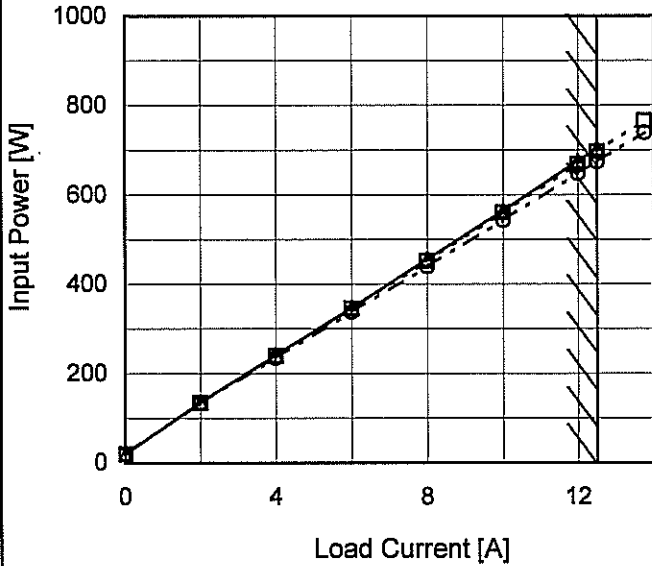


Model	PLA600F-48
Item	Input Power (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1. Graph

- △— Input Volt. 100V
- Input Volt. 115V
- Input Volt. 230V



Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	19.8	19.8	20.0
2.00	135.9	135.4	134.0
4.00	241.7	240.0	235.0
6.00	346.8	345.2	338.0
8.00	456.0	452.0	440.0
10.00	565.0	560.0	543.0
12.00	676.0	669.0	648.0
12.50	704.0	697.0	674.0
13.75	-	766.0	739.0
--	-	-	-
--	-	-	-



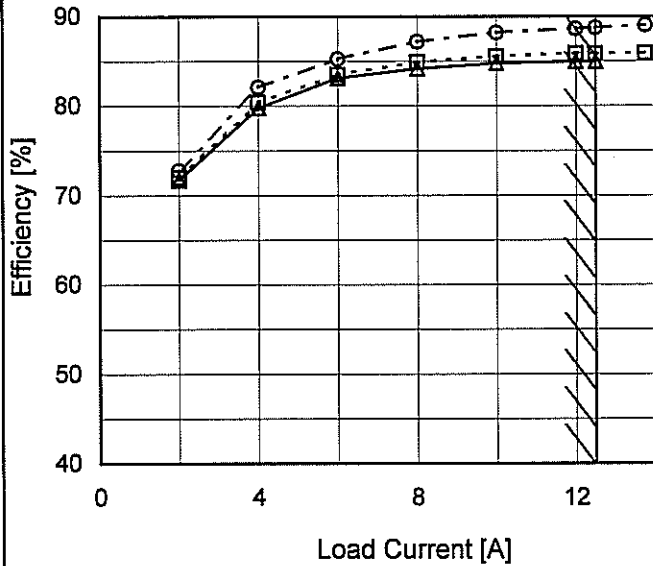
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<p>Note: Slanted line shows the range of the rated input voltage.</p>		<p>※1:Load 80% ※2:Load 90%</p>																																	



Model	PLA600F-48
Item	Efficiency (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1.Graph
 —△— Input Volt. 100V
 - - □ - - Input Volt. 115V
 - - ○ - - Input Volt. 230V



2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	-	-	-
2.00	71.7	72.0	72.8
4.00	79.8	80.4	82.1
6.00	83.1	83.5	85.3
8.00	84.2	84.9	87.2
10.00	84.8	85.5	88.2
12.00	85.0	85.9	88.6
12.50	85.0	85.8	88.8
13.75	-	85.9	89.0
--	-	-	-
--	-	-	-

Note: Sianted line shows the range of the rated load current.



Model		PLA600F-48		Temperature 25°C																																	
Item		Power Factor (by Input Voltage)		Testing Circuitry Figure A																																	
Object		_____																																			
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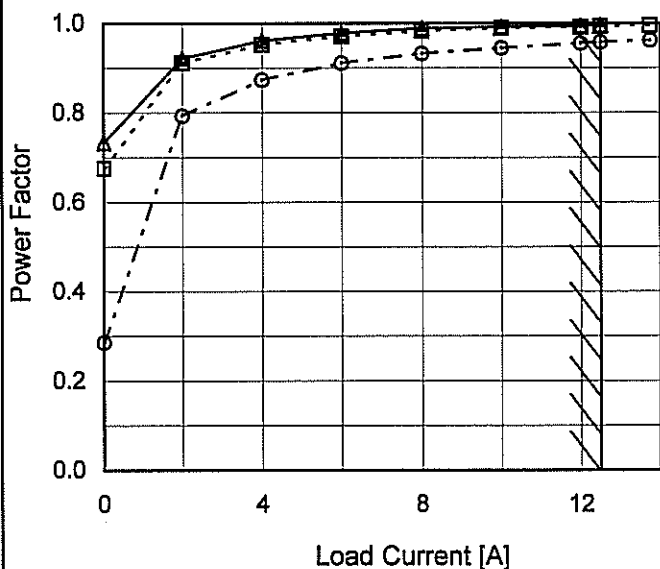


Model	PLA600F-48
Item	Power Factor (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1. Graph

—△— Input Volt. 100V
- - □ - - Input Volt. 115V
- - ○ - - Input Volt. 230V



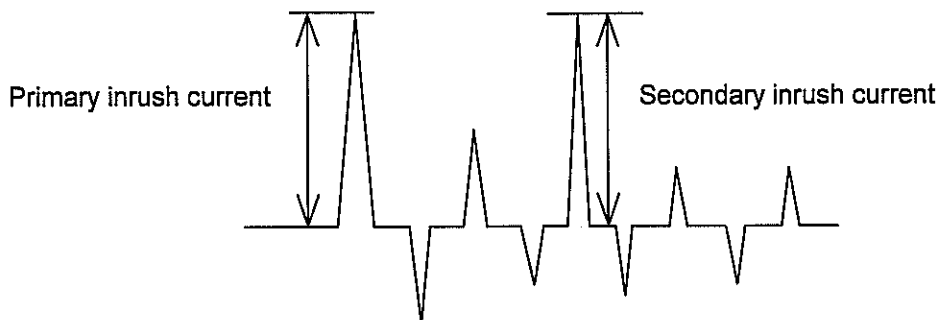
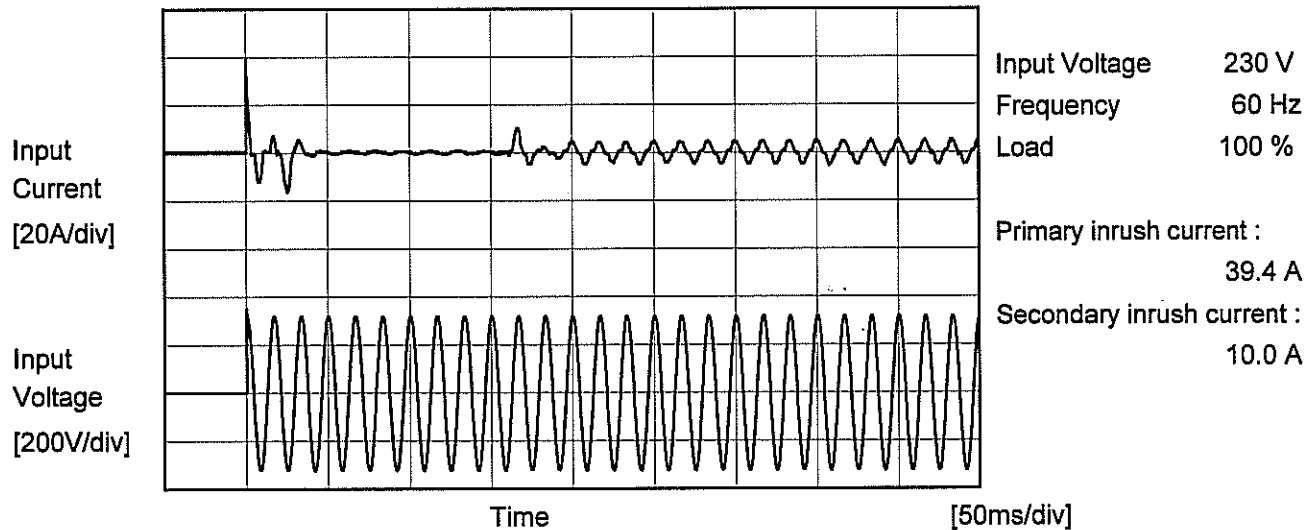
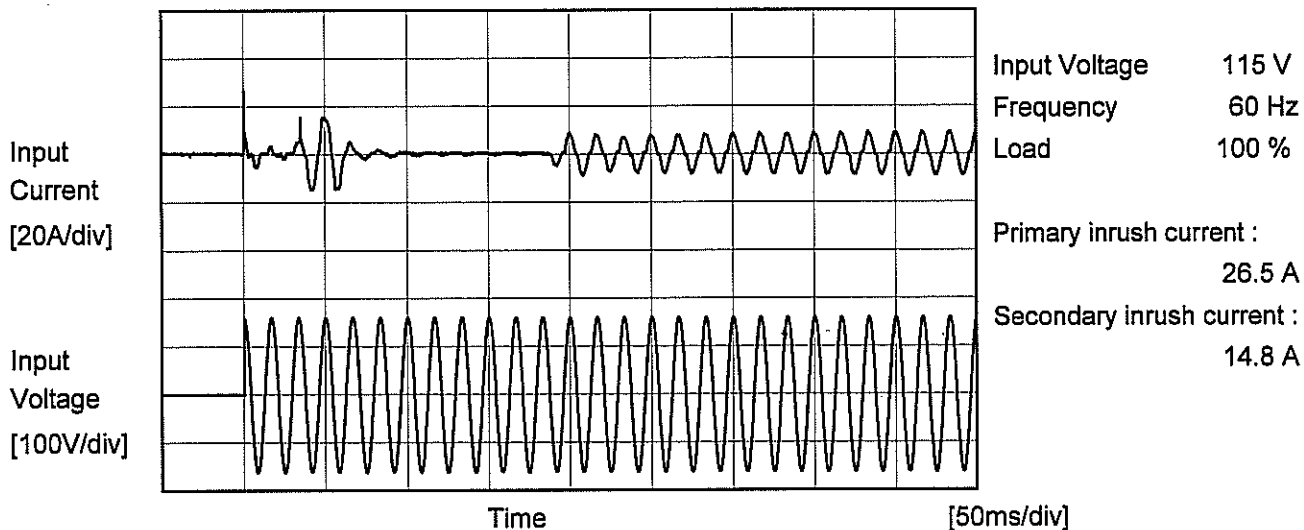
Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	0.733	0.676	0.286
2.00	0.922	0.912	0.793
4.00	0.961	0.952	0.874
6.00	0.979	0.971	0.911
8.00	0.989	0.983	0.932
10.00	0.993	0.989	0.944
12.00	0.994	0.991	0.956
12.50	0.996	0.993	0.957
13.75	-	0.995	0.962
--	-	-	-
--	-	-	-



Model		PLA600F-48	Temperature		25°C
Item		Inrush Current	Testing Circuitry		Figure A
Object		_____			





COSEL		Temperature 25°C Testing Circuitry Figure B
Model	PLA600F-48	
Item	Leakage Current	
Object	_____	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	115 [V]	240 [V]	
DEN-AN	Both phases	0.31	0.33	0.66	Operation
	One of phases	0.43	0.51	1.10	Stand by
IEC60950-1	Both phases	0.25	0.29	0.64	Operation
	One of phases	0.44	0.50	1.10	Stand by

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

2.Condition

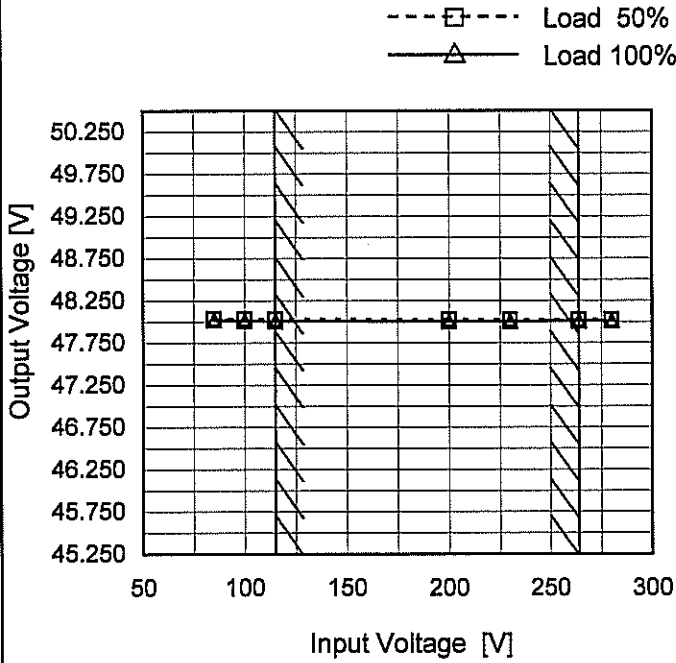
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.



Model	PLA600F-48
Item	Line Regulation
Object	+48V12.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	48.040	48.024 ※1
100	48.036	48.015 ※2
115	48.031	48.010
200	48.028	48.006
230	48.026	48.006
264	48.025	48.009
280	48.024	48.010
--	-	-
--	-	-

※1: Load 80%
 ※2: Load 90%



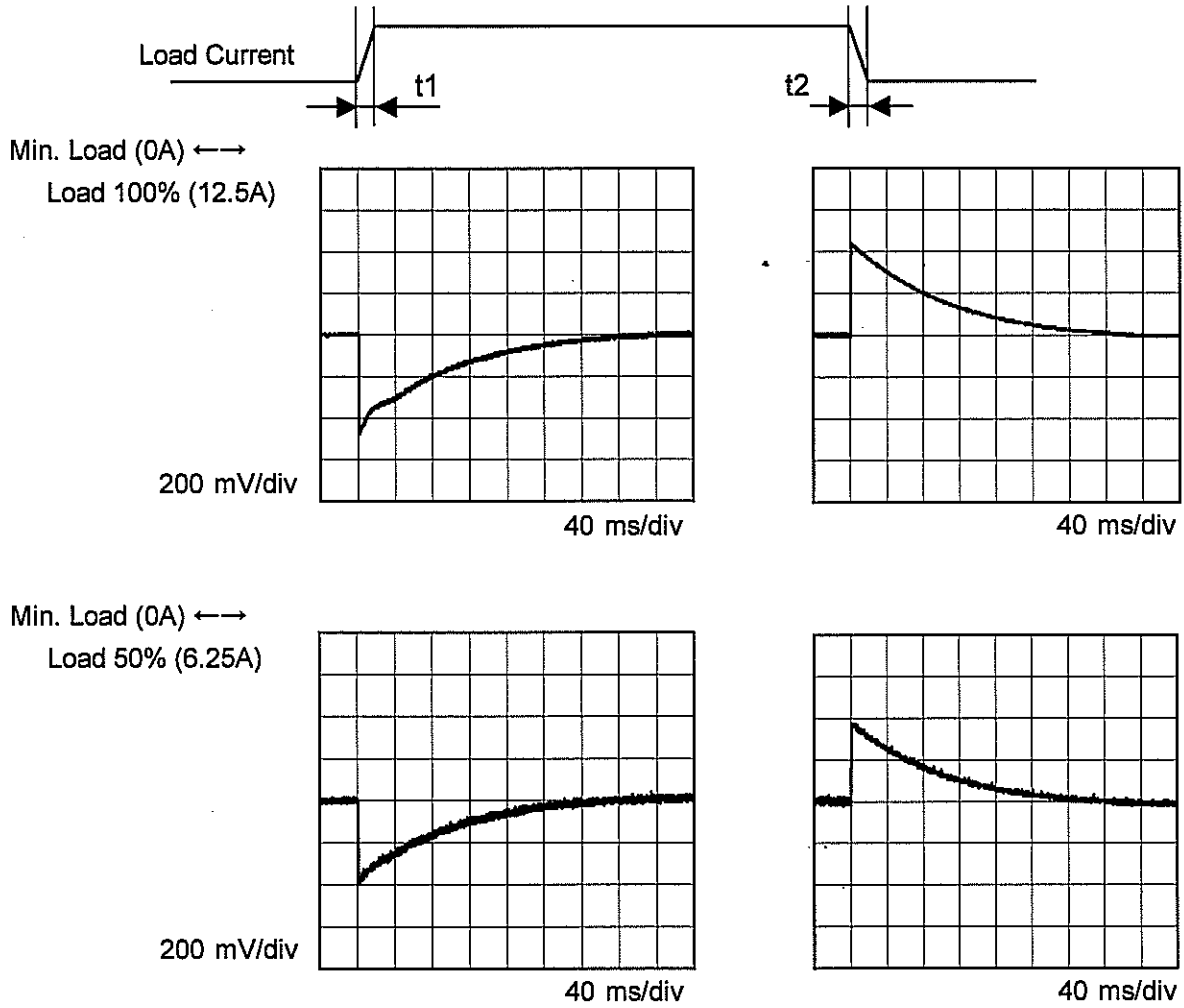
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Note: Slanted line shows the range of the rated load current.																																																								



Model	PLA600F-48	Temperature	25° C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+48V12.5A		

Input Volt. 115 V
Cycle 1000 ms

Response. $t_1=t_2=50\mu\text{s}$. Typ

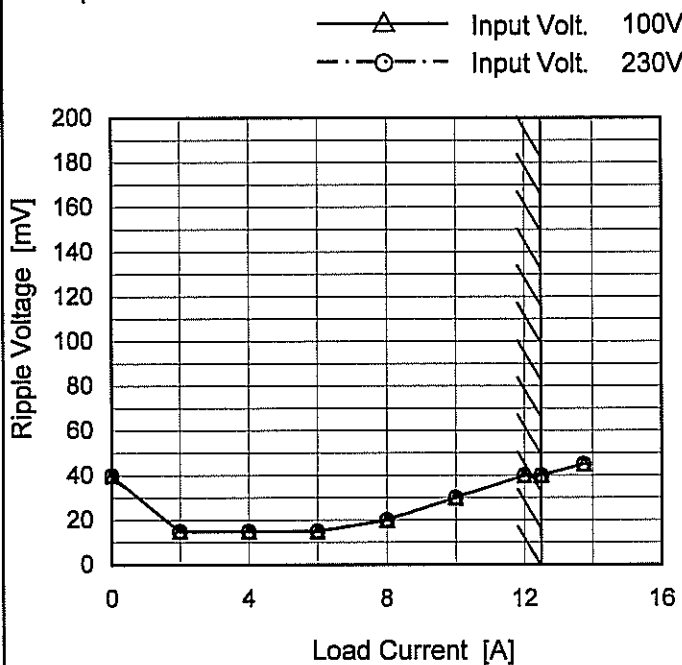




Model	PLA600F-48
Item	Ripple Voltage (by Load Current)
Object	+48V12.5A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
0.0	40	40
2.0	15	15
4.0	15	15
6.0	15	15
8.0	20	20
10.0	30	30
12.0	40	40
12.5	40	40
13.8	45	45
--	-	-
--	-	-

Measured by MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

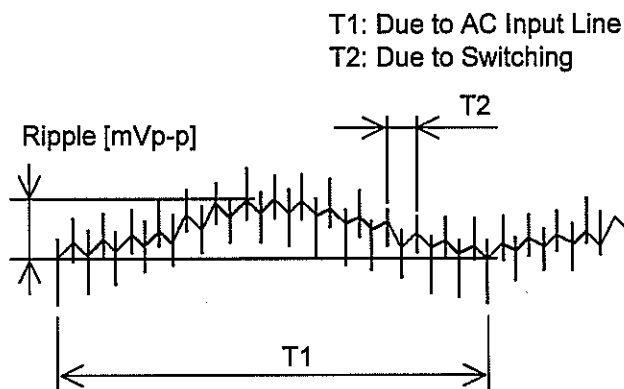


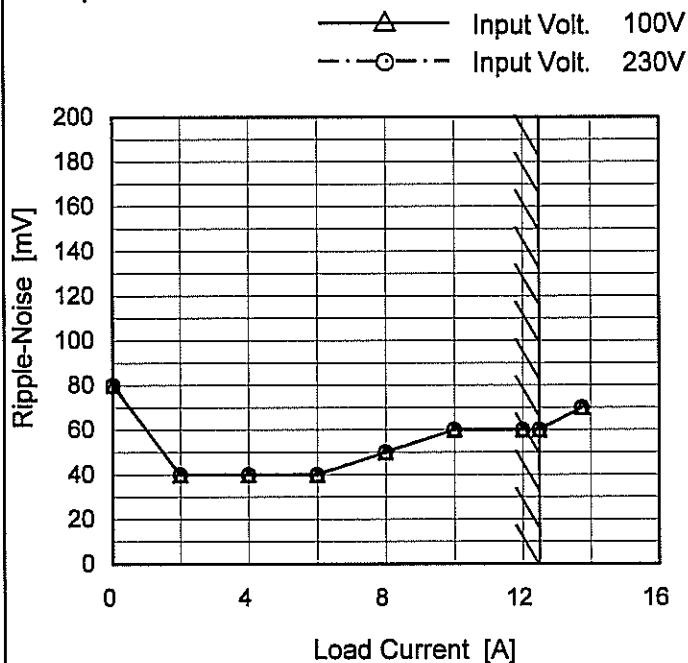
Fig. Complex Ripple Wave Form



Model	PLA600F-48
Item	Ripple-Noise
Object	+48V12.5A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



Measured by MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
0.0	80	80
2.0	40	40
4.0	40	40
6.0	40	40
8.0	50	50
10.0	60	60
12.0	60	60
12.5	60	60
13.8	70	70
--	-	-
--	-	-

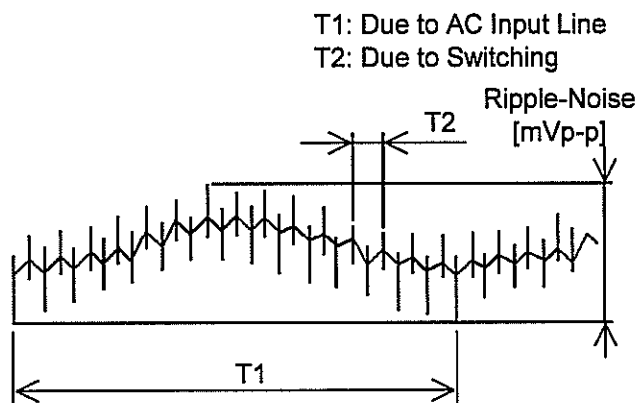


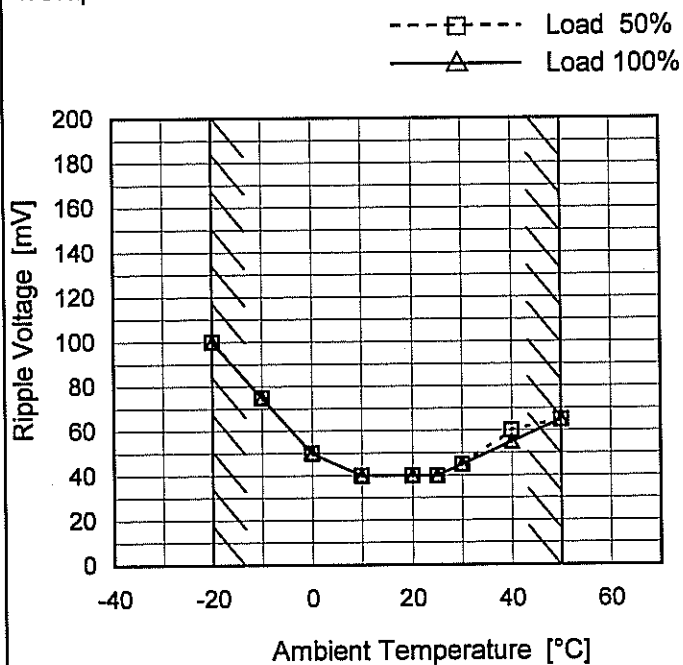
Fig. Complex Ripple Wave Form



Model	PLA600F-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V12.5A

Testing Circuitry Figure A

1. Graph



Measured by 20 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
-20	100	100
-10	75	75
0	50	50
10	40	40
20	40	40
25	40	40
30	45	45
40	60	55
50	65	65
--	-	-
--	-	-

Note: In case of Input Volt. 100V, Load 90%.
 Other case Load 100%.

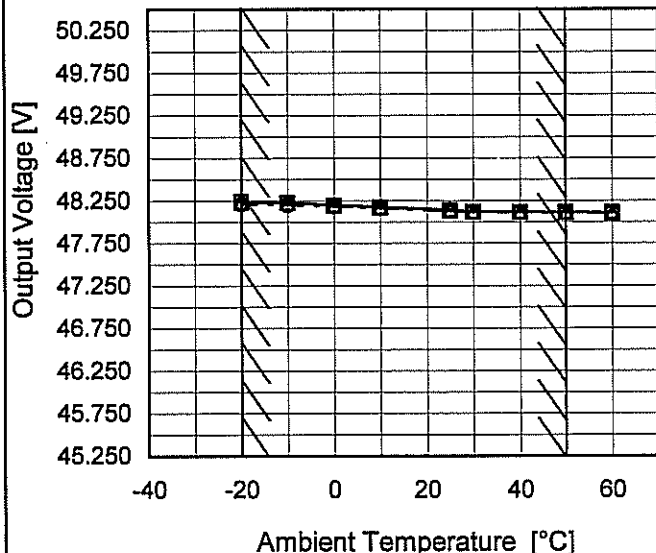


Model	PLA600F-48
Item	Ambient Temperature Drift
Object	+48V12.5A

Testing Circuitry Figure A

1.Graph

- △— Input Volt. 100V
- Input Volt. 115V
- Input Volt. 230V



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
-20	48.237	48.241	48.211
-10	48.231	48.226	48.200
0	48.204	48.197	48.184
10	48.178	48.173	48.163
25	48.141	48.135	48.126
30	48.119	48.118	48.116
40	48.116	48.114	48.111
50	48.111	48.112	48.109
60	48.108	48.107	48.107
--	-	-	-
--	-	-	-

Note: In case of Input Volt. 100V, Load 90%.
Other case Load 100%.



COSEL		
Model	PLA600F-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V12.5A	

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 : -20 - 50°C

Input Voltage : 115 - 264V

Load Current : 0 - 12.5A

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

* 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	-20	115	12.5	48.241	±66	±0.1
Minimum Voltage	50	264	12.5	48.109		

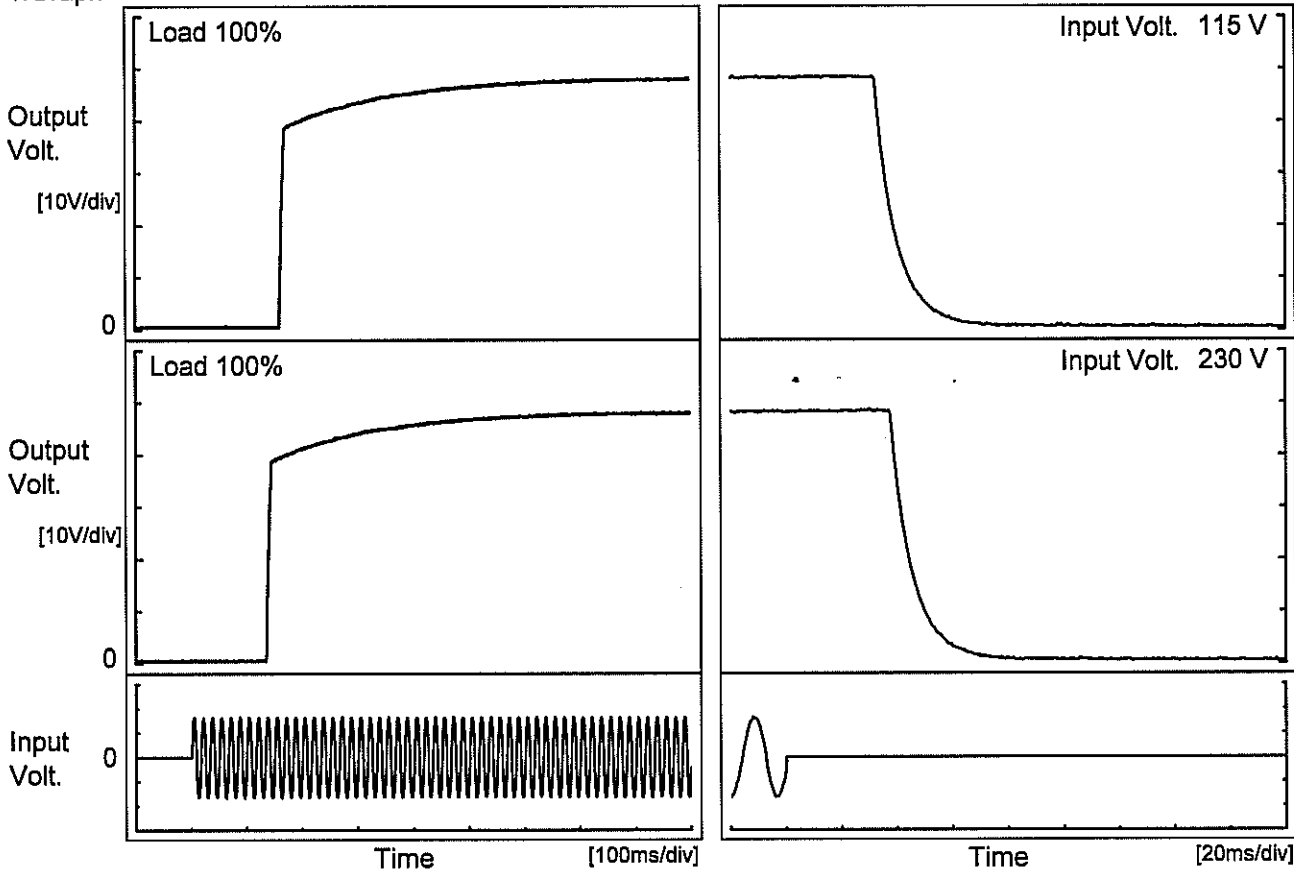


COSEL																								
Model	PLA600F-48																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+48V12.5A																							
<p>1. Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 230V Load 100%</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>48.440</td></tr> <tr><td>0.5</td><td>48.439</td></tr> <tr><td>1.0</td><td>48.438</td></tr> <tr><td>2.0</td><td>48.438</td></tr> <tr><td>3.0</td><td>48.438</td></tr> <tr><td>4.0</td><td>48.439</td></tr> <tr><td>5.0</td><td>48.439</td></tr> <tr><td>6.0</td><td>48.439</td></tr> <tr><td>7.0</td><td>48.439</td></tr> <tr><td>8.0</td><td>48.439</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	48.440	0.5	48.439	1.0	48.438	2.0	48.438	3.0	48.438	4.0	48.439	5.0	48.439	6.0	48.439	7.0	48.439	8.0	48.439
Time since start [H]	Output Voltage [V]																							
0.0	48.440																							
0.5	48.439																							
1.0	48.438																							
2.0	48.438																							
3.0	48.438																							
4.0	48.439																							
5.0	48.439																							
6.0	48.439																							
7.0	48.439																							
8.0	48.439																							
<p>* The characteristic of AC115V is equal.</p>																								



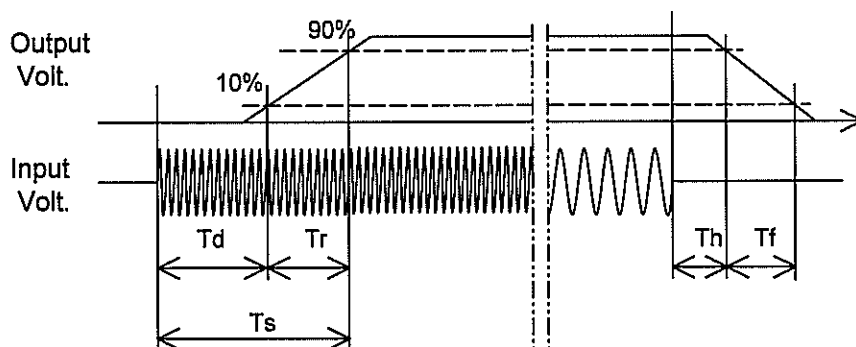
Model	PLA600F-48	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+48V12.5A		

1. Graph



2. Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
115 V		161.0	141.5	302.5	32.5	17.5
230 V		137.0	144.0	281.0	38.0	18.0





Model		PLA600F-48		Temperature		25°C																																	
Item		Hold-Up Time		Testing Circuitry		Figure A																																	
Object		+48V12.5A																																					
1. Graph				2. Values																																			
				<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Hold-Up Time [ms]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>85</td> <td>62</td> <td>38 ※1</td> </tr> <tr> <td>100</td> <td>64</td> <td>35 ※2</td> </tr> <tr> <td>115</td> <td>66</td> <td>32</td> </tr> <tr> <td>200</td> <td>73</td> <td>36</td> </tr> <tr> <td>230</td> <td>75</td> <td>37</td> </tr> <tr> <td>264</td> <td>76</td> <td>39</td> </tr> <tr> <td>280</td> <td>76</td> <td>39</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>				Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	85	62	38 ※1	100	64	35 ※2	115	66	32	200	73	36	230	75	37	264	76	39	280	76	39	--	-	-	--	-	-
Input Voltage [V]	Hold-Up Time [ms]																																						
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230	75	37																																					
264	76	39																																					
280	76	39																																					
--	-	-																																					
--	-	-																																					
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy. Note: Slanted line shows the range of the rated input voltage.</p>				<p>※1: Load 80% ※2: Load 90%</p>																																			



Model		PLA600F-48		Temperature		25°C																																																				
Item		Instantaneous Interruption Compensation		Testing Circuitry		Figure A																																																				
Object		+48V12.5A																																																								
<p>1.Graph</p> <p> —△— Input Volt. 100V - - - □ - - - Input Volt. 115V - · - ○ - · - - Input Volt. 230V </p> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p>				<p>2.Values</p> <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>2.00</td><td>139</td><td>156</td><td>170</td></tr> <tr><td>4.00</td><td>86</td><td>88</td><td>89</td></tr> <tr><td>6.00</td><td>61</td><td>64</td><td>77</td></tr> <tr><td>8.00</td><td>47</td><td>47</td><td>55</td></tr> <tr><td>10.00</td><td>39</td><td>39</td><td>46</td></tr> <tr><td>12.00</td><td>31</td><td>31</td><td>26</td></tr> <tr><td>12.50</td><td>30</td><td>31</td><td>25</td></tr> <tr><td>13.75</td><td>-</td><td>28</td><td>20</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	-	-	-	2.00	139	156	170	4.00	86	88	89	6.00	61	64	77	8.00	47	47	55	10.00	39	39	46	12.00	31	31	26	12.50	30	31	25	13.75	-	28	20	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																									
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<p>Note: Slanted line shows the range of the rated load current.</p>																																																										



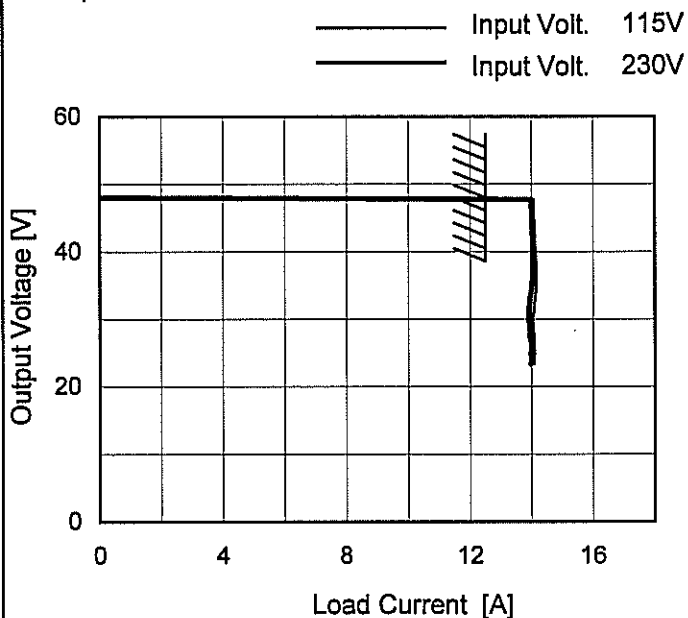
COSEL																																								
Model	PLA600F-48																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+48V12.5A																																							
<p>1. Graph</p> <p style="text-align: right;"> ---□--- Load 50% —△— Load 100% </p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Input Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>-20</td><td>48</td><td>59</td></tr> <tr><td>-10</td><td>48</td><td>59</td></tr> <tr><td>0</td><td>47</td><td>59</td></tr> <tr><td>10</td><td>47</td><td>59</td></tr> <tr><td>25</td><td>48</td><td>59</td></tr> <tr><td>30</td><td>47</td><td>59</td></tr> <tr><td>40</td><td>48</td><td>60</td></tr> <tr><td>50</td><td>48</td><td>60</td></tr> <tr><td>60</td><td>48</td><td>61</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-20	48	59	-10	48	59	0	47	59	10	47	59	25	48	59	30	47	59	40	48	60	50	48	60	60	48	61	--	-	-	--	-	-
Ambient Temperature [°C]	Input Voltage [V]																																							
	Load 50%	Load 100%																																						
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--	-	-																																						
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																								



Model	PLA600F-48
Item	Overcurrent Protection
Object	+48V12.5A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

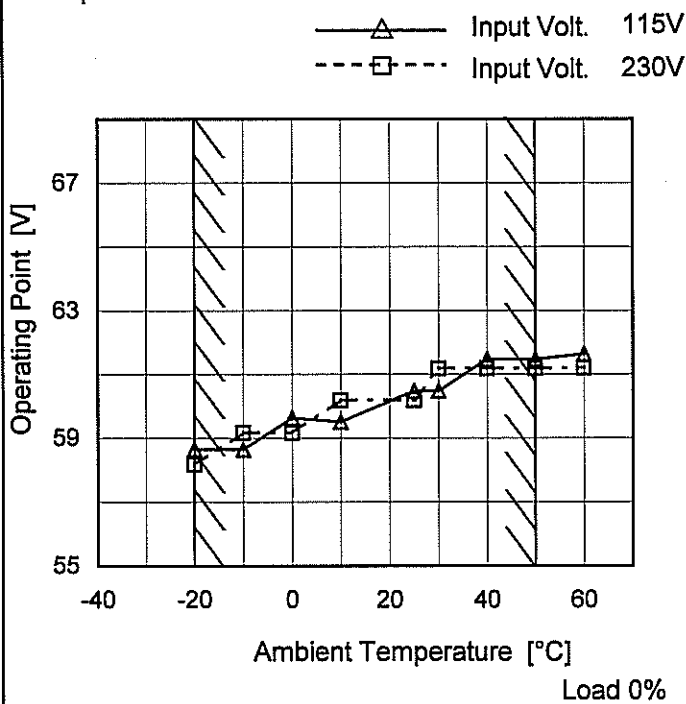
Output Voltage [V]	Load Current [A]	
	Input Volt. 115[V]	Input Volt. 230[V]
45.6	14.07	14.01
43.2	14.11	14.02
38.4	14.14	14.04
33.6	14.13	13.97
28.8	14.04	13.95
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-



Model	PLA600F-48
Item	Oversvoltage Protection
Object	+48V12.5A

Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated ambient temperature.

2. Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 115[V]	Input Volt. 230[V]
-20	58.65	58.18
-10	58.65	59.17
0	59.64	59.17
10	59.52	60.19
25	60.48	60.19
30	60.48	61.19
40	61.48	61.19
50	61.48	61.19
60	61.64	61.21
--	-	-
--	-	-

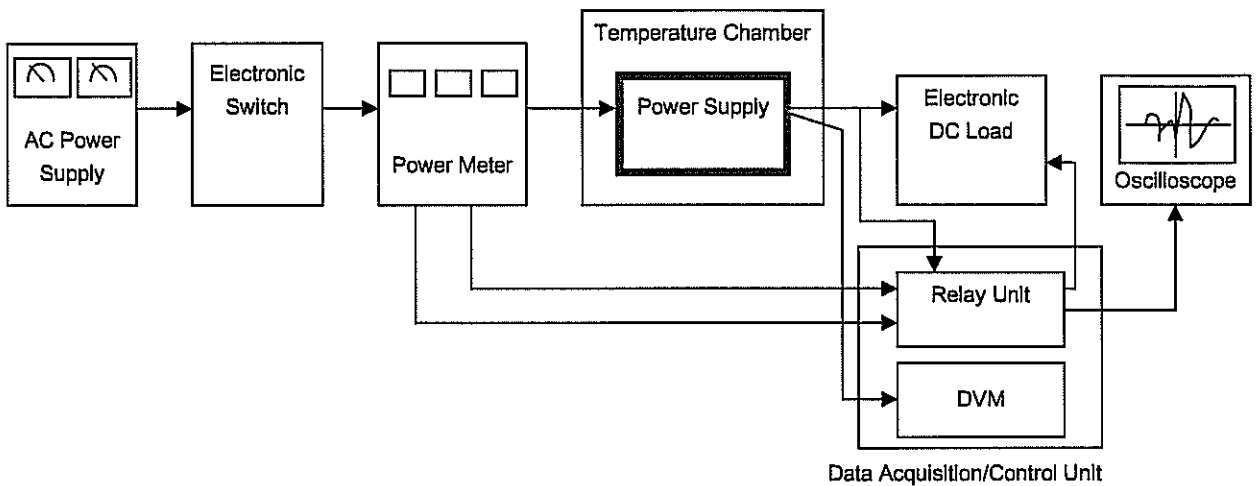


Figure A

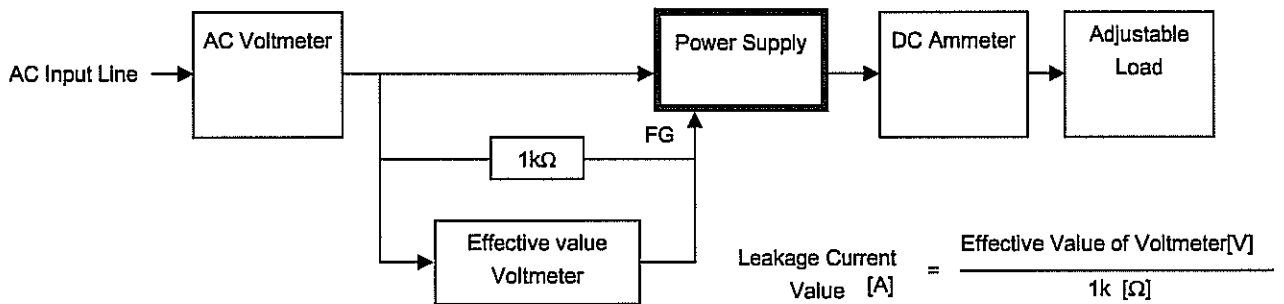


Figure B (DEN-AN)

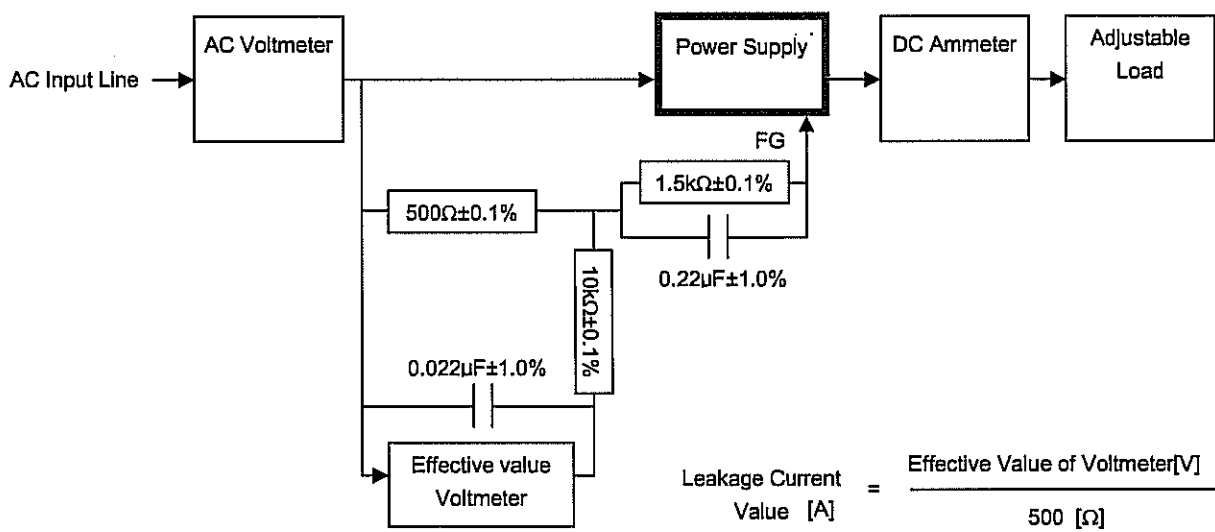


Figure B (IEC60950-1)

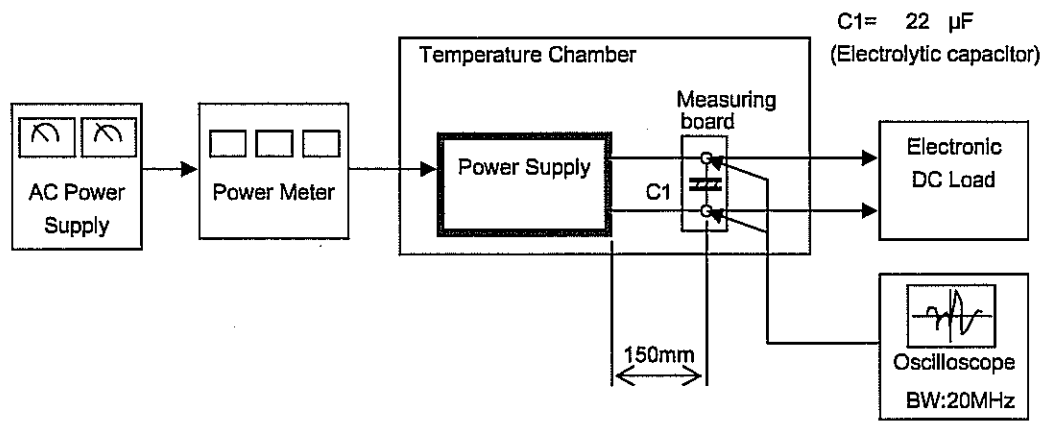


Figure C