

TEST DATA OF G2-24

Regulated DC Power Supply
July 23, 2010

Approved by : Eiyoshi Wakamatsu
Eiyoshi Wakamatsu Design Manager

Prepared by : Satoshi Kinoshita
Satoshi Kinoshita Design Engineer

COSEL CO.,LTD.



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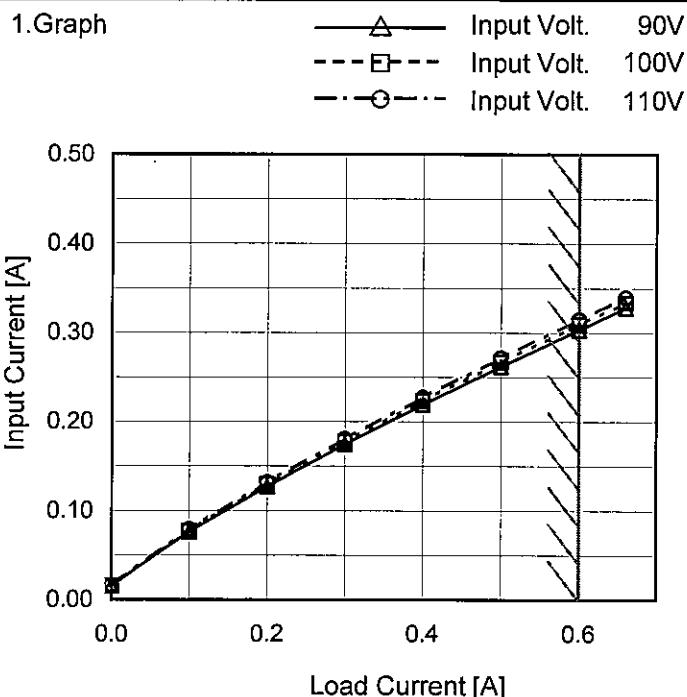
(Final Page 21)

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Model G2-24

Item Input Current (by Load Current)

Object _____

Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	0.015	0.016	0.016
0.10	0.076	0.077	0.079
0.20	0.127	0.130	0.132
0.30	0.174	0.178	0.181
0.40	0.219	0.223	0.227
0.50	0.262	0.267	0.271
0.60	0.303	0.309	0.315
0.66	0.328	0.334	0.339
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	G2-24	Temperature 25°C Testing Circuitry Figure A																																																					
Item	Input Power (by Load Current)																																																						
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1. Graph	<p>Input Power [W]</p> <p>Load Current [A]</p> <p>Legend:</p> <ul style="list-style-type: none"> Input Volt. 90V Input Volt. 100V Input Volt. 110V 																																																						
2. Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt. 90[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 110[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>0.83</td><td>0.94</td><td>1.06</td></tr> <tr> <td>0.10</td><td>4.11</td><td>4.57</td><td>5.08</td></tr> <tr> <td>0.20</td><td>7.35</td><td>8.21</td><td>9.04</td></tr> <tr> <td>0.30</td><td>10.60</td><td>11.79</td><td>12.99</td></tr> <tr> <td>0.40</td><td>13.78</td><td>15.33</td><td>16.99</td></tr> <tr> <td>0.50</td><td>16.97</td><td>18.94</td><td>20.86</td></tr> <tr> <td>0.60</td><td>20.10</td><td>22.45</td><td>24.80</td></tr> <tr> <td>0.66</td><td>22.05</td><td>24.53</td><td>27.06</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]	Input Power [W]			Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]	0.00	0.83	0.94	1.06	0.10	4.11	4.57	5.08	0.20	7.35	8.21	9.04	0.30	10.60	11.79	12.99	0.40	13.78	15.33	16.99	0.50	16.97	18.94	20.86	0.60	20.10	22.45	24.80	0.66	22.05	24.53	27.06	--	-	-	-	--	-	-	-	--	-	-	-
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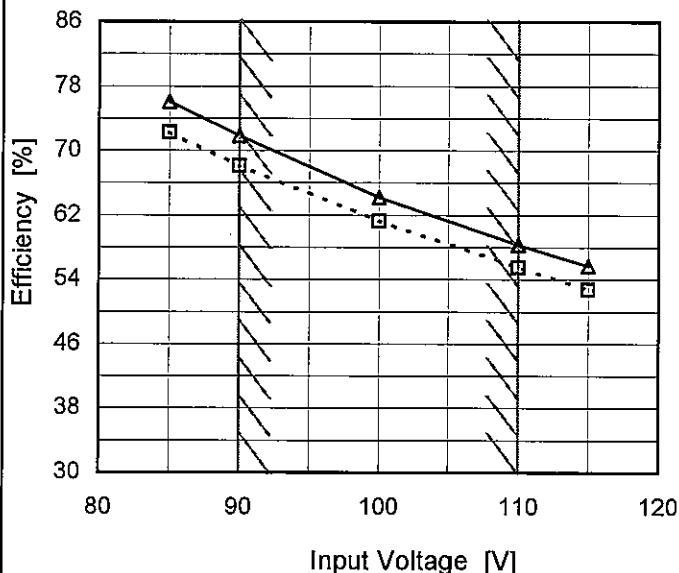
Model G2-24

Item Efficiency (by Input Voltage)

Object _____

1. Graph

---□--- Load 50%
 —△— Load 100%



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

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
85	72.3	76.1
90	68.1	71.9
100	61.2	64.2
110	55.5	58.3
115	52.8	55.7
--	-	-
--	-	-
--	-	-
--	-	-

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Model	G2-24	Temperature Testing Circuitry	25°C Figure A																																																			
Item	Efficiency (by Load Current)																																																					
Object	—																																																					
1.Graph	<p>Graph showing Efficiency (%) vs Load Current (A) for G2-24 at 25°C. The graph plots Efficiency (%) on the Y-axis (30 to 86) against Load Current [A] on the X-axis (0.0 to 0.6). Three curves are shown for different input voltages: 90V (solid line with triangles), 100V (dashed line with squares), and 110V (dash-dot line with circles). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>90V [%]</th> <th>100V [%]</th> <th>110V [%]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>58.4</td><td>52.5</td><td>47.2</td></tr> <tr><td>0.10</td><td>65.4</td><td>58.5</td><td>53.1</td></tr> <tr><td>0.20</td><td>68.1</td><td>61.2</td><td>55.5</td></tr> <tr><td>0.30</td><td>69.8</td><td>62.8</td><td>56.6</td></tr> <tr><td>0.40</td><td>70.9</td><td>63.5</td><td>57.6</td></tr> <tr><td>0.50</td><td>71.8</td><td>64.3</td><td>58.2</td></tr> <tr><td>0.60</td><td>72.0</td><td>64.7</td><td>58.7</td></tr> </tbody> </table>			Load Current [A]	90V [%]	100V [%]	110V [%]	0.00	58.4	52.5	47.2	0.10	65.4	58.5	53.1	0.20	68.1	61.2	55.5	0.30	69.8	62.8	56.6	0.40	70.9	63.5	57.6	0.50	71.8	64.3	58.2	0.60	72.0	64.7	58.7																			
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Model	G2-24	Temperature Testing Circuitry 25°C Figure A																																
Item	Power Factor (by Input Voltage)																																	
Object	_____																																	
1. Graph		2. Values																																
<p>Power Factor</p> <p>Input Voltage [V]</p> <p>Legend: Load 50% (dashed line with squares), Load 100% (solid line with triangles)</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Power Factor</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>85</td> <td>0.683</td> <td>0.745</td> </tr> <tr> <td>90</td> <td>0.677</td> <td>0.739</td> </tr> <tr> <td>100</td> <td>0.665</td> <td>0.728</td> </tr> <tr> <td>110</td> <td>0.655</td> <td>0.717</td> </tr> <tr> <td>115</td> <td>0.652</td> <td>0.713</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Power Factor		Load 50%	Load 100%	85	0.683	0.745	90	0.677	0.739	100	0.665	0.728	110	0.655	0.717	115	0.652	0.713	--	-	-	--	-	-	--	-	-	--	-	-
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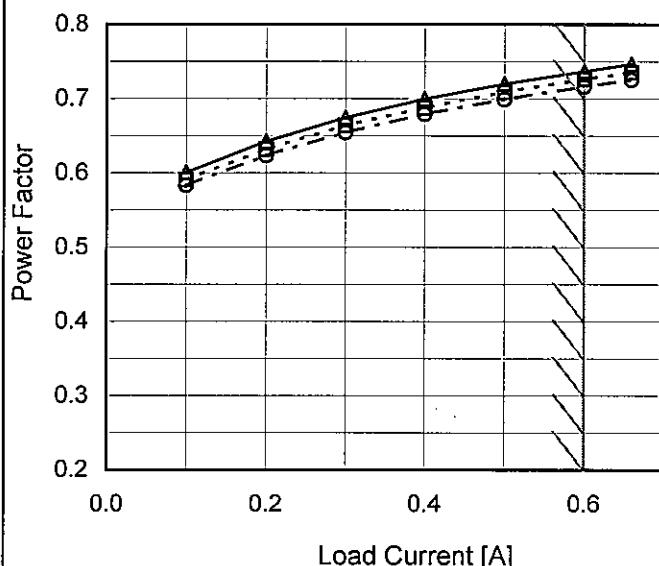
Model G2-24

Item Power Factor (by Load Current)

Object _____

1.Graph

—△— Input Volt. 90V
 - - -□- - Input Volt. 100V
 - - ○- - Input Volt. 110V



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

 Temperature 25°C
 Testing Circuitry Figure A

2.Values

Load Current [A]	Power Factor		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.10	0.601	0.590	0.583
0.20	0.642	0.632	0.623
0.30	0.675	0.664	0.654
0.40	0.700	0.688	0.679
0.50	0.720	0.709	0.699
0.60	0.737	0.726	0.717
0.66	0.747	0.736	0.725
--	-	-	-
--	-	-	-
--	-	-	-

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Model G2-24

Item Inrush Current

Temperature 25°C
Testing Circuitry Figure A

Object _____

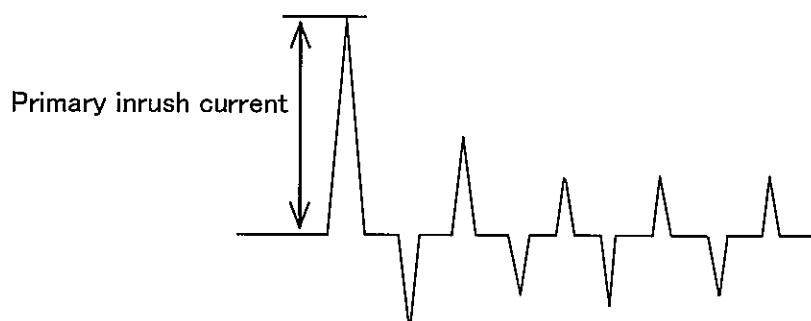
Input
Current
[5A/div]Input
Voltage
[100V/div]

Time

[10ms/div]

Input Voltage 100 V
 Frequency 60 Hz
 Load 100 %

Primary inrush current 5.0 A



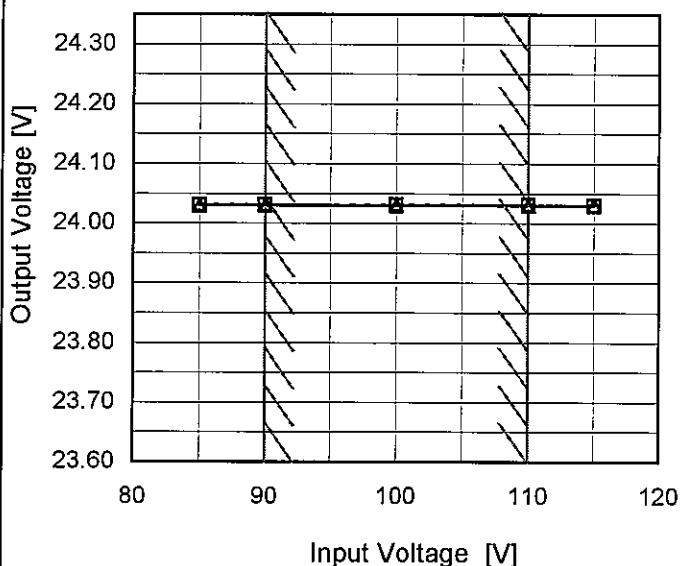
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Model	G2-24
Item	Line Regulation
Object	+24V0.6A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

--- □ --- Load 50%
 —△— Load 100%



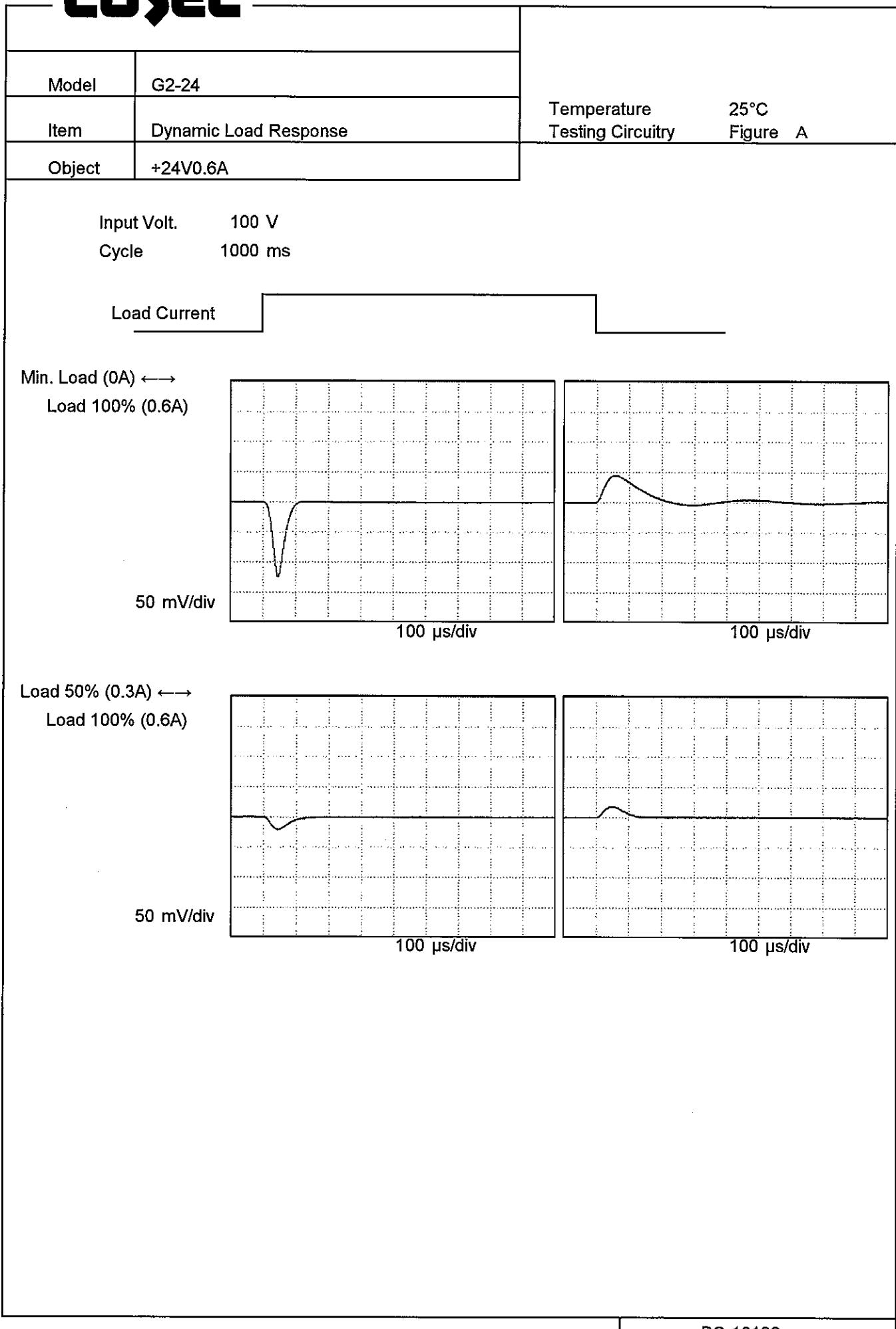
2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	24.031	24.030
90	24.031	24.030
100	24.031	24.030
110	24.031	24.030
115	24.031	24.030
---	-	-
---	-	-
---	-	-
---	-	-

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

Model	G2-24	Temperature 25°C Testing Circuitry Figure A																																																					
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1. Graph		<p>—△— Input Volt. 90V - -□--- Input Volt. 100V - -○--- Input Volt. 110V</p> <p>Output Voltage [V]</p> <p>Load Current [A]</p>																																																					
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Note: Slanted line shows the range of the rated load current.

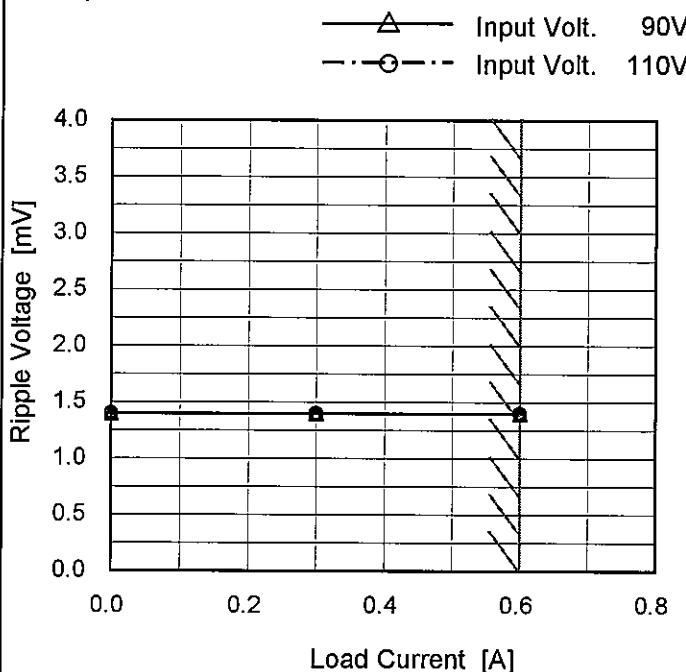
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Model G2-24

Item Ripple Voltage (by Load Current)

Object +24V0.6A

1. Graph



Measured by 20 MHz Oscilloscope.

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

Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.0	1.4	1.4
0.3	1.4	1.4
0.6	1.4	1.4
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

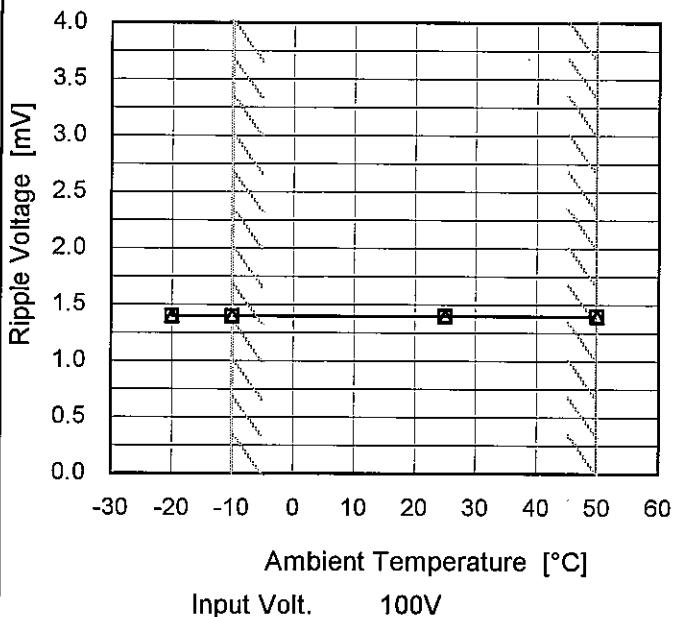
Model G2-24

Item Ripple Voltage (by Ambient Temp.)

Object +24V0.6A

1. Graph

--- □ --- Load 50%
 —△— Load 100%



Measured by 20 MHz Oscilloscope.

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

Testing Circuitry Figure A

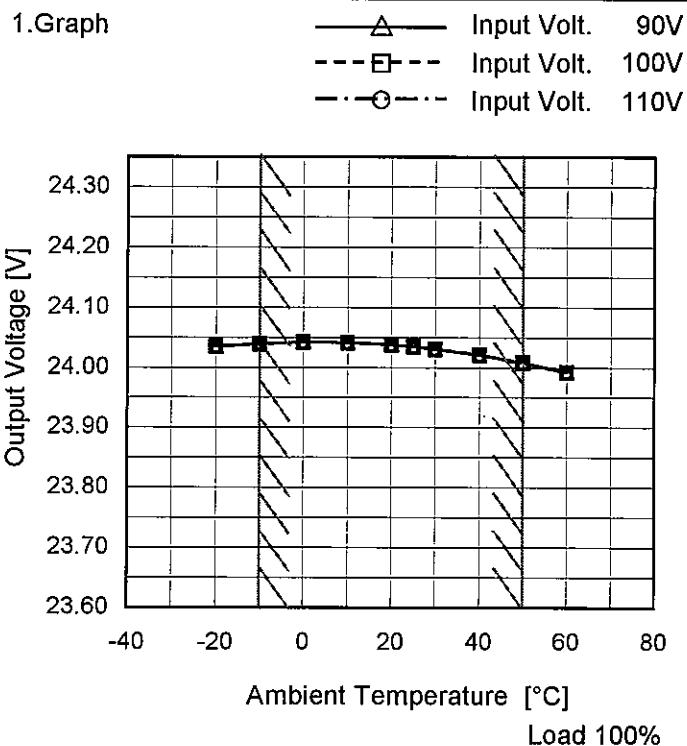
2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	1.4	1.4
-10	1.4	1.4
25	1.4	1.4
50	1.4	1.4
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model G2-24

Item Ambient Temperature Drift

Object +24V0.6A



Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	24.034	24.034	24.035
-10	24.039	24.039	24.039
0	24.042	24.042	24.042
10	24.041	24.041	24.041
20	24.037	24.038	24.038
25	24.034	24.034	24.034
30	24.030	24.030	24.030
40	24.021	24.021	24.021
50	24.008	24.008	24.007
60	23.992	23.992	23.992
--	-	-	-

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



Model	G2-24	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+24V0.6A	

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 : 90 ~ 110V

Load Current : 0 ~ 0.6A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

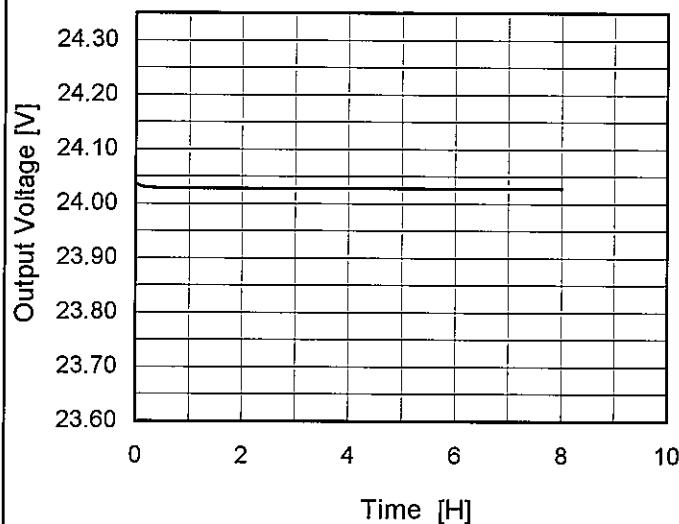
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	110	0	24.043	±18	±0.1
Minimum Voltage	50	110	0.6	24.007		

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Model	G2-24
Item	Time Lapse Drift
Object	+24V0.6A

1.Graph



Input Volt. 100V
Load 100%

Temperature 25°C
Testing Circuitry Figure A

2.Values

Time since start [H]	Output Voltage [V]
0.0	24.036
0.5	24.028
1.0	24.028
2.0	24.028
3.0	24.028
4.0	24.028
5.0	24.028
6.0	24.028
7.0	24.028
8.0	24.028

COSEL

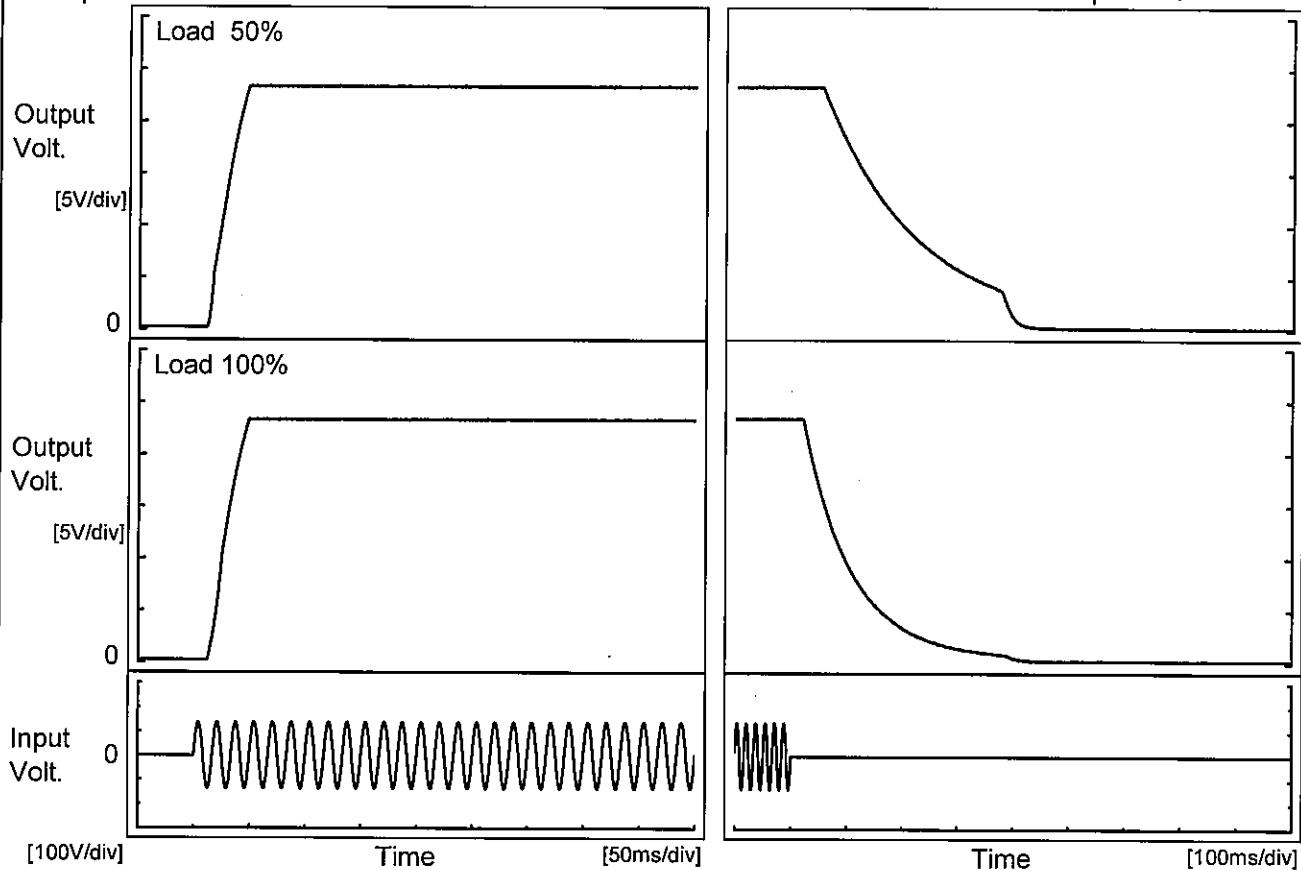
Model G2-24

Item Rise and Fall Time

Object +24V0.6A

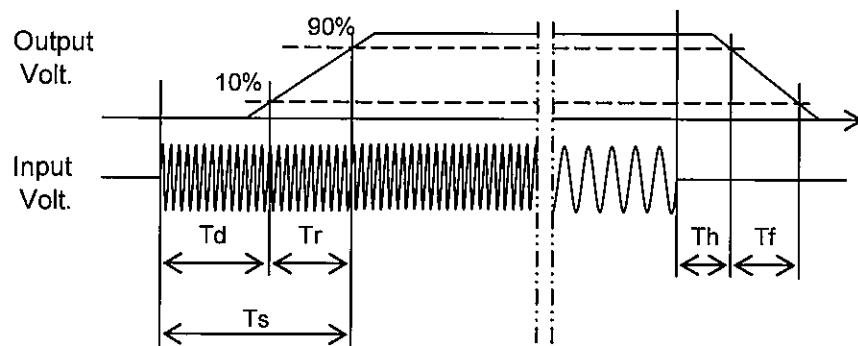
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

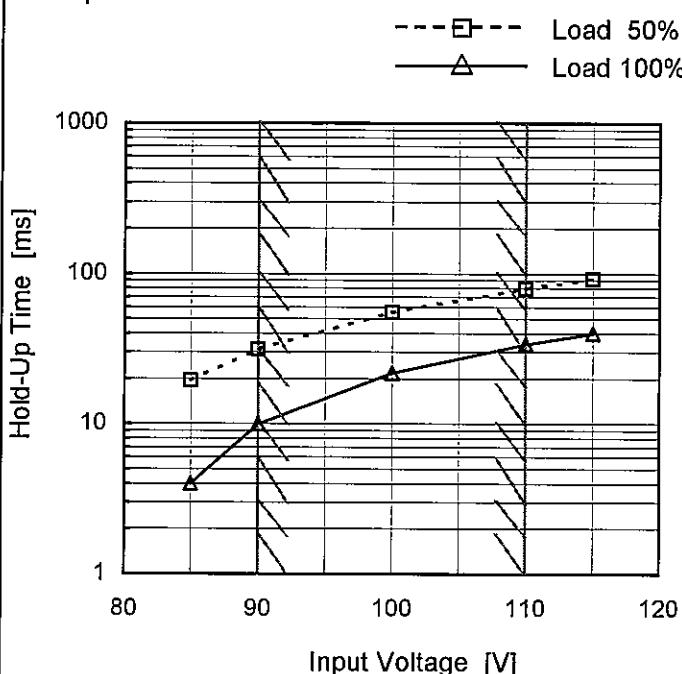
Load	Time	Td	Tr	Ts	Th	Tf
50 %		14.5	29.5	44.0	65.0	321.5
100 %		16.8	28.3	45.1	27.0	200.5



Model	G2-24
Item	Hold-Up Time
Object	+24V0.6A

Temperature 25°C
Testing Circuitry Figure A

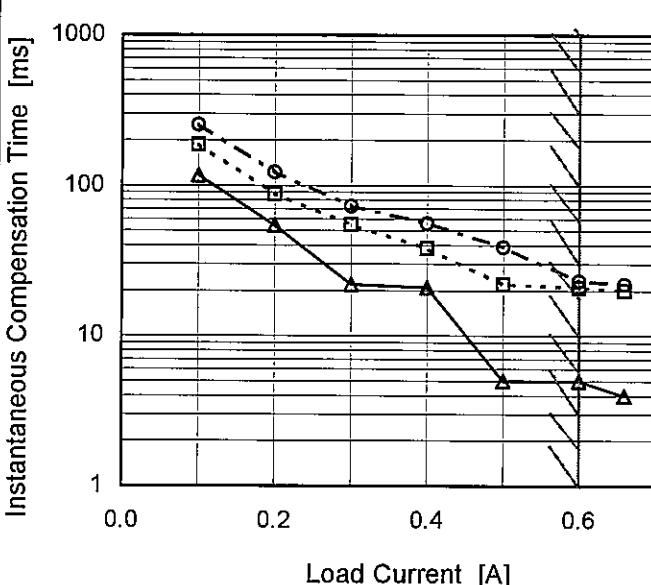
1. Graph



2. Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	19	4
90	31	10
100	55	22
110	80	34
115	92	40
--	-	-
--	-	-
--	-	-
--	-	-

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.

Model	G2-24	Temperature Testing Circuitry 25°C Figure A																																																			
Item	Instantaneous Interruption Compensation																																																				
Object	+24V0.6A																																																				
1.Graph	<p>—△— Input Volt. 90V - - -□-- Input Volt. 100V - - -○-- Input Volt. 110V</p>  <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</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. 90[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 110[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.10</td><td>117</td><td>186</td><td>254</td></tr> <tr><td>0.20</td><td>54</td><td>88</td><td>123</td></tr> <tr><td>0.30</td><td>22</td><td>55</td><td>73</td></tr> <tr><td>0.40</td><td>21</td><td>38</td><td>56</td></tr> <tr><td>0.50</td><td>5</td><td>22</td><td>39</td></tr> <tr><td>0.60</td><td>5</td><td>21</td><td>23</td></tr> <tr><td>0.66</td><td>4</td><td>20</td><td>22</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. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]	0.00	-	-	-	0.10	117	186	254	0.20	54	88	123	0.30	22	55	73	0.40	21	38	56	0.50	5	22	39	0.60	5	21	23	0.66	4	20	22	--	-	-	-	--	-	-	-	--	-	-	-
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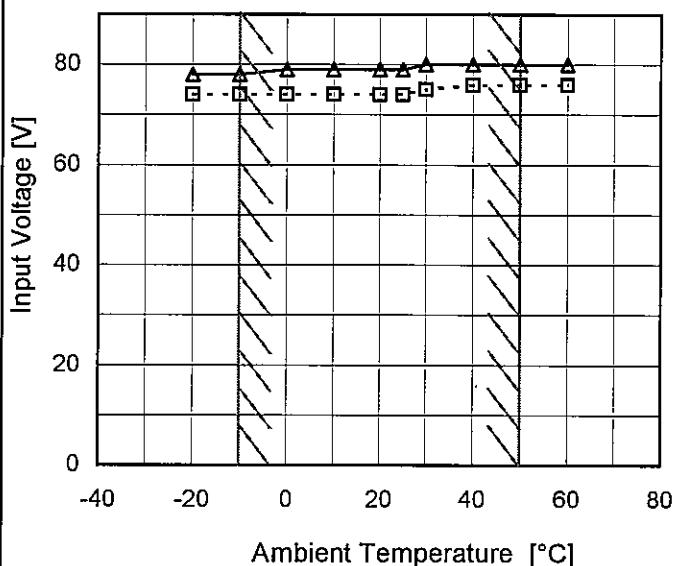
Note: Slanted line shows the range of the rated load current.

Model	G2-24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V0.6A

Testing Circuitry Figure A

1. Graph

---□--- Load 50%
—△— Load 100%



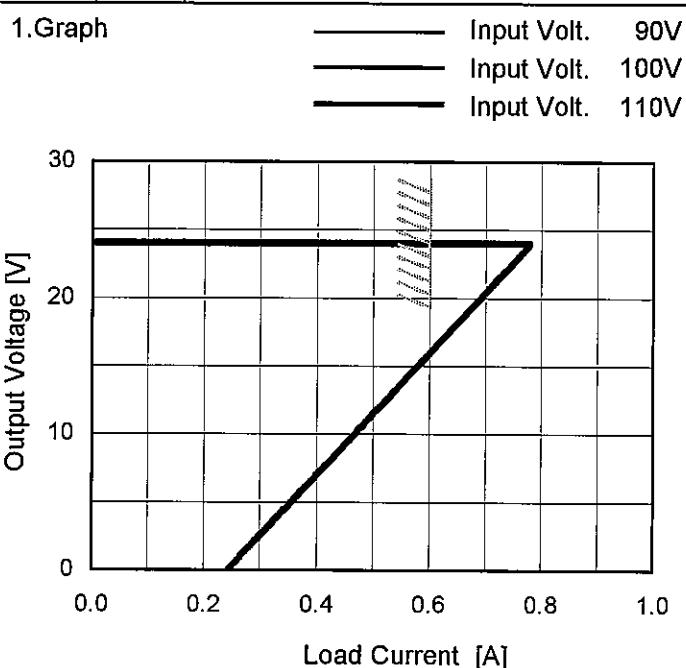
Note: Slanted line shows the range of the rated ambient temperature.

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	74	78
-10	74	78
0	74	79
10	74	79
20	74	79
25	74	79
30	75	80
40	76	80
50	76	80
60	76	80
--	-	-

COSEL

Model	G2-24
Item	Overcurrent Protection
Object	+24V0.6A



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

Temperature 25°C
Testing Circuitry Figure A

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
24.0	0.78	0.78	0.78
22.8	0.75	0.75	0.75
21.6	0.74	0.74	0.74
19.2	0.68	0.68	0.68
16.8	0.62	0.62	0.62
14.4	0.57	0.57	0.57
12.0	0.52	0.52	0.52
9.6	0.46	0.46	0.46
7.2	0.41	0.41	0.41
4.8	0.35	0.35	0.35
2.4	0.30	0.30	0.30
0.0	0.24	0.24	0.24

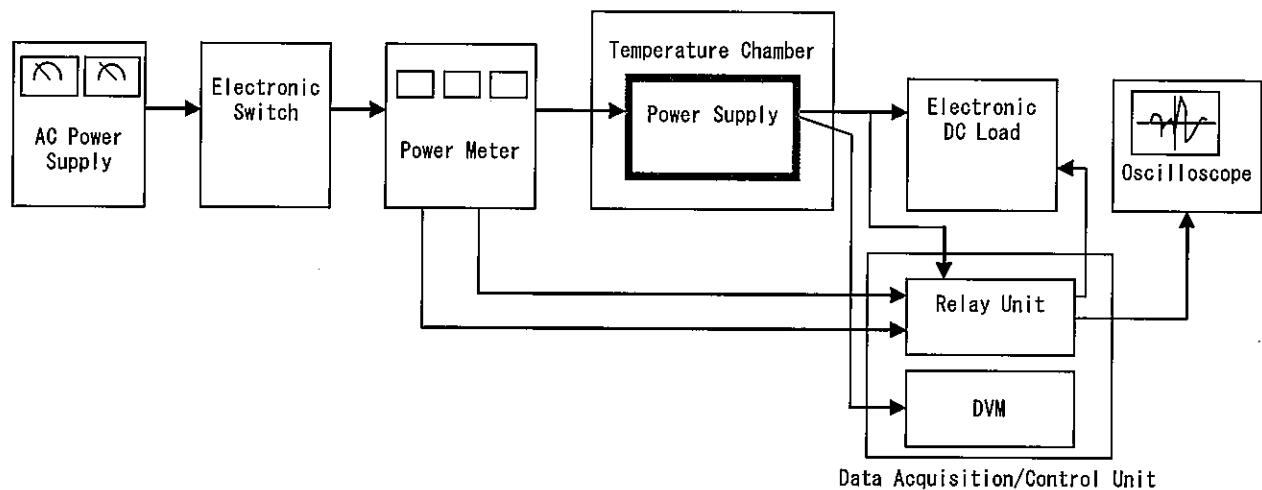


Figure A