参考資料

COSEL

TEST DATA OF MODULE F

(ACE series)

Regulated DC power supply
Aug.18.2003

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COSEL CO.,LTD.

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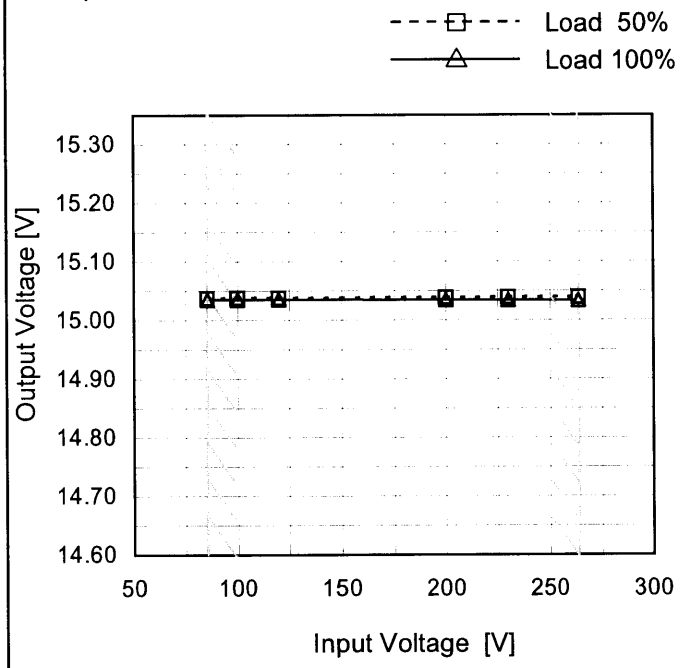
Model	MODULE F
Item	Line Regulation
Object	+15V10A

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	15.038	15.036
100	15.038	15.036
120	15.038	15.035
200	15.039	15.035
230	15.039	15.035
264	15.039	15.034
--	-	-
--	-	-
--	-	-

BC-0921

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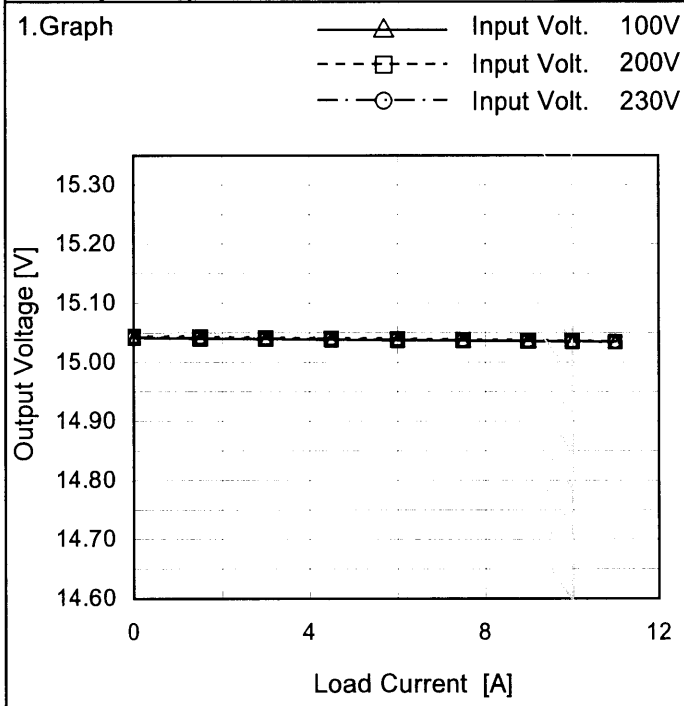
Model	MODULE F
Item	Load Regulation
Object	+15V10A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	15.042	15.044	15.042
1.5	15.040	15.043	15.041
3.0	15.039	15.042	15.040
4.5	15.039	15.041	15.039
6.0	15.038	15.040	15.038
7.5	15.037	15.038	15.037
9.0	15.036	15.037	15.036
10.0	15.035	15.036	15.035
11.0	15.035	15.034	15.034
--	-	-	-
--	-	-	-

COSEL

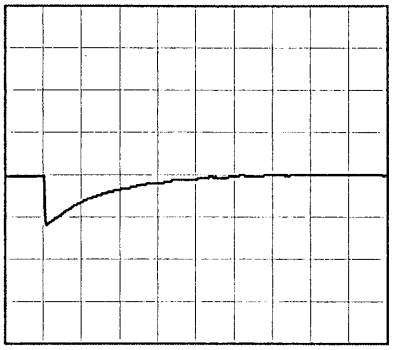
Model	MODULE F
Item	Dynamic Load Response
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

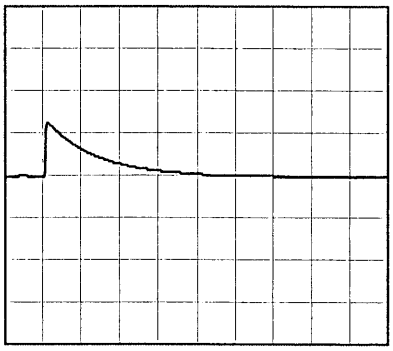
Load Current

Min. Load (0A) ⟷
Load 100% (10A)



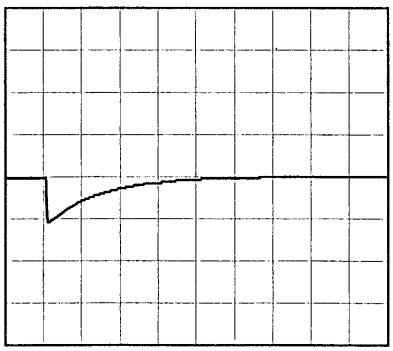
100 mV/div

10 ms/div



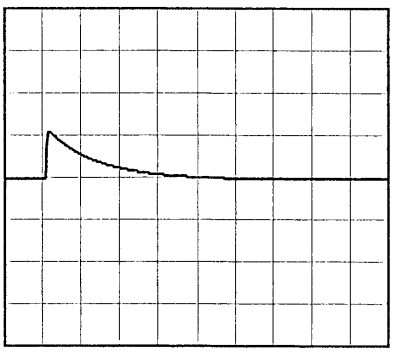
10 ms/div

Min. Load (0A) ⟷
Load 50% (5A)



100 mV/div

10 ms/div



10 ms/div

* The characteristic of AC200V is equal.

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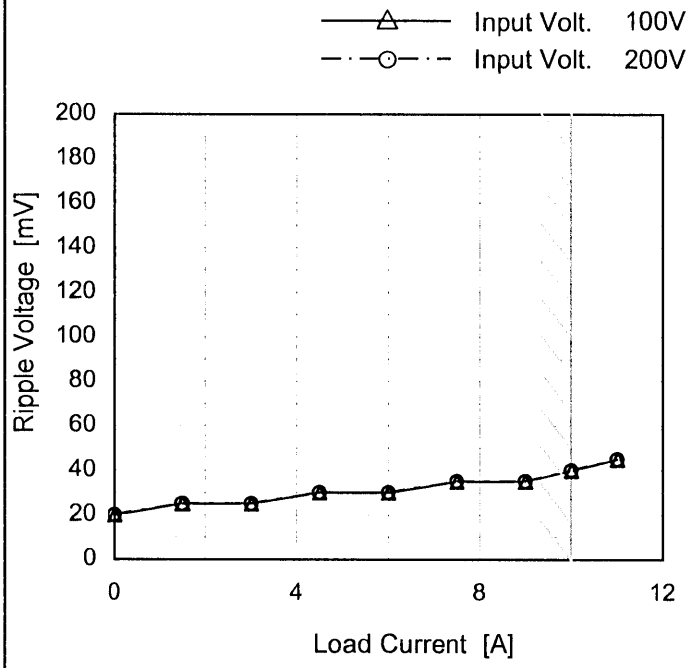
Model	MODULE F
Item	Ripple Voltage (by Load Current)
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

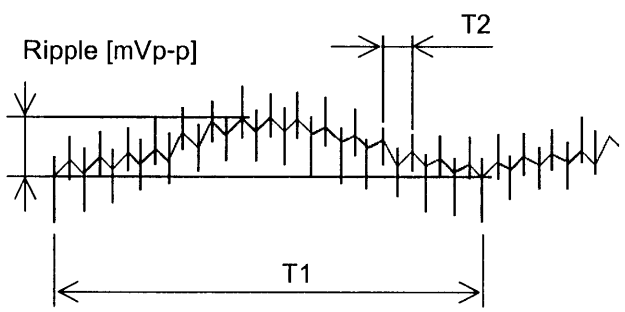


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	20	20
1.5	25	25
3.0	25	25
4.5	30	30
6.0	30	30
7.5	35	35
9.0	35	35
10.0	40	40
11.0	45	45
--	-	-
--	-	-

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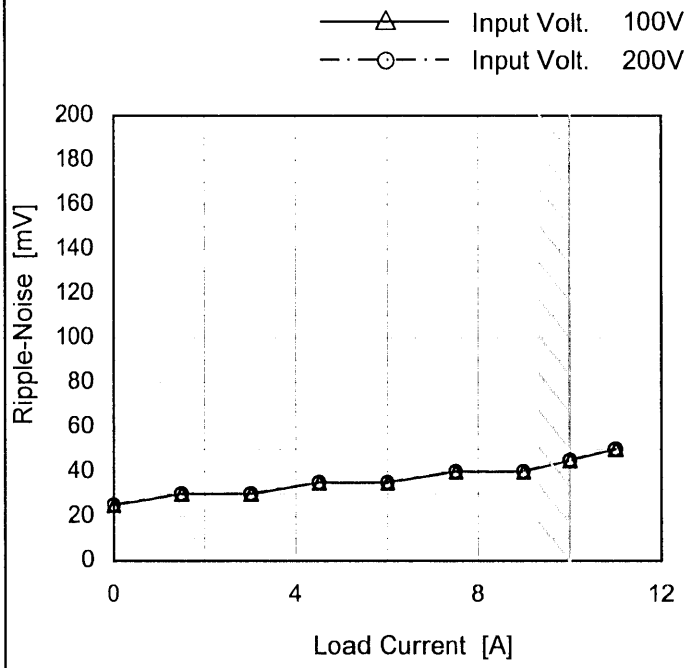
Model	MODULE F
Item	Ripple-Noise
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 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. 200 [V]
0.0	25	25
1.5	30	30
3.0	30	30
4.5	35	35
6.0	35	35
7.5	40	40
9.0	40	40
10.0	45	45
11.0	50	50
--	-	-
--	-	-

T1: Due to AC Input Line
T2: Due to Switching

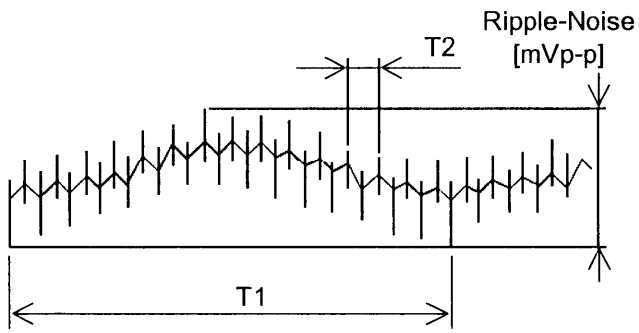


Fig. Complex Ripple Wave Form

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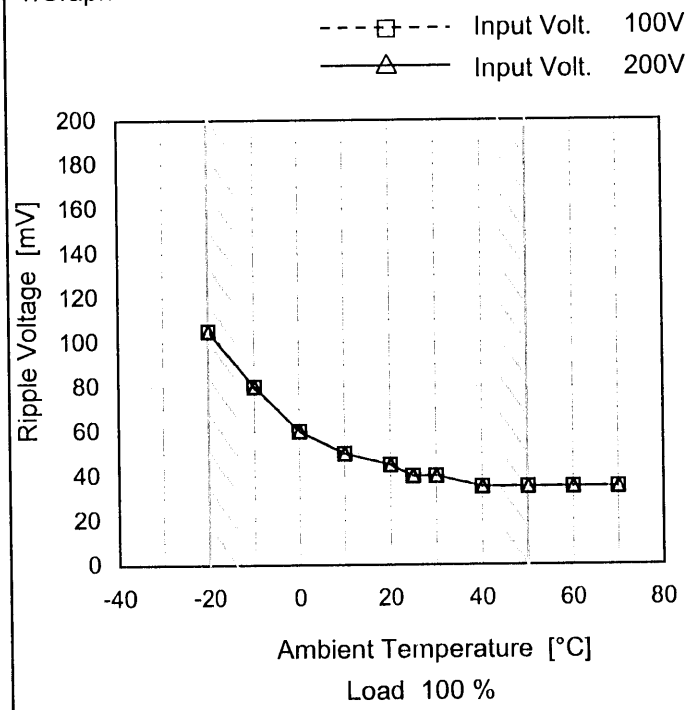
Model	MODULE F
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V10A

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. 200 [V]
-20	105	105
-10	80	80
0	60	60
10	50	50
20	45	45
25	40	40
30	40	40
40	35	35
50	35	35
60	35	35
70	35	35

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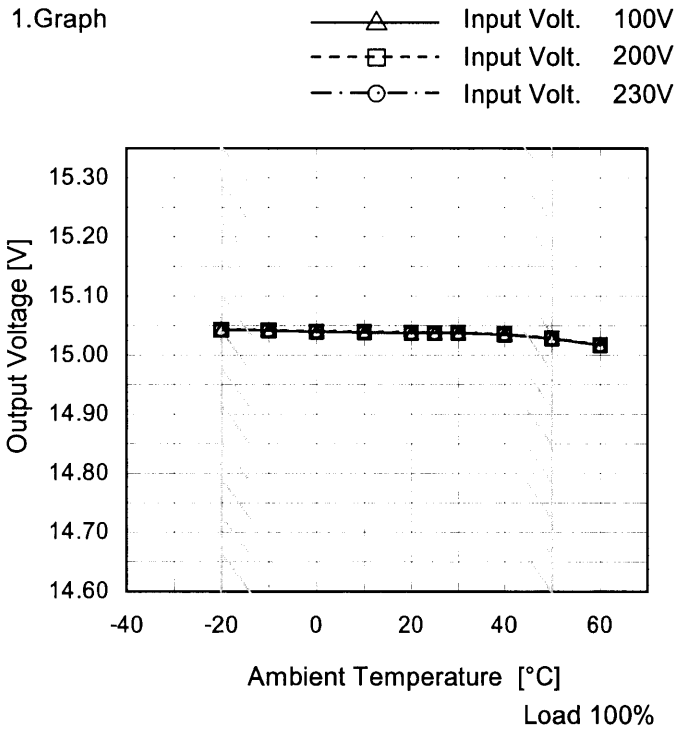
Model	MODULE F
Item	Ambient Temperature Drift
Object	+15V10A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	15.044	15.043	15.043
-10	15.042	15.042	15.042
0	15.040	15.040	15.040
10	15.039	15.039	15.039
20	15.038	15.038	15.038
25	15.037	15.037	15.037
30	15.038	15.038	15.038
40	15.035	15.035	15.035
50	15.029	15.029	15.028
60	15.017	15.018	15.017
--	-	-	-

COSEL

Model	MODULE F	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V10A	

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 : 85 - 264V
Load Current : 0 - 10A

* 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	264	0	15.051	±12	±0.1
Minimum Voltage	50	264	10	15.028		

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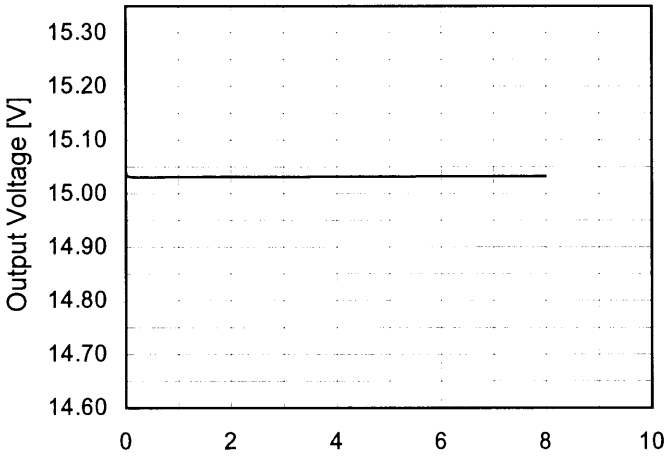
Model	MODULE F
Item	Time Lapse Drift
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

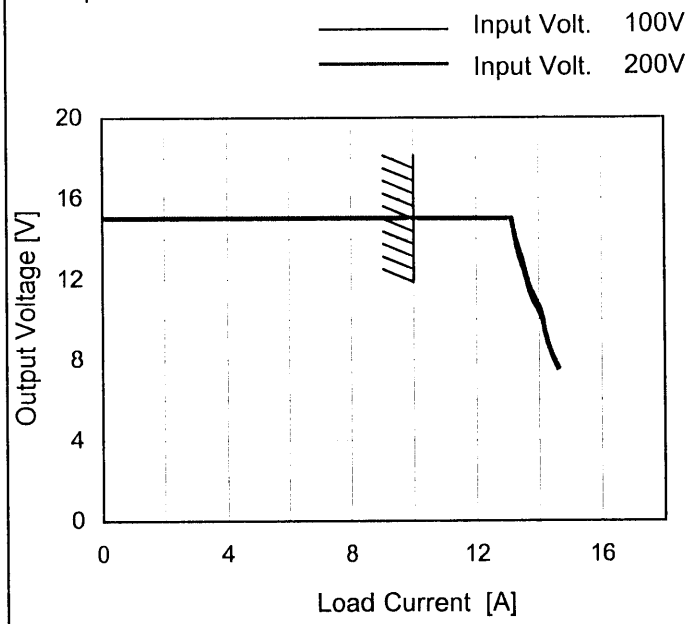
Time since start [H]	Output Voltage [V]
0.0	15.040
0.5	15.031
1.0	15.031
2.0	15.032
3.0	15.032
4.0	15.032
5.0	15.032
6.0	15.033
7.0	15.033
8.0	15.033

COSEL

Model	MODULE F
Item	Overcurrent Protection
Object	+15V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when the output voltage is from 7.5V to 0V.

2.Values

Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
15.0	13.07	13.13
14.3	13.18	13.23
13.5	13.28	13.37
12.0	13.57	13.63
10.5	13.90	14.02
9.0	14.21	14.23
7.5	14.57	14.64
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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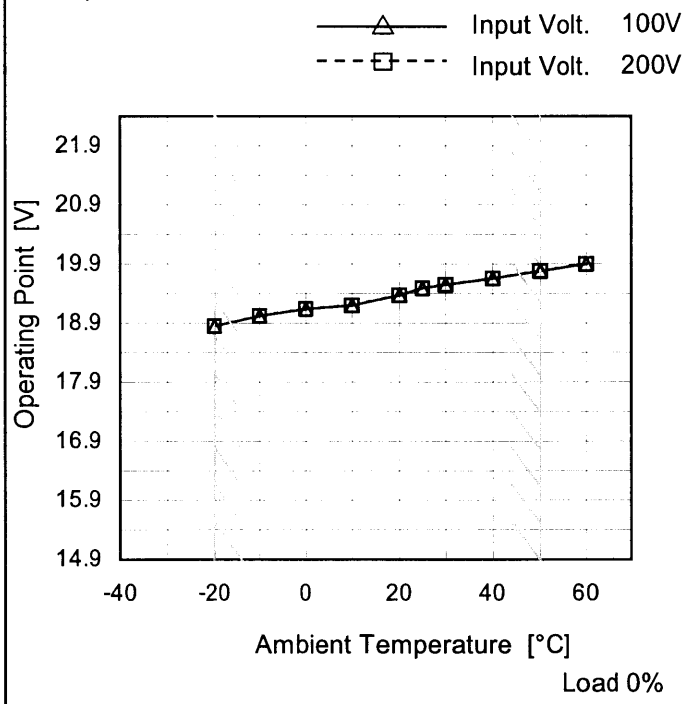
Model	MODULE F
Item	Overvoltage Protection
Object	+15V10A

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. 100[V]	Input Volt. 200[V]
-20	18.88	18.88
-10	19.05	19.05
0	19.17	19.17
10	19.23	19.23
20	19.40	19.40
25	19.52	19.52
30	19.58	19.58
40	19.69	19.69
50	19.81	19.81
60	19.93	19.93
--	-	-

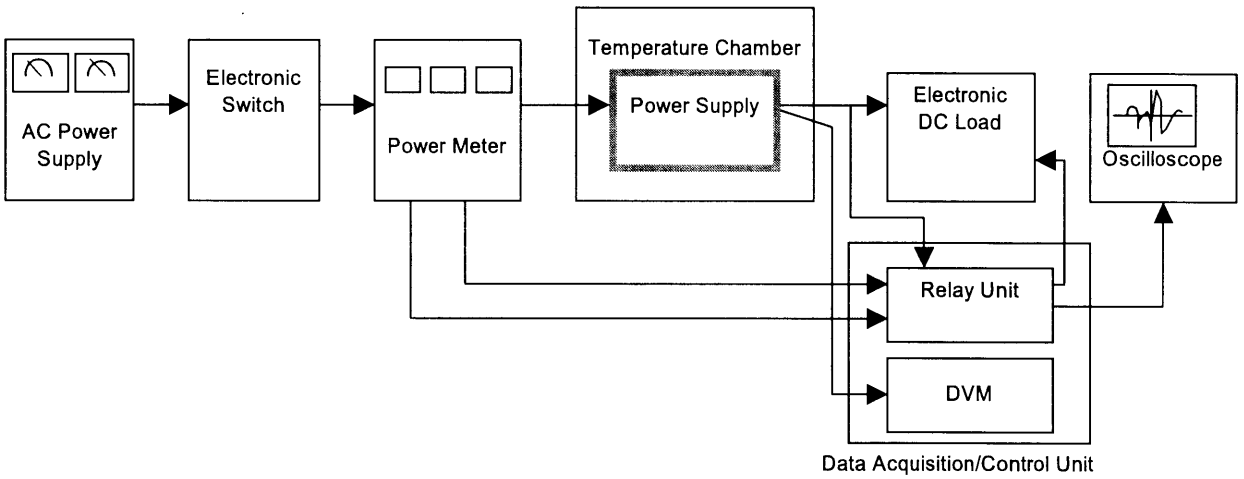


Figure A

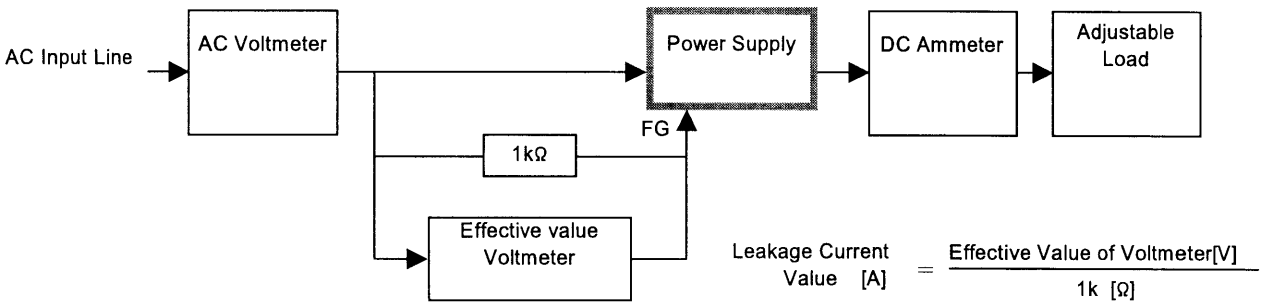


Figure B (DEN-AN)

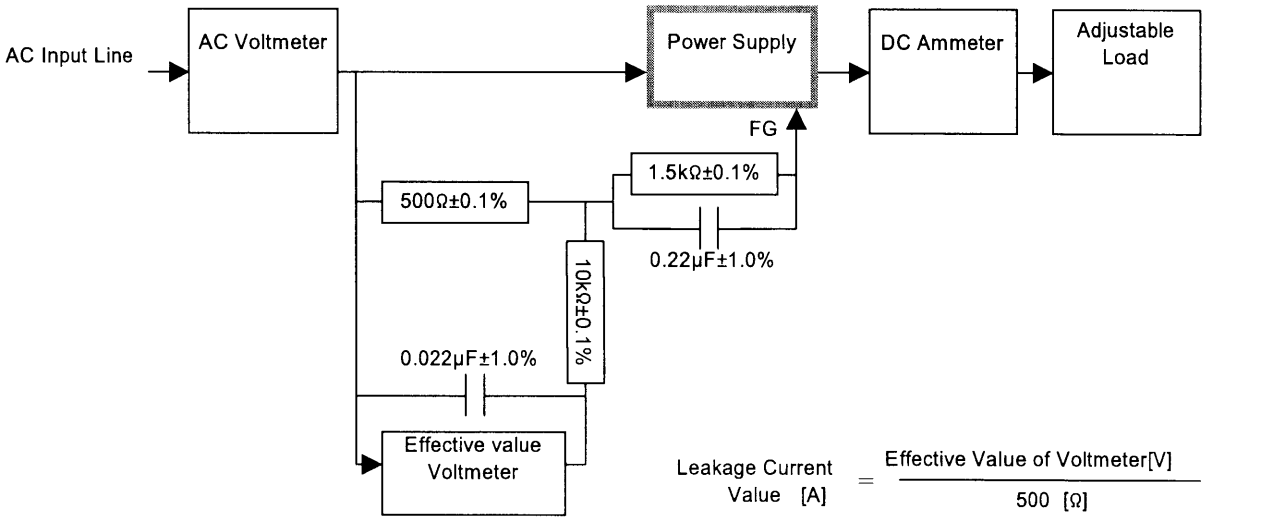


Figure B (IEC60950)