



TEST DATA OF ADA1000F

ADA1000F-48
(200V INPUT)

Regulated DC power supply
Mar. 19, 2003

Approved by : *Kuniaki Nagahara*
Kuniaki Nagahara Design Manager

Prepared by : *Toshihisa Miura*
Toshihisa Miura Design Engineer

INPUT : AC 170~264V

OUTPUT : V1: 48V 21A

コーセル株式会社
COSEL CO.,LTD.

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Model		ADA1000F (ADA1000F-48)		Temperature		25°C																																	
Item		Line Regulation 静的入力変動		Testing Circuitry		Figure A																																	
Object		V1:+48V21A																																					
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<p>Legend: ---□--- Load 50% ---△--- Load 100%</p>				<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>150</td><td>47.843</td><td>47.825</td></tr> <tr><td>160</td><td>47.842</td><td>47.824</td></tr> <tr><td>170</td><td>47.841</td><td>47.823</td></tr> <tr><td>180</td><td>47.841</td><td>47.822</td></tr> <tr><td>200</td><td>47.840</td><td>47.821</td></tr> <tr><td>220</td><td>47.839</td><td>47.820</td></tr> <tr><td>240</td><td>47.838</td><td>47.820</td></tr> <tr><td>264</td><td>47.838</td><td>47.819</td></tr> <tr><td>280</td><td>47.839</td><td>47.817</td></tr> </tbody> </table>				Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	150	47.843	47.825	160	47.842	47.824	170	47.841	47.823	180	47.841	47.822	200	47.840	47.821	220	47.839	47.820	240	47.838	47.820	264	47.838	47.819	280	47.839	47.817
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Model		ADA1000F (ADA1000F-48)		Temperature		25°C																																																				
Item		Instantaneous Interruption Compensation (by Load Power) 瞬時停電保障 (負荷電力特性)		Testing Circuitry		Figure A																																																				
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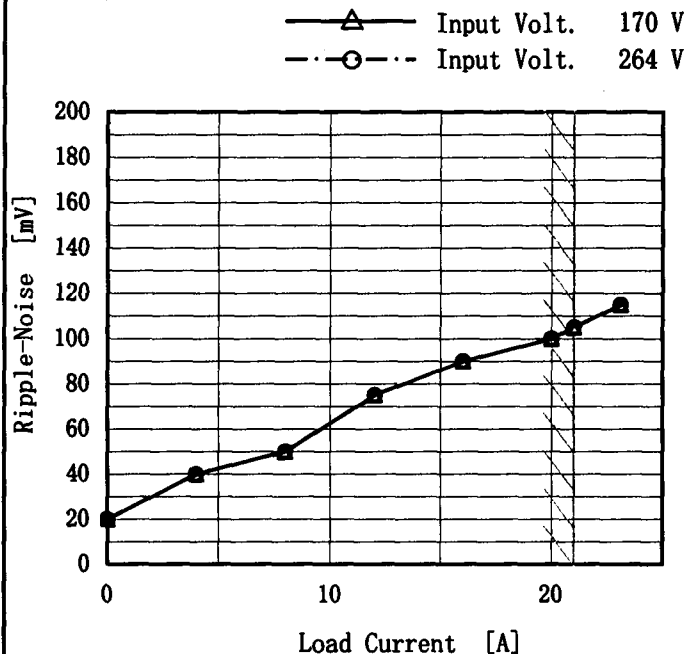
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<p>Model ADA1000F (ADA1000F-48)</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																						
<p>Item</p>	<p>Ripple Voltage (by Load Current) リップル電圧 (負荷特性)</p>																																							
<p>Object</p>	<p>V1:+48V21A</p>																																							
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<p>Fig. Complex Ripple Wave Form 図 リップル波形詳細図</p>																																								



Model	ADA1000F (ADA1000F-48)	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A
Object	V1:+48V21A		

1. Graph



2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 170[V]	Input Volt. 264[V]
0.0	20	20
4.0	40	40
8.0	50	50
12.0	75	75
16.0	90	90
20.0	100	100
21.0	105	105
23.1	115	115
—	—	—
—	—	—
—	—	—

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

リップルノイズは、下図 p-p 値で示される。
 (注) 斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
 入力商用周期
 T2: Due to Switching
 スイッチング周期

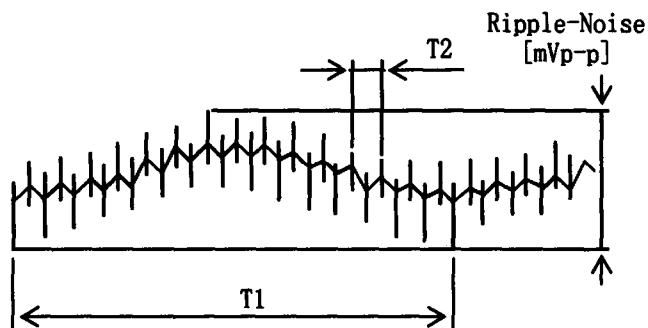


Fig. Complex Ripple Wave Form
 図 リップル波形詳細図



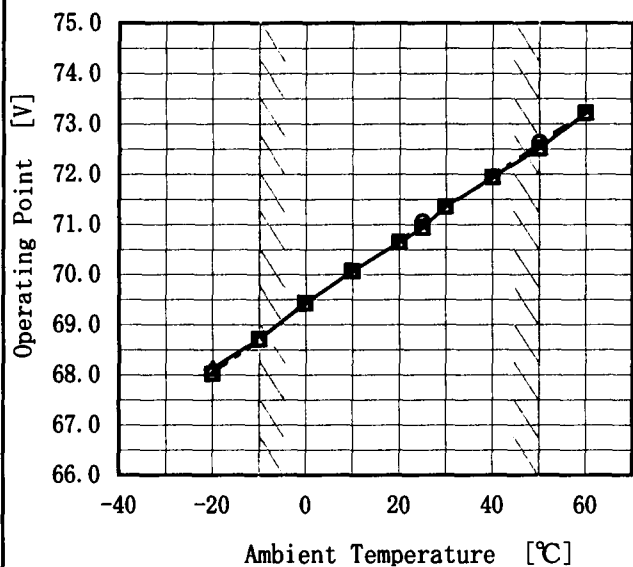
<p>Model ADA1000F (ADA1000F-48)</p> <p>Item Overcurrent Protection 過電流保護</p> <p>Object V1:+48V21A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																																											
<p>1. Graph</p> <p>— Input Volt. 170 V</p> <p>— Input Volt. 200 V</p> <p>..... Input Volt. 264 V</p> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current. (注) 斜線は定格負荷電流範囲を示す。</p> <p>Intermittent operation occurs when the output voltage is from 33.6V to 0V. 33.6V~0V間は、間欠モードとなる。</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 170[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 264[V]</th> </tr> </thead> <tbody> <tr><td>48.0</td><td>43.39</td><td>43.95</td><td>43.19</td></tr> <tr><td>45.6</td><td>44.35</td><td>44.41</td><td>44.48</td></tr> <tr><td>43.2</td><td>44.67</td><td>44.70</td><td>44.72</td></tr> <tr><td>38.4</td><td>45.13</td><td>45.20</td><td>45.18</td></tr> <tr><td>33.6</td><td>45.61</td><td>45.62</td><td>45.59</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> <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> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	48.0	43.39	43.95	43.19	45.6	44.35	44.41	44.48	43.2	44.67	44.70	44.72	38.4	45.13	45.20	45.18	33.6	45.61	45.62	45.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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Model	ADA1000F (ADA1000F-48)
Item	Overvoltage Protection 過電圧保護
Object	V1:+48V21A

Testing Circuitry Figure A

1. Graph
- △— Input Volt. 170 V
 - Input Volt. 200 V
 - Input Volt. 264 V



Load 0%

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

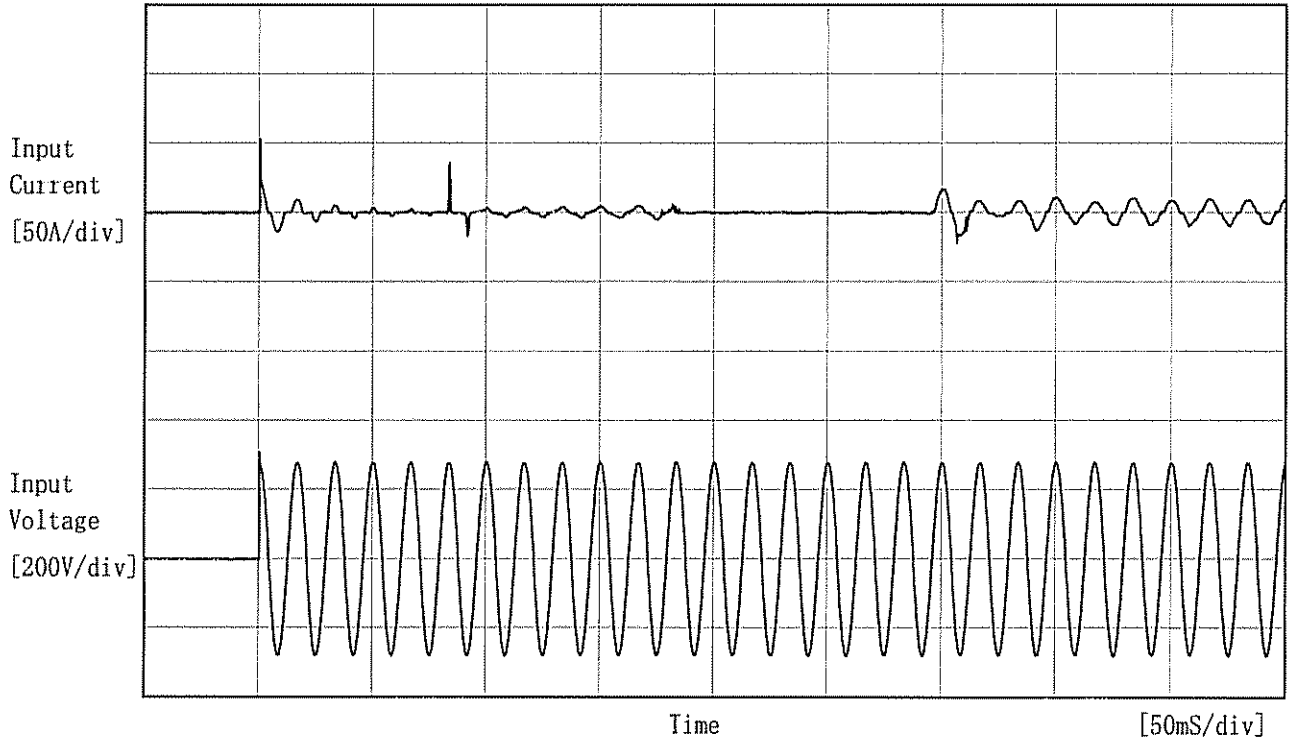
(注) 斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	68.14	68.02	68.03
-10	68.72	68.72	68.72
0	69.43	69.43	69.43
10	70.07	70.07	70.07
20	70.65	70.65	70.65
25	70.94	70.94	71.06
30	71.36	71.35	71.36
40	71.94	71.94	71.94
50	72.52	72.52	72.64
60	73.22	73.22	73.22
—	—	—	—



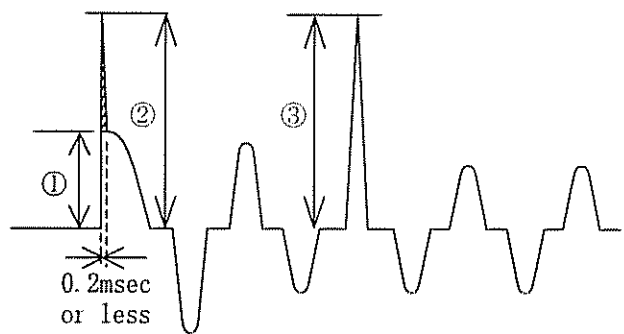
Model		ADA1000F (ADA1000F-48)	Temperature		25°C
Item		Inrush Current 突入電流	Testing Circuitry		Figure A
Object		_____			



Input Voltage 200 V
 Frequency 60 Hz
 Load 100 %

Inrush Current

- ① 25.8 [A]
- ② 52.8 [A] (0.2msec or less)*1
- ③ 35.4 [A]



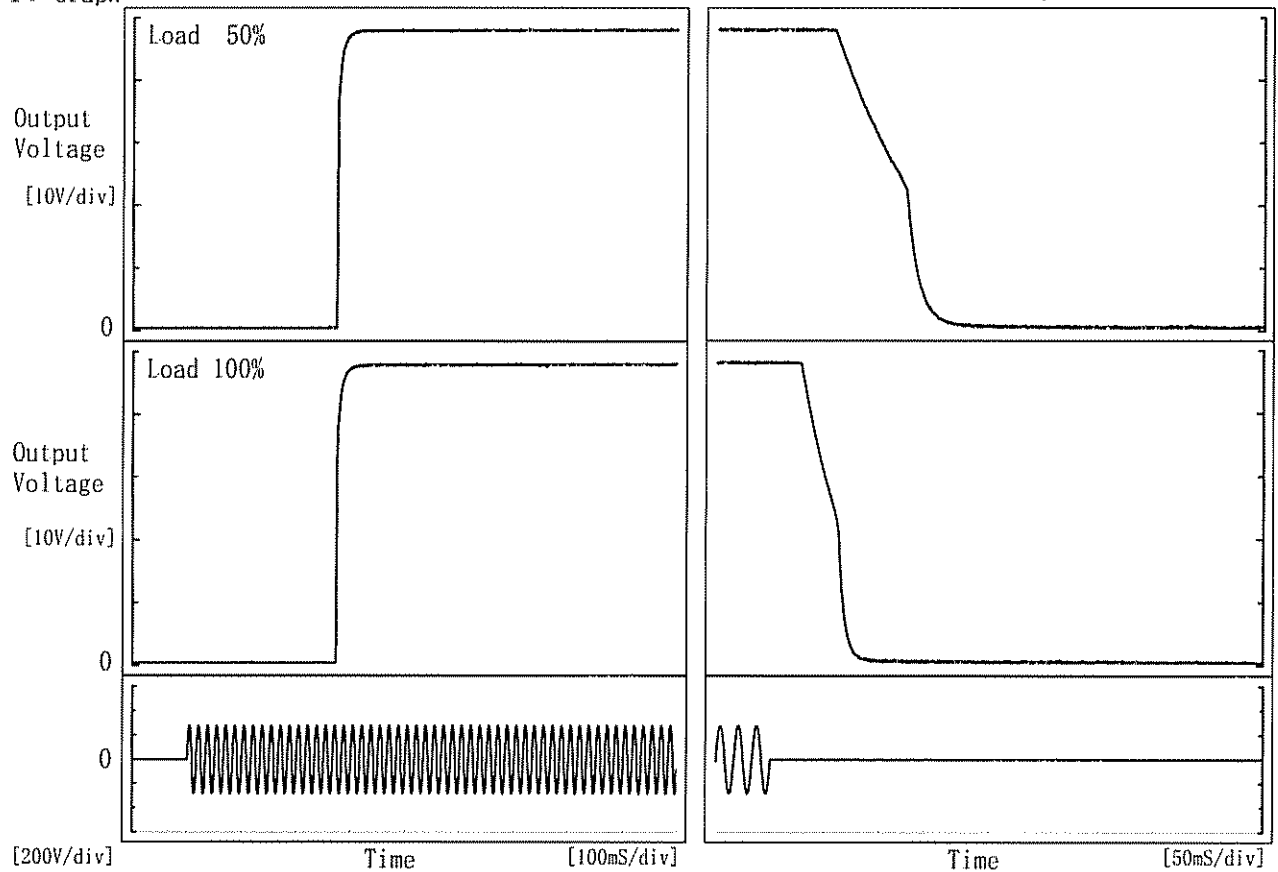
*1 The specification of the inrush current (primary surge) means that the surge current to a built-in noise filter (0.2msec or less : waveform ②) is excluded.

本製品の突入電流(1次サージ)の仕様は、内蔵ノイズフィルタ部へのサージ電流(0.2msec以下:波形②)を除きます。

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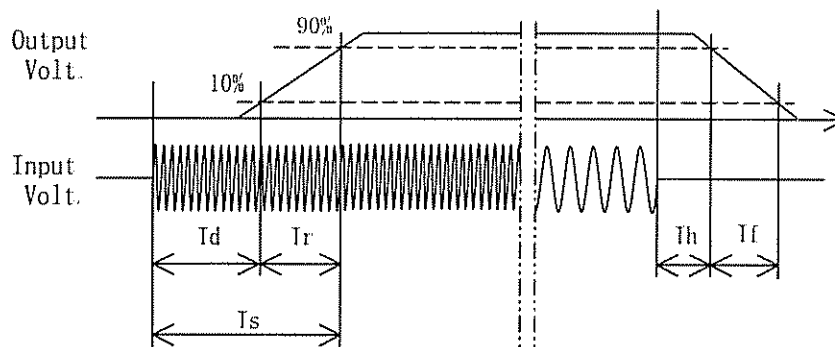
Model	ADA1000F (ADA1000F-48)	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	VI:+48V21A		

1. Graph



2. Values

Load	Time	[mS]			
		T _d	T _r	T _s	T _f
50 %		274.0	9.0	283.0	72.8
100 %		273.5	9.0	282.5	38.0

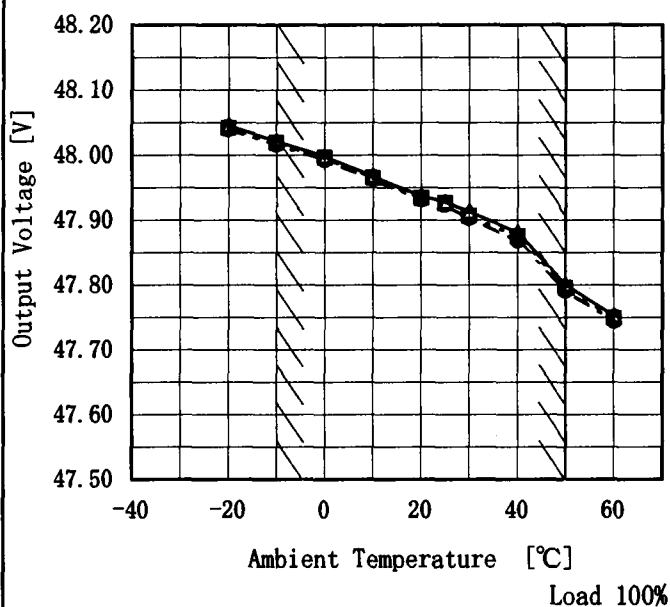




Model	ADA1000F (ADA1000F-48)
Item	Ambient Temperature Drift 周囲温度変動
Object	V1:+48V21A

Testing Circuitry Figure A

1. Graph
- △— Input Volt. 170 V
 - Input Volt. 200 V
 - Input Volt. 264 V



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

(注) 斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	48.045	48.042	48.040
-10	48.022	48.019	48.016
0	47.998	47.996	47.993
10	47.968	47.966	47.963
20	47.937	47.934	47.932
25	47.928	47.927	47.924
30	47.914	47.906	47.903
40	47.881	47.875	47.868
50	47.801	47.796	47.791
60	47.752	47.749	47.744
—	—	—	—



Model		ADA1000F (ADA1000F-48)	Testing Circuitry Figure A																																						
Item		Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧																																							
Object		V1:+48V21A																																							
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		<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>66</td><td>66</td></tr> <tr><td>-10</td><td>66</td><td>66</td></tr> <tr><td>0</td><td>66</td><td>67</td></tr> <tr><td>10</td><td>66</td><td>67</td></tr> <tr><td>20</td><td>65</td><td>67</td></tr> <tr><td>25</td><td>66</td><td>66</td></tr> <tr><td>30</td><td>66</td><td>66</td></tr> <tr><td>40</td><td>66</td><td>67</td></tr> <tr><td>50</td><td>66</td><td>67</td></tr> <tr><td>60</td><td>66</td><td>67</td></tr> <tr><td>--</td><td>—</td><td>—</td></tr> </tbody> </table>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-20	66	66	-10	66	66	0	66	67	10	66	67	20	65	67	25	66	66	30	66	66	40	66	67	50	66	67	60	66	67	--	—	—	
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COSEL

Model		ADA1000F (ADA1000F-48)	Testing Circuitry Figure A																										
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																											
Object		V1:+48V21A																											
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COSEL																									
Model	ADA1000F (ADA1000F-48)	Temperature	25°C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A																						
Object	V1:+48V21A																								
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<p style="text-align: center;">Time [H]</p> <p>Input Volt. 200V Load 100%</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>47.998</td></tr> <tr><td>0.5</td><td>47.967</td></tr> <tr><td>1.0</td><td>47.967</td></tr> <tr><td>2.0</td><td>47.970</td></tr> <tr><td>3.0</td><td>47.971</td></tr> <tr><td>4.0</td><td>47.973</td></tr> <tr><td>5.0</td><td>47.973</td></tr> <tr><td>6.0</td><td>47.973</td></tr> <tr><td>7.0</td><td>47.973</td></tr> <tr><td>8.0</td><td>47.974</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	47.998	0.5	47.967	1.0	47.967	2.0	47.970	3.0	47.971	4.0	47.973	5.0	47.973	6.0	47.973	7.0	47.973	8.0	47.974
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COSEL		
Model	ADA1000F (ADA1000F-48)	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	V1:+48V21A	

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 ~ 50°C

Input Voltage : 170 ~ 264V

Load Current : 0 ~ 21A

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

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

1. 定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 : -10 ~ 50°C

入力電圧 : 170 ~ 264V

負荷電流 : 0 ~ 21A

* 定電圧精度(変動値) = $\pm(\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

* 定電圧精度(変動率) = $\frac{\text{変動値}}{\text{定格出力電圧}} \times 100$

2. Values

Item	Temperature [°C]	Input Voltage [V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	170	0	48.043	±141	±0.3
Minimum Voltage	50	264	21	47.761		

COSEL

Model		ADA1000F (ADA1000F-48)	Temperature		25°C
Item		Leakage Current 漏洩電流	Testing Circuitry		Figure B
Object					

1. Results

Standards	Leakage Current [mA]		
	Input Volt.	Input Volt.	Input Volt.
	85 [V]	100 [V]	132 [V]
(A) DEN-AN	—	—	—
(B) IEC60950	—	—	—

Standards	Leakage Current [mA]		
	Input Volt.	Input Volt.	Input Volt.
	170 [V]	240 [V]	264 [V]
(B) IEC60950	0.32	0.46	0.51

2. Condition

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

交流入力各相について測定し、その大きい方を漏洩電流測定値とする。

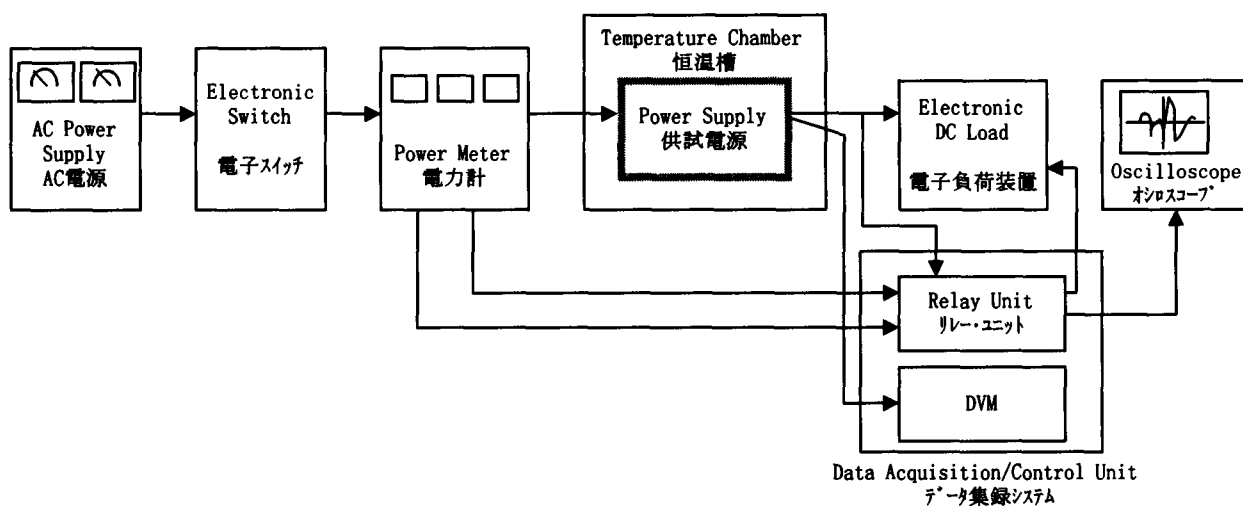


Figure A

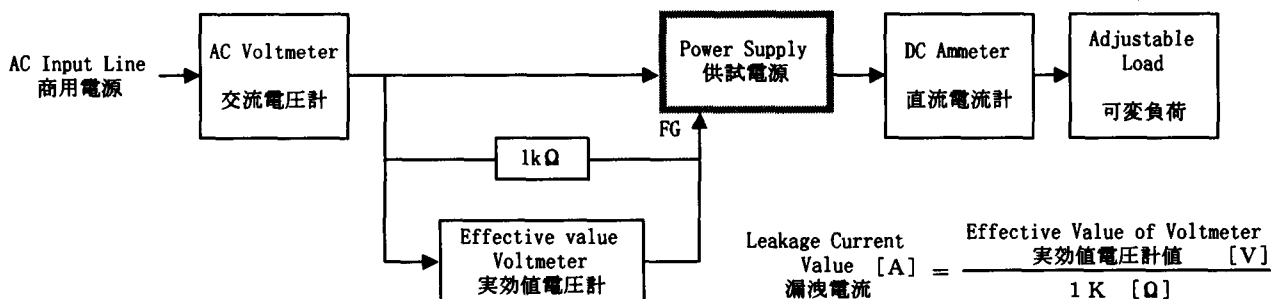


Figure B (DEN-AN)

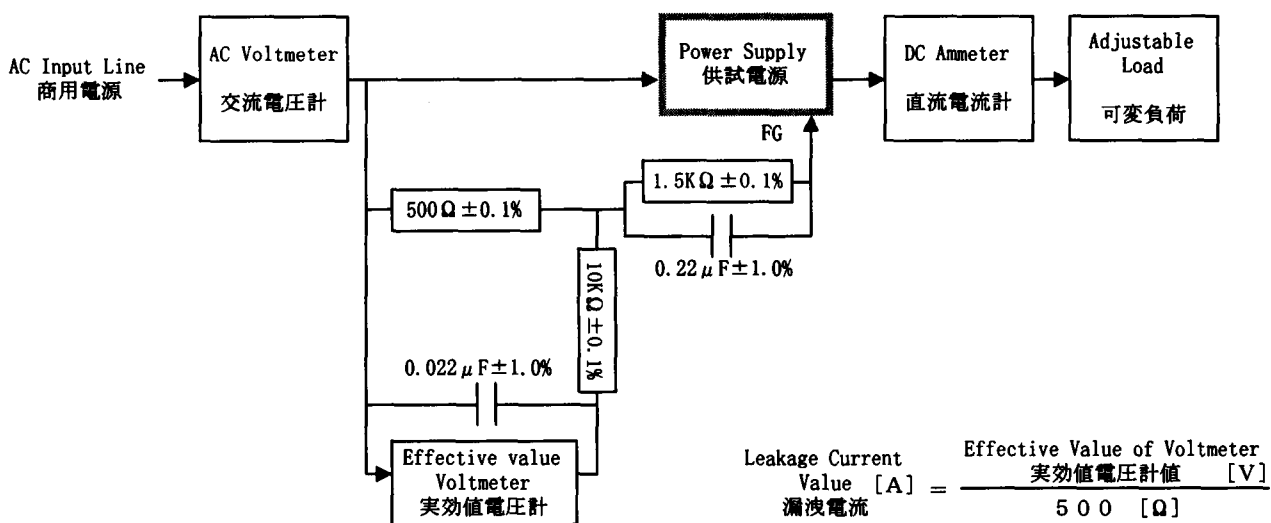


Figure B (IEC60950)