COSEL

参考資料

TEST DATA OF G2-12

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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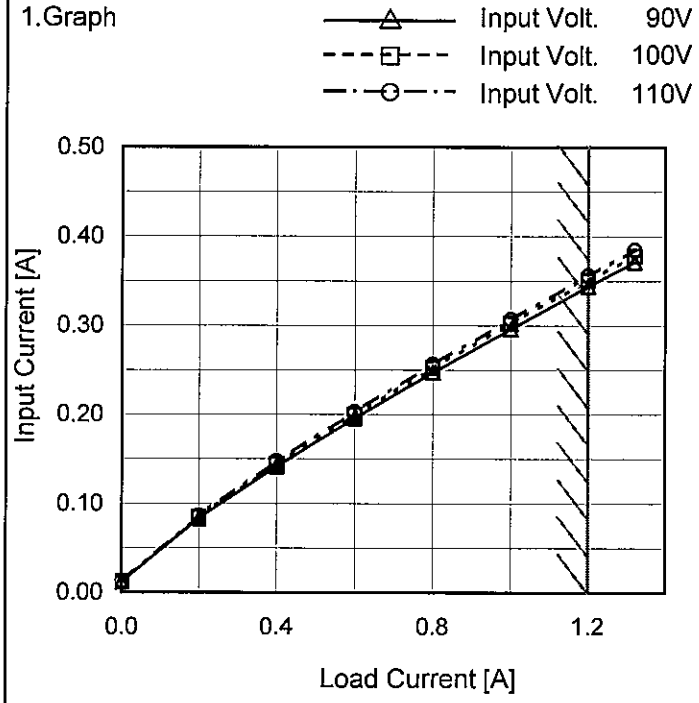
Model	G2-12
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	0.012	0.012	0.012
0.20	0.083	0.085	0.086
0.40	0.142	0.145	0.147
0.60	0.196	0.200	0.203
0.80	0.247	0.252	0.256
1.00	0.296	0.302	0.307
1.20	0.344	0.350	0.356
1.32	0.371	0.378	0.385
--	-	-	-
--	-	-	-
--	-	-	-

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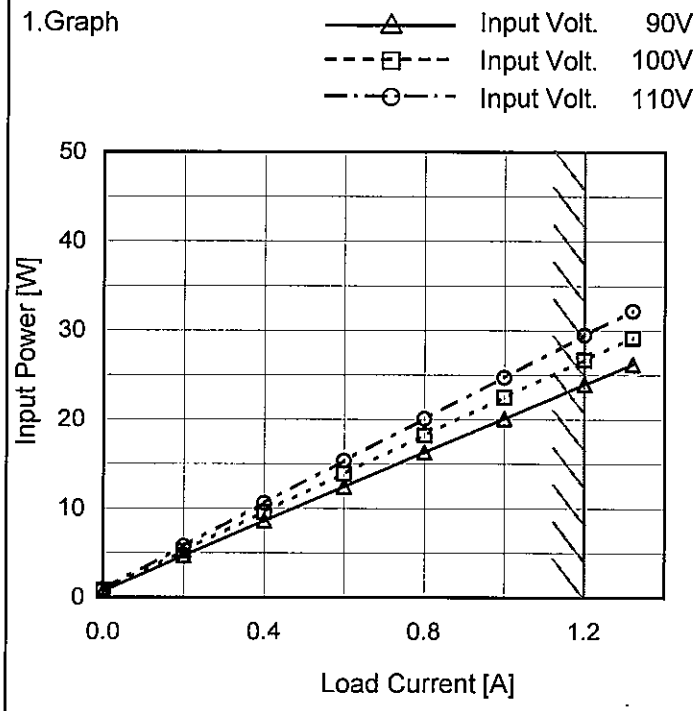
Model	G2-12
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	0.68	0.78	0.89
0.20	4.67	5.20	5.74
0.40	8.57	9.58	10.59
0.60	12.44	13.91	15.33
0.80	16.32	18.21	20.08
1.00	20.08	22.47	24.72
1.20	23.93	26.70	29.50
1.32	26.17	29.16	32.20
--	-	-	-
--	-	-	-
--	-	-	-

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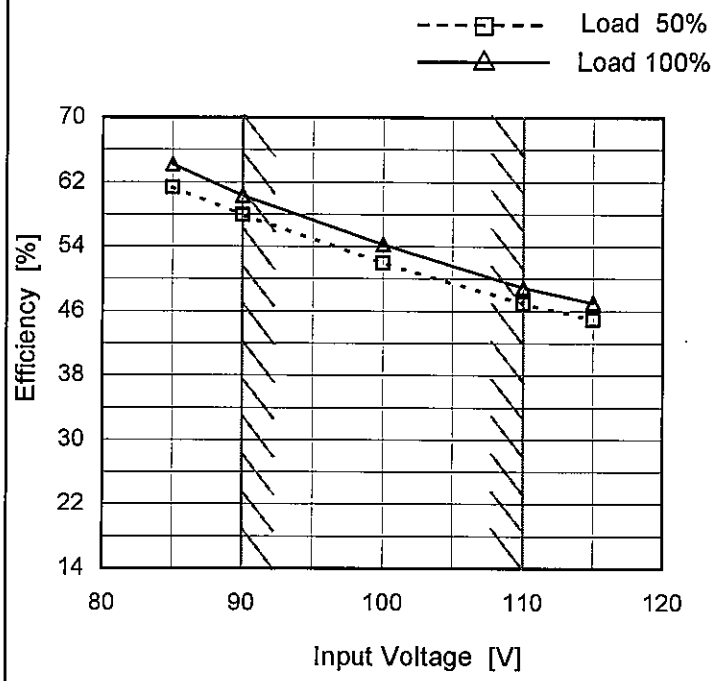
Model	G2-12
Item	Efficiency (by Input Voltage)
Object	――――――――

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]	Efficiency [%]	
	Load 50%	Load 100%
85	61.3	64.2
90	57.9	60.3
100	51.9	54.3
110	46.9	48.9
115	45.0	47.0
--	-	-
--	-	-
--	-	-
--	-	-

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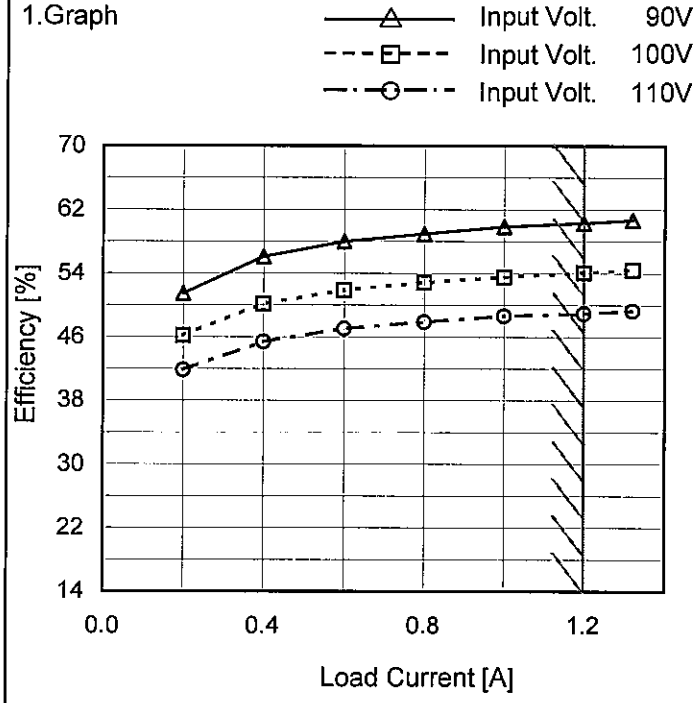
Model	G2-12
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.20	51.4	46.2	41.8
0.40	56.1	50.2	45.4
0.60	58.0	51.8	47.0
0.80	58.9	52.8	47.9
1.00	59.9	53.5	48.6
1.20	60.3	54.1	48.9
1.32	60.7	54.4	49.3
--	-	-	-
--	-	-	-
--	-	-	-

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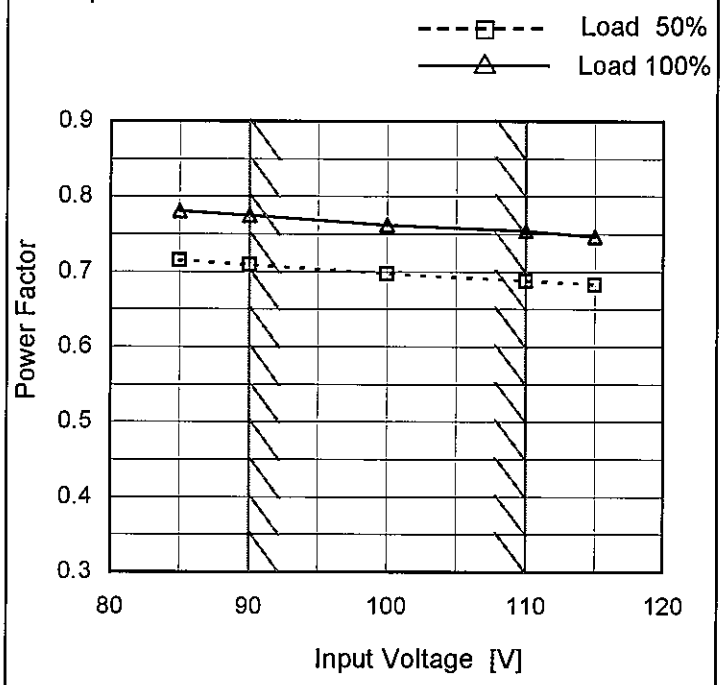
Model	G2-12
Item	Power Factor (by Input Voltage)
Object	――――――――――

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]	Power Factor	
	Load 50%	Load 100%
85	0.715	0.780
90	0.709	0.775
100	0.697	0.762
110	0.687	0.754
115	0.682	0.747
--	-	-
--	-	-
--	-	-
--	-	-

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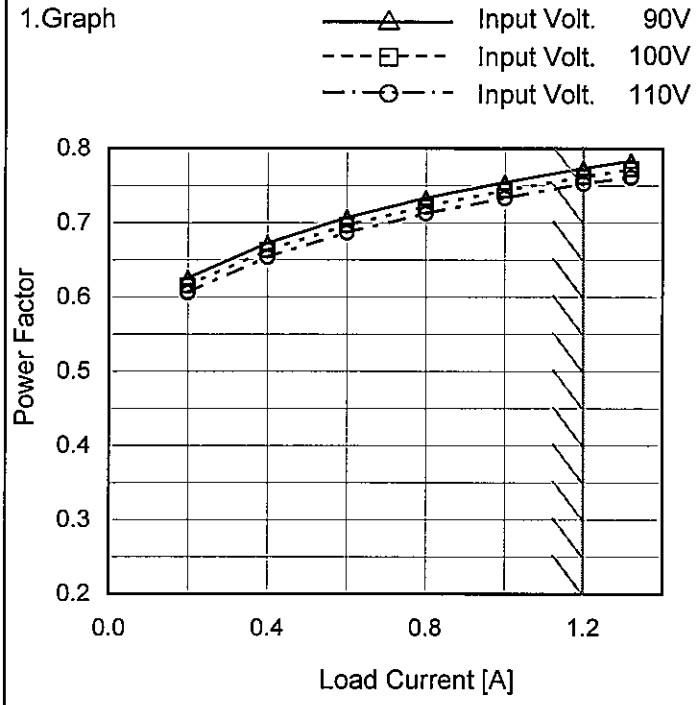
Model	G2-12
Item	Power Factor (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Power Factor		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.20	0.626	0.615	0.606
0.40	0.673	0.663	0.654
0.60	0.707	0.697	0.687
0.80	0.734	0.722	0.712
1.00	0.755	0.744	0.733
1.20	0.774	0.762	0.753
1.32	0.784	0.772	0.761
--	-	-	-
--	-	-	-
--	-	-	-

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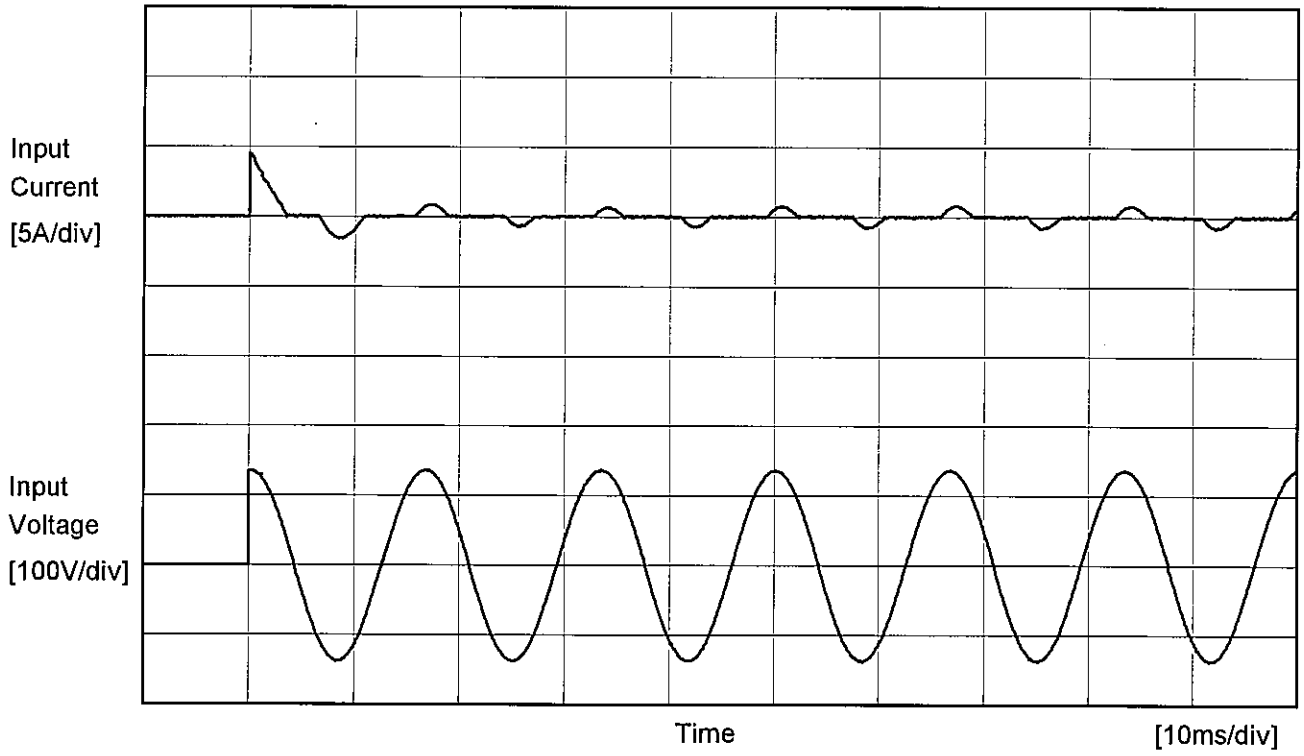
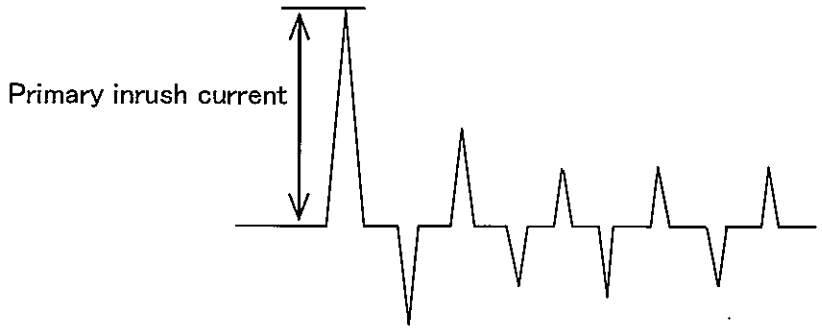
Model	G2-12	Temperature 25°C
Item	Inrush Current	Testing Circuitry Figure A
Object	――――――	



Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	4.5 A



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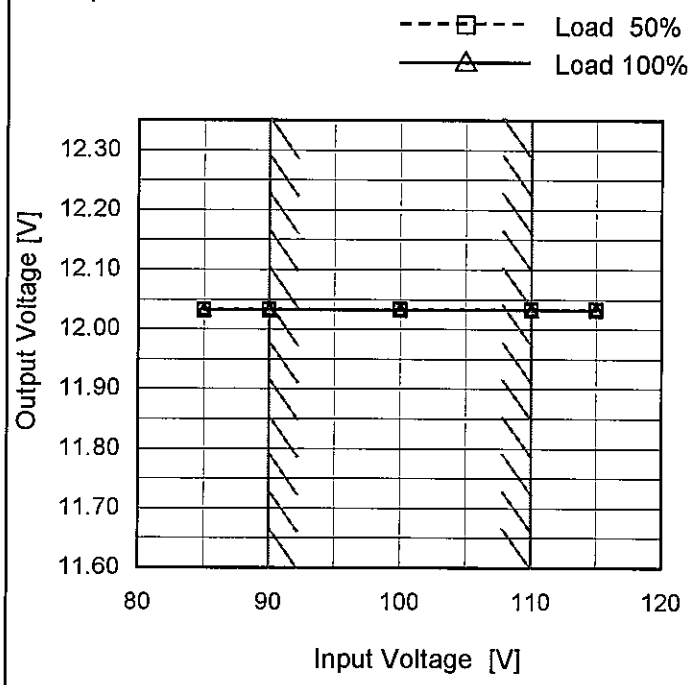
Model	G2-12
Item	Line Regulation
Object	+12V1.2A

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	12.034	12.032
90	12.034	12.032
100	12.034	12.032
110	12.034	12.033
115	12.034	12.032
--	-	-
--	-	-
--	-	-
--	-	-

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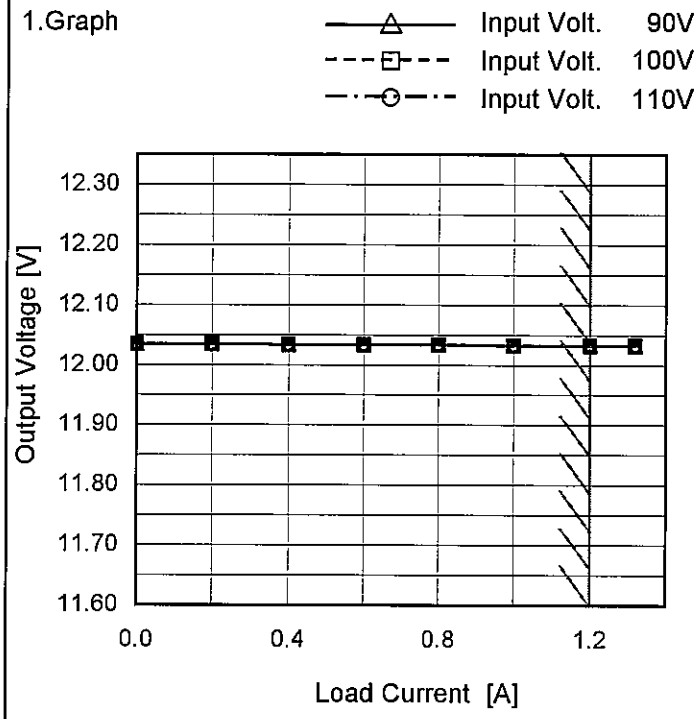
Model	G2-12
Item	Load Regulation
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	12.035	12.035	12.035
0.20	12.034	12.034	12.034
0.40	12.034	12.034	12.034
0.60	12.034	12.034	12.034
0.80	12.033	12.033	12.033
1.00	12.033	12.033	12.033
1.20	12.032	12.032	12.033
1.32	12.032	12.032	12.032
--	-	-	-
--	-	-	-
--	-	-	-

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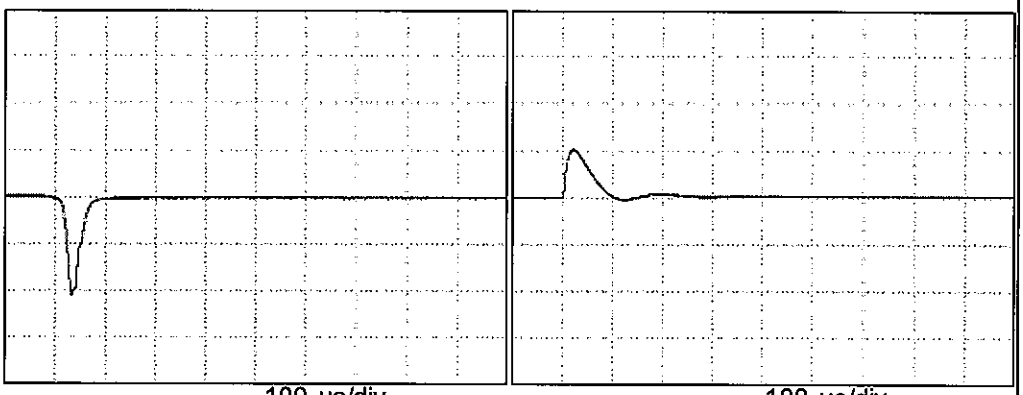
Model	G2-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+12V1.2A		

Input Volt. 100 V
Cycle 1000 ms

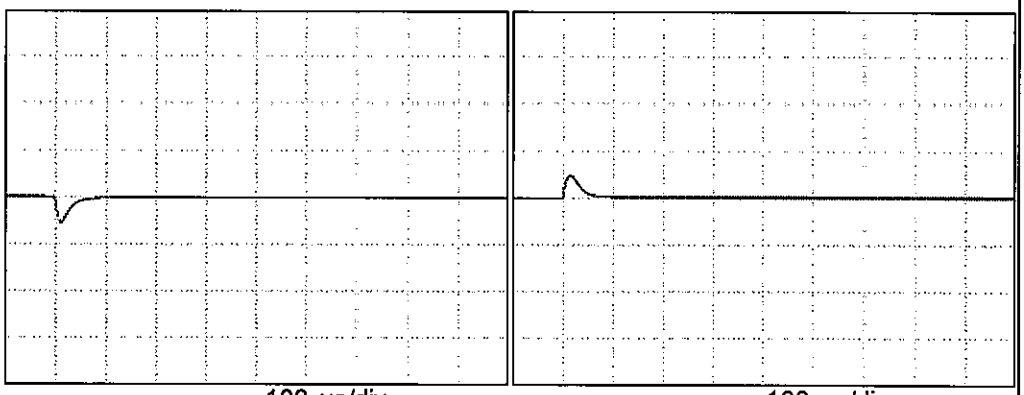
Load Current

Min. Load (0A) ←→
Load 100% (1.2A)



50 mV/div
100 μs/div
100 μs/div

Load 50% (0.6A) ←→
Load 100% (1.2A)



50 mV/div
100 μs/div
100 μs/div

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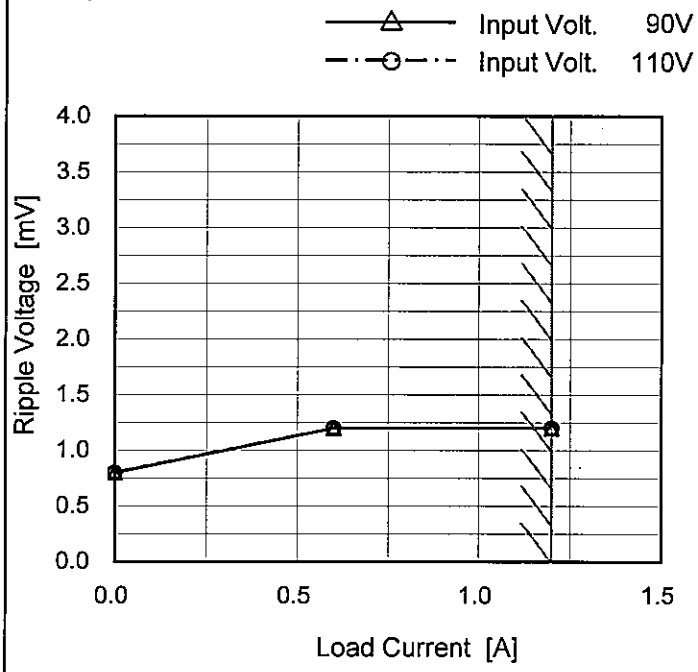
Model	G2-12
Item	Ripple Voltage (by Load Current)
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.0	0.8	0.8
0.6	1.2	1.2
1.2	1.2	1.2
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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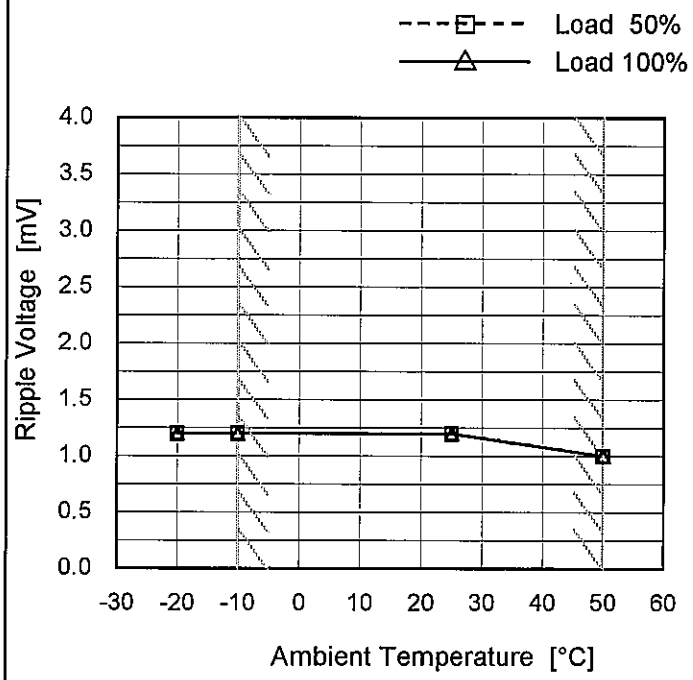
Model	G2-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.2A

Testing Circuitry Figure A

1.Graph



Input Volt. 100V

Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	1.2	1.2
-10	1.2	1.2
25	1.2	1.2
50	1.0	1.0
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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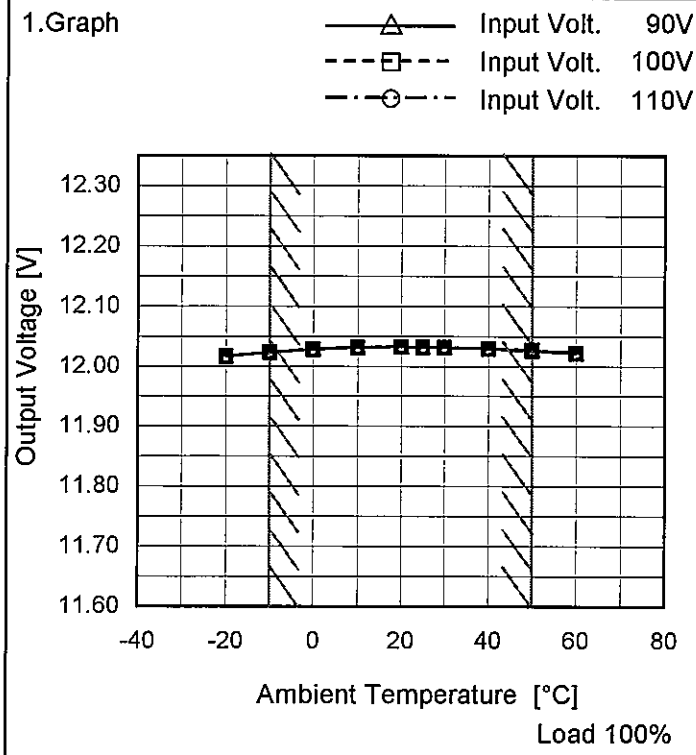
Model	G2-12
Item	Ambient Temperature Drift
Object	+12V1.2A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	12.017	12.017	12.017
-10	12.023	12.023	12.023
0	12.028	12.028	12.028
10	12.031	12.031	12.031
20	12.032	12.032	12.032
25	12.032	12.032	12.032
30	12.031	12.032	12.032
40	12.030	12.030	12.030
50	12.027	12.027	12.027
60	12.022	12.022	12.022
--	-	-	-

COSEL

Model	G2-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V1.2A	

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 - 1.2A

* 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	20	110	0	12.034	±6	±0.1
Minimum Voltage	-10	90	1.2	12.023		

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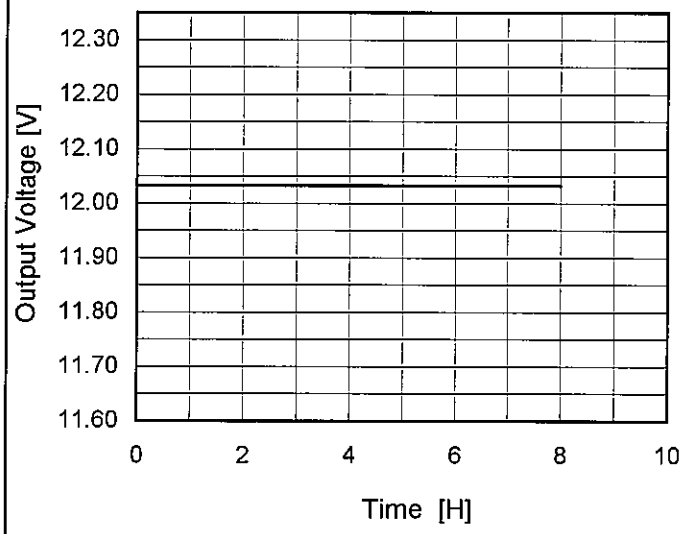
Model	G2-12
Item	Time Lapse Drift
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.033
0.5	12.033
1.0	12.033
2.0	12.033
3.0	12.033
4.0	12.033
5.0	12.033
6.0	12.033
7.0	12.033
8.0	12.033

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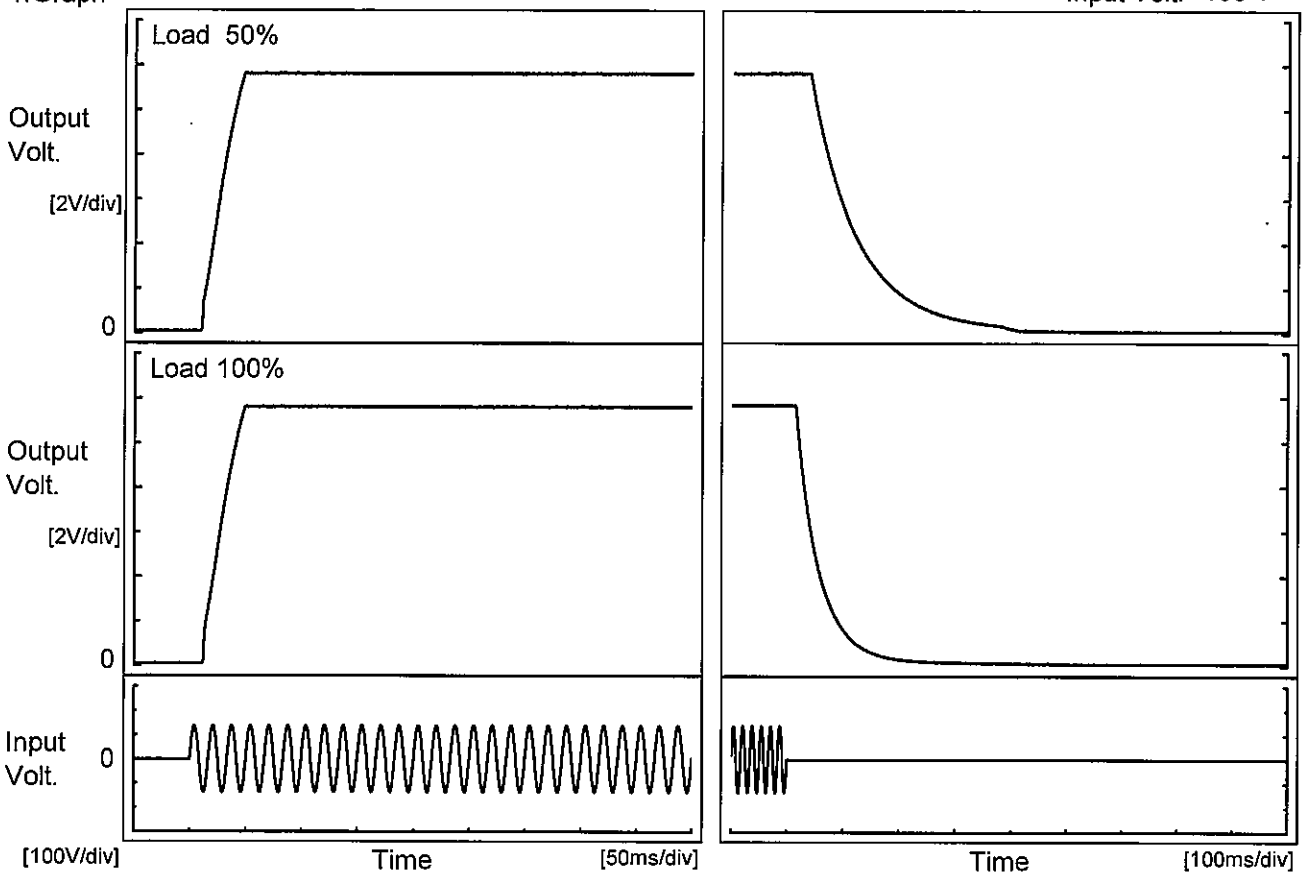
Model	G2-12
Item	Rise and Fall Time
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

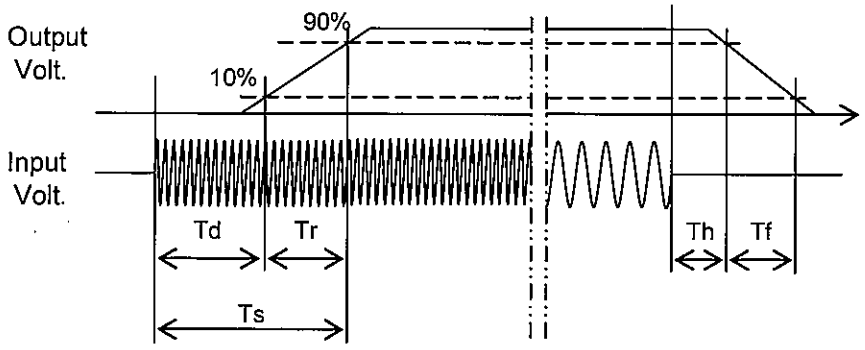
Input Volt. 100 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	11.0	32.5	43.5	45.5	185.5
100 %	13.3	31.5	44.8	18.0	94.0



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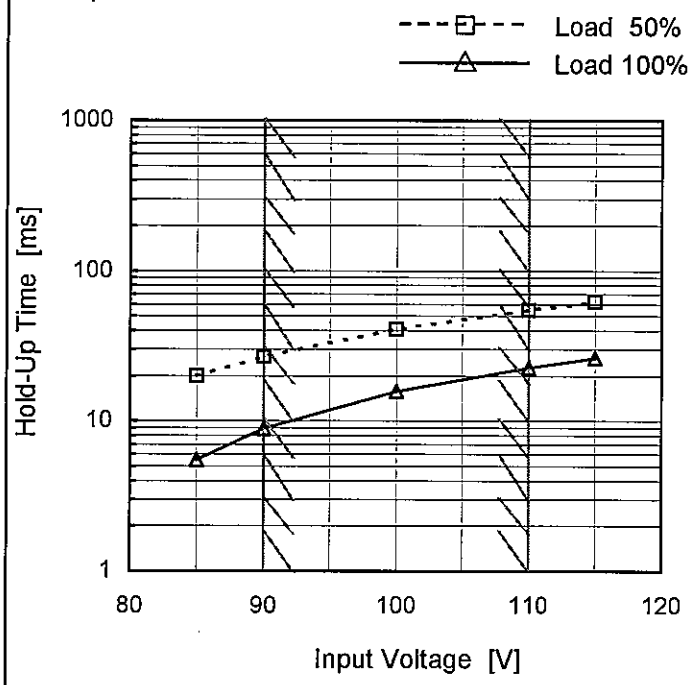
Model	G2-12
Item	Hold-Up Time
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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.

2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	20	6
90	27	9
100	41	16
110	55	23
115	62	26
--	-	-
--	-	-
--	-	-
--	-	-

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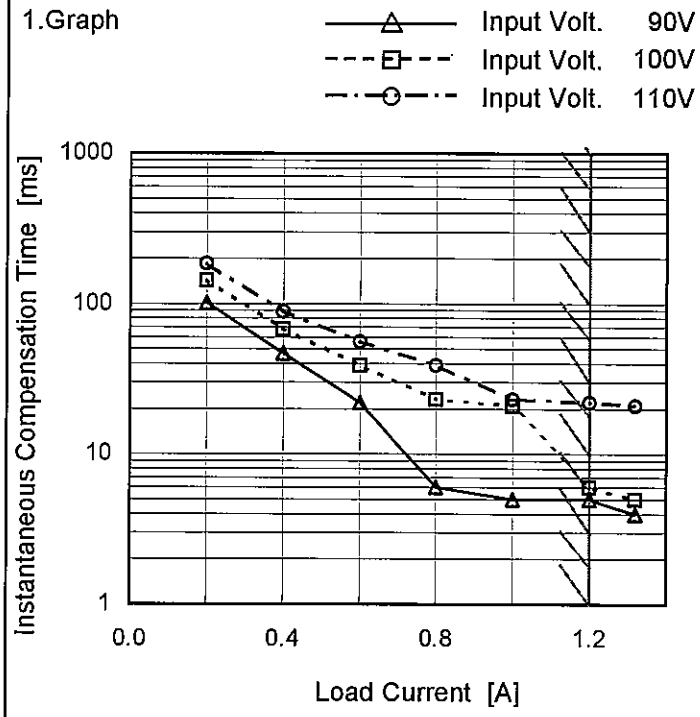
COSEL

Model	G2-12
Item	Instantaneous Interruption Compensation
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.20	102	144	185
0.40	47	68	89
0.60	22	39	56
0.80	6	23	39
1.00	5	21	23
1.20	5	6	22
1.32	4	5	21
--	-	-	-
--	-	-	-
--	-	-	-

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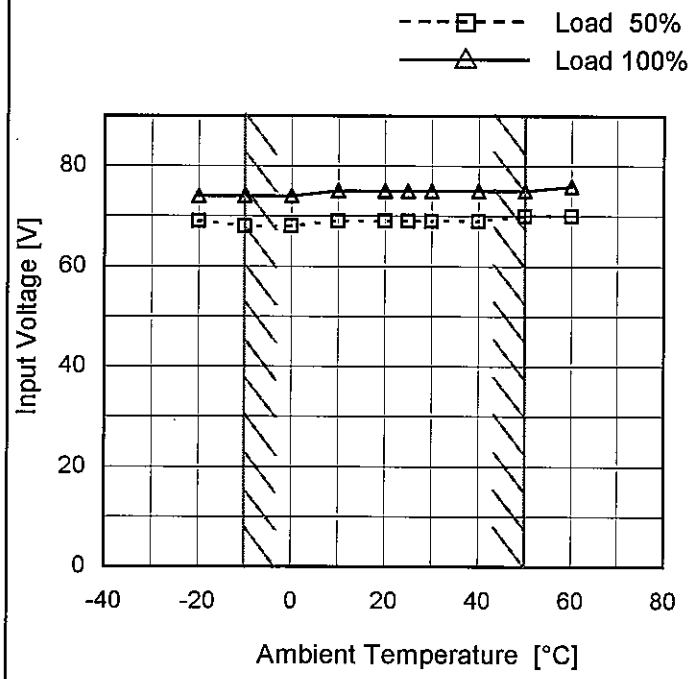
Model	G2-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.2A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	69	74
-10	68	74
0	68	74
10	69	75
20	69	75
25	69	75
30	69	75
40	69	75
50	70	75
60	70	76
--	-	-

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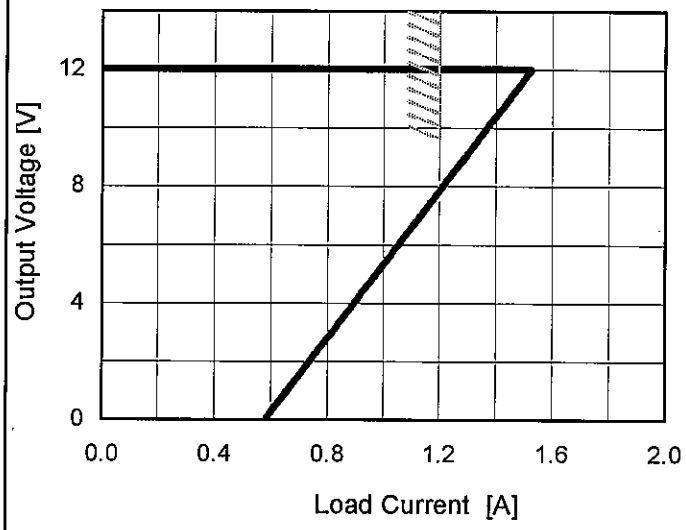
Model	G2-12
Item	Overcurrent Protection
Object	+12V1.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
12.0	1.52	1.52	1.52
11.4	1.48	1.48	1.47
10.8	1.44	1.44	1.44
9.6	1.34	1.34	1.34
8.4	1.25	1.25	1.25
7.2	1.15	1.15	1.15
6.0	1.06	1.06	1.06
4.8	0.96	0.96	0.96
3.6	0.87	0.86	0.86
2.4	0.77	0.77	0.77
1.2	0.67	0.67	0.67
0.0	0.58	0.58	0.58

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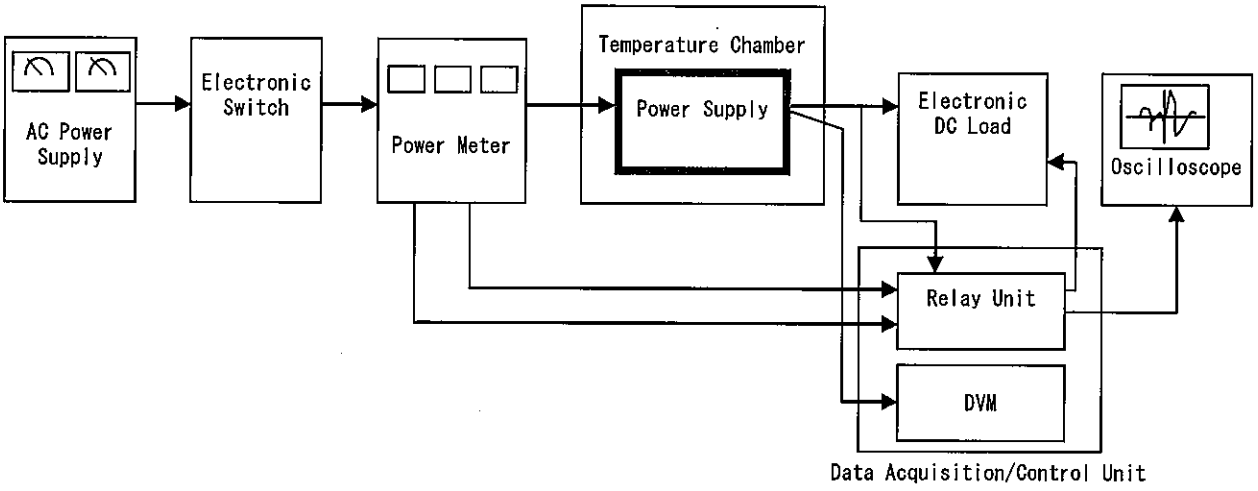

Figure A