参考資料

COSEL

TEST DATA OF MODULE L

(ACE series)

Regulated DC power supply
Jun.7.2003

Approved by : K.Shibutani Design Manager

Prepared by : M.Hamaguchi Design Engineer

COSEL CO.,LTD.

COSEL

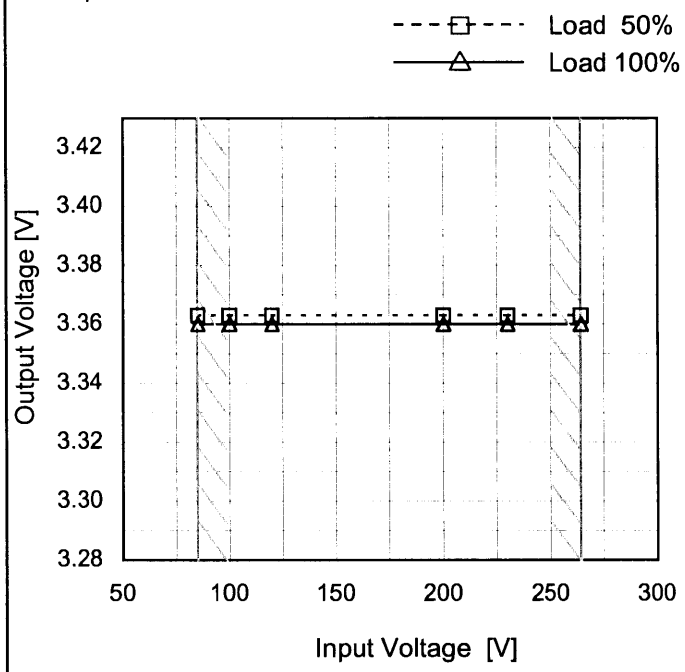
CONTENTS

COSEL

Model	MODULE L
Item	Line Regulation
Object	+3.3V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

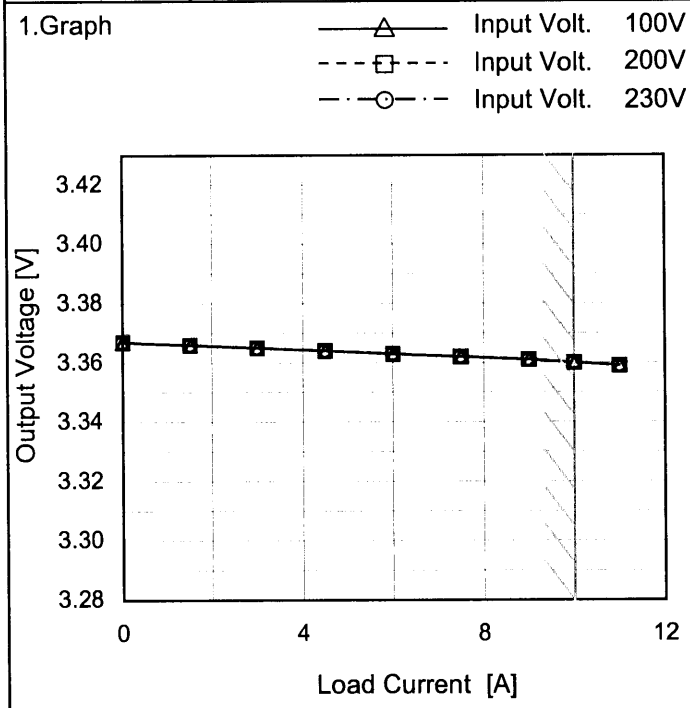
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	3.363	3.360
100	3.363	3.360
120	3.363	3.360
200	3.363	3.360
230	3.363	3.360
264	3.363	3.360
--	-	-
--	-	-
--	-	-

COSEL

Model	MODULE L
Item	Load Regulation
Object	+3.3V10A

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	3.367	3.367	3.367
1.5	3.366	3.366	3.366
3.0	3.365	3.365	3.365
4.5	3.364	3.364	3.364
6.0	3.363	3.363	3.363
7.5	3.362	3.362	3.362
9.0	3.361	3.361	3.361
10.0	3.360	3.360	3.360
11.0	3.359	3.359	3.359
--	-	-	-
--	-	-	-

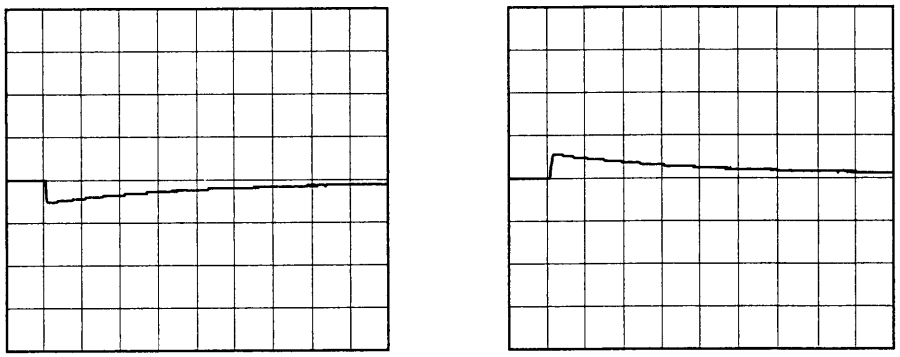
COSEL

Model	MODULE L		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure A
Object	+3.3V10A		

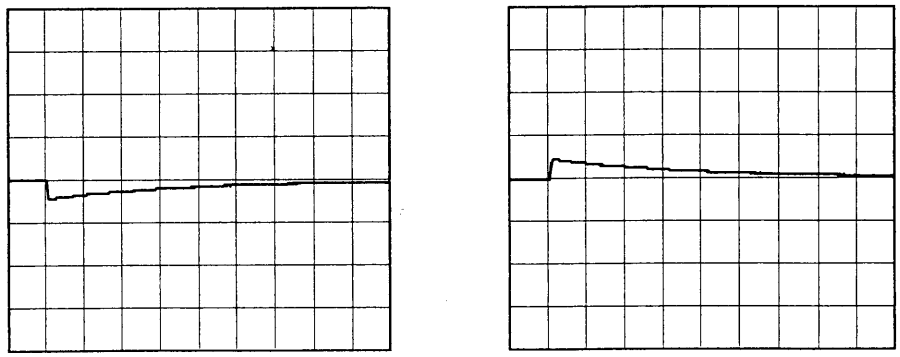
Input Volt. 100 V
Cycle 1000 mS

Load Current

Min. Load (0A) ←→
Load 100% (10A)



Min. Load (0A) ←→
Load 50% (5A)



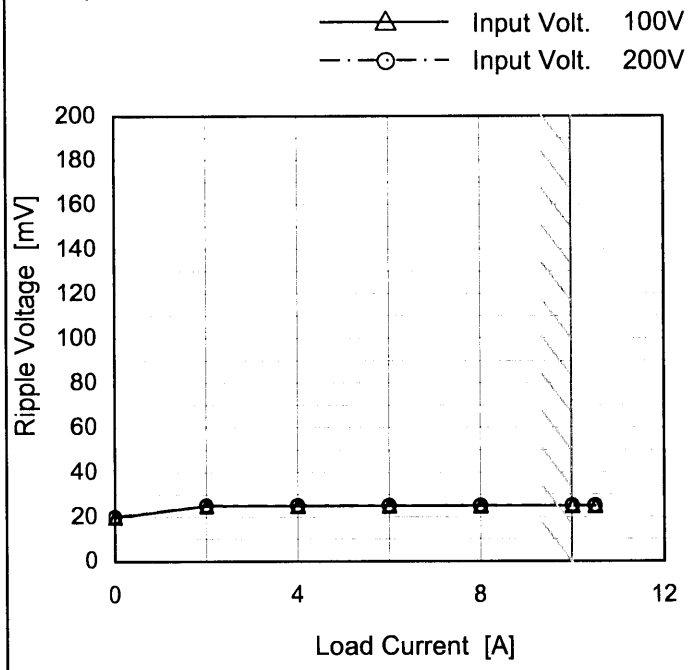
* The characteristic of AC200V is equal.

COSEL

Model	MODULE L
Item	Ripple Voltage (by Load Current)
Object	+3.3V10A

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

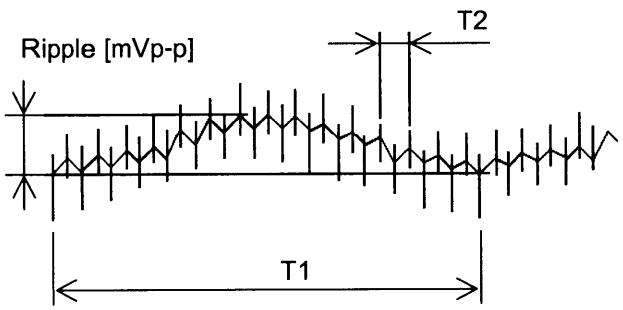


Fig. Complex Ripple Wave Form

2.Values

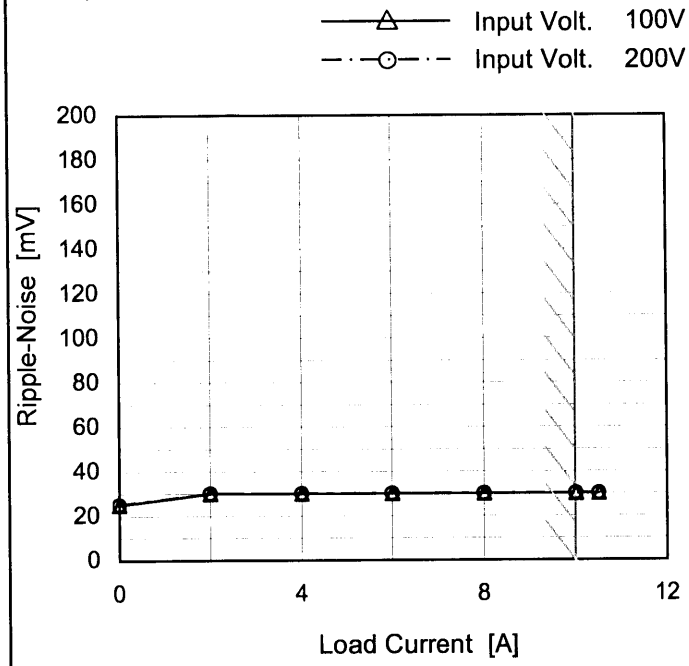
Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 200 [V]
0.0	20	20
2.0	25	25
4.0	25	25
6.0	25	25
8.0	25	25
10.0	25	25
10.5	25	25
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MODULE L
Item	Ripple-Noise
Object	+3.3V10A

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]	Ripple-Noise [mV] Input Volt. 200 [V]
0.0	25	25
2.0	30	30
4.0	30	30
6.0	30	30
8.0	30	30
10.0	30	30
10.5	30	30
--	-	-
--	-	-
--	-	-
--	-	-

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

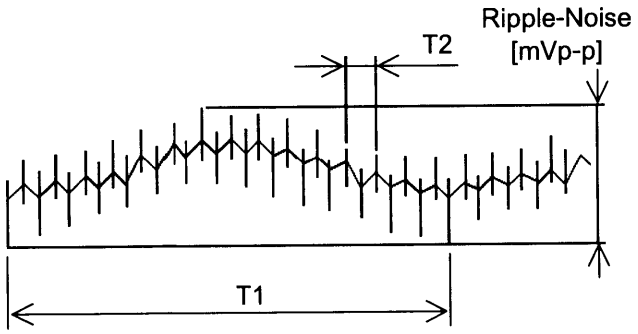


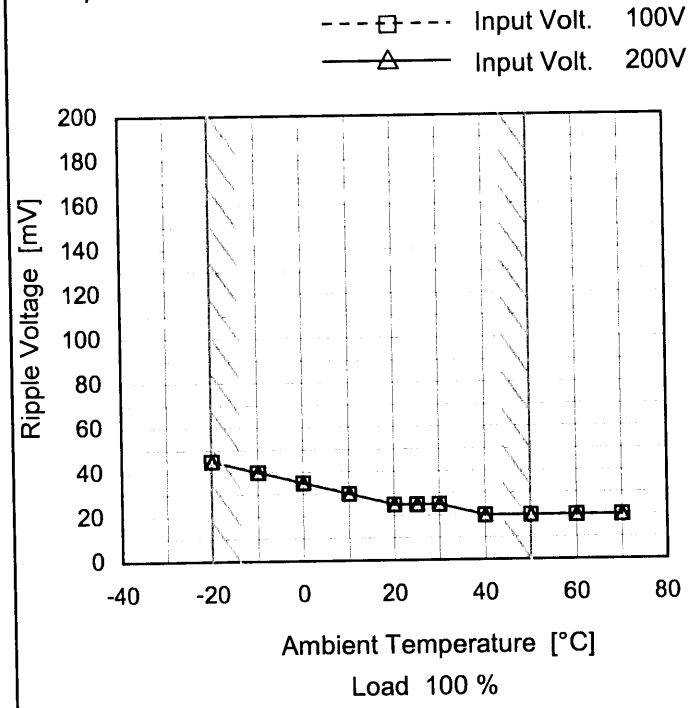
Fig. Complex Ripple Wave Form

COSEL

Model	MODULE L
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V10A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

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

2.Values

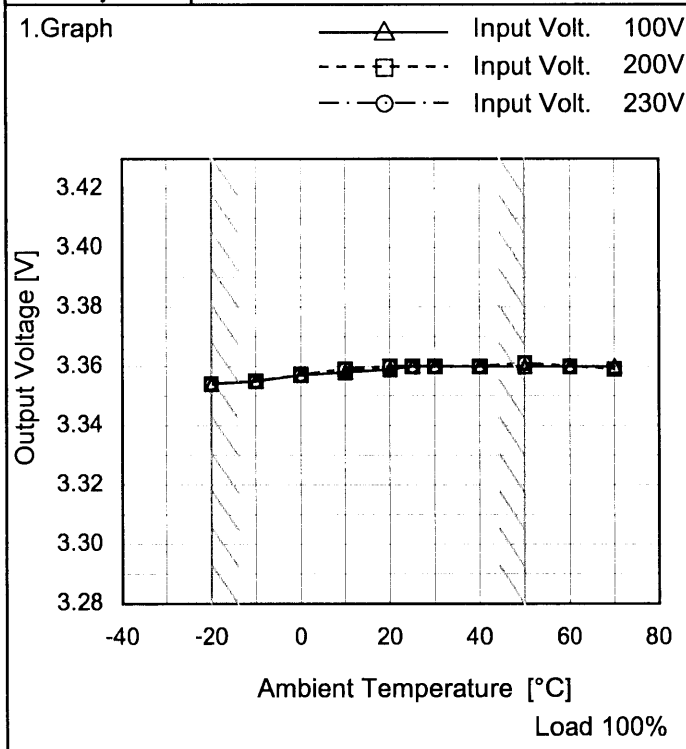
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-20	45	45
-10	40	40
0	35	35
10	30	30
20	25	25
25	25	25
30	25	25
40	20	20
50	20	20
60	20	20
70	20	20

COSEL

Model	MODULE L
Item	Ambient Temperature Drift
Object	+3.3V10A

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	3.354	3.354	3.354
-10	3.355	3.355	3.355
0	3.357	3.357	3.357
10	3.358	3.359	3.359
20	3.359	3.360	3.360
25	3.360	3.360	3.360
30	3.360	3.360	3.360
40	3.360	3.360	3.360
50	3.360	3.361	3.361
60	3.360	3.360	3.360
70	3.360	3.359	3.359

COSEL

Model	MODULE L
Item	Output Voltage Accuracy
Object	+3.3V10A

Testing Circuitry Figure A

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

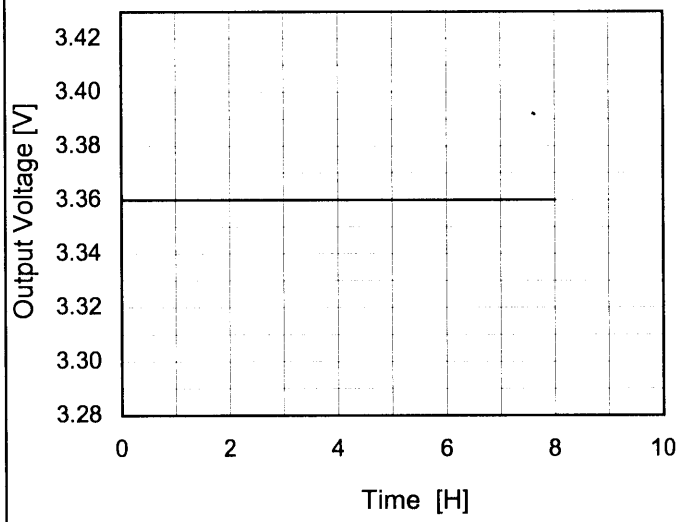
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	264	0	3.368	±7	±0.2
Minimum Voltage	-20	200	10	3.354		

COSEL

Model	MODULE L
Item	Time Lapse Drift
Object	+3.3V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

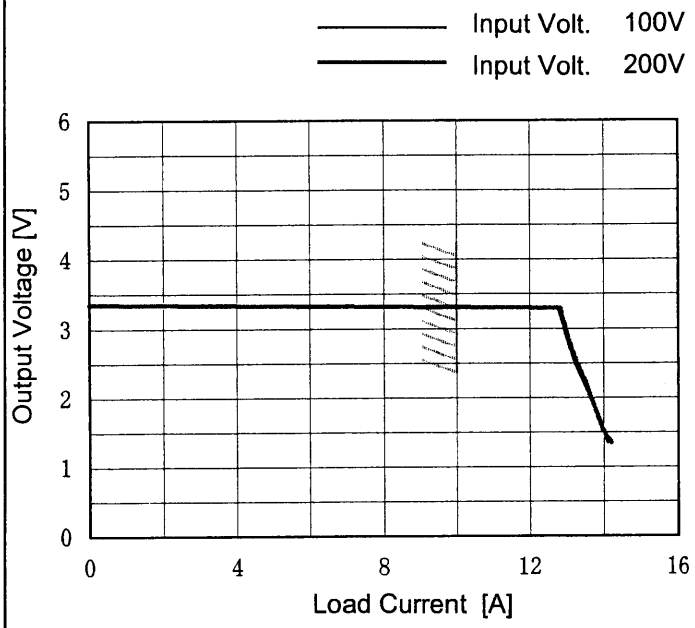
Time since start [H]	Output Voltage [V]
0.0	3.361
0.5	3.360
1.0	3.360
2.0	3.360
3.0	3.360
4.0	3.360
5.0	3.360
6.0	3.360
7.0	3.360
8.0	3.360

COSEL

Model	MODULE L
Item	Overcurrent Protection
Object	+3.3V10A

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 1.32V to 0V.

2.Values

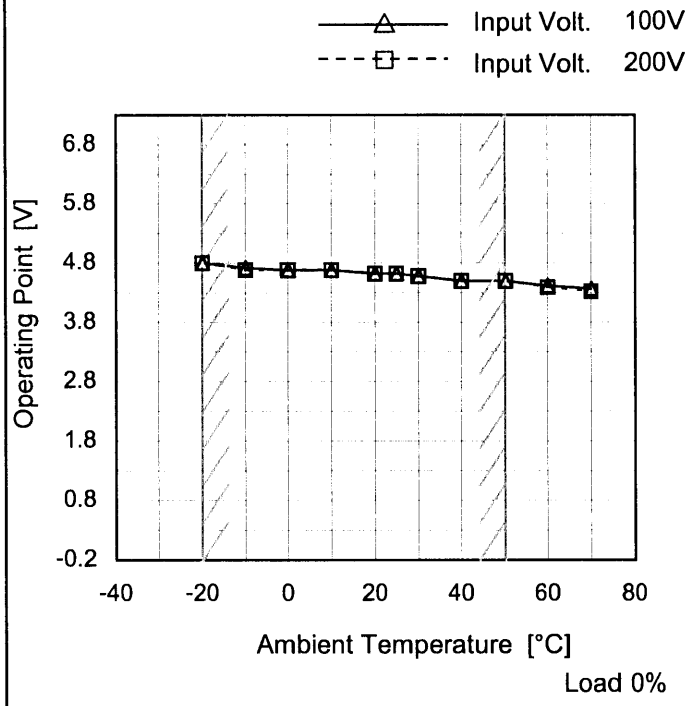
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
3.30	10.00	10.00
3.14	12.86	12.91
2.97	12.95	12.99
2.64	13.15	13.20
2.31	13.38	13.45
1.98	13.65	13.68
1.65	13.88	13.91
1.32	14.18	14.18
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MODULE L
Item	Overvoltage Protection
Object	+3.3V10A

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	4.83	4.83
-10	4.75	4.71
0	4.71	4.71
10	4.71	4.71
20	4.65	4.65
25	4.65	4.65
30	4.61	4.61
40	4.53	4.53
50	4.53	4.53
60	4.45	4.42
70	4.40	4.35

COSEL

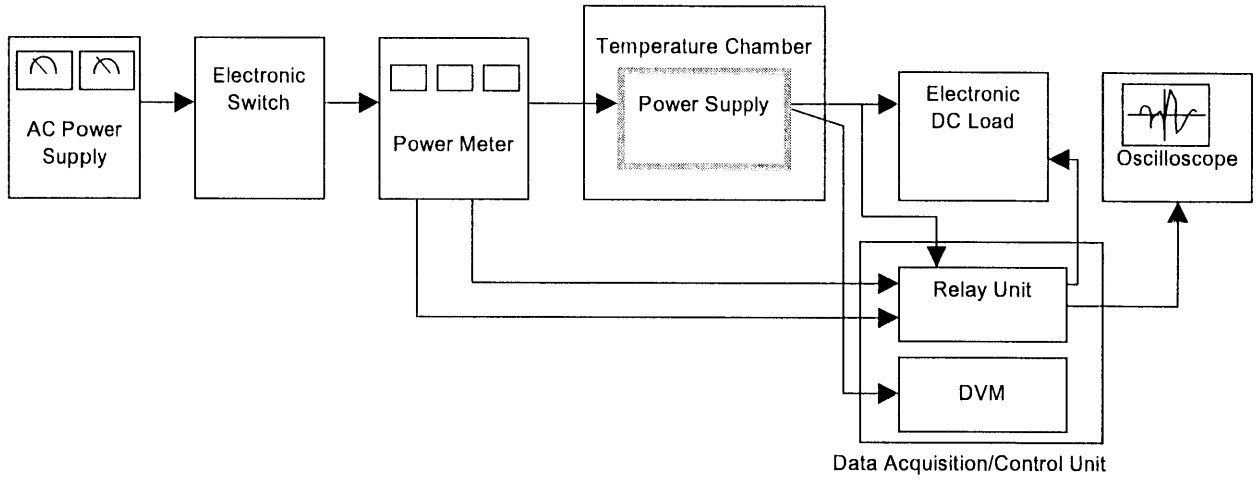


Figure A

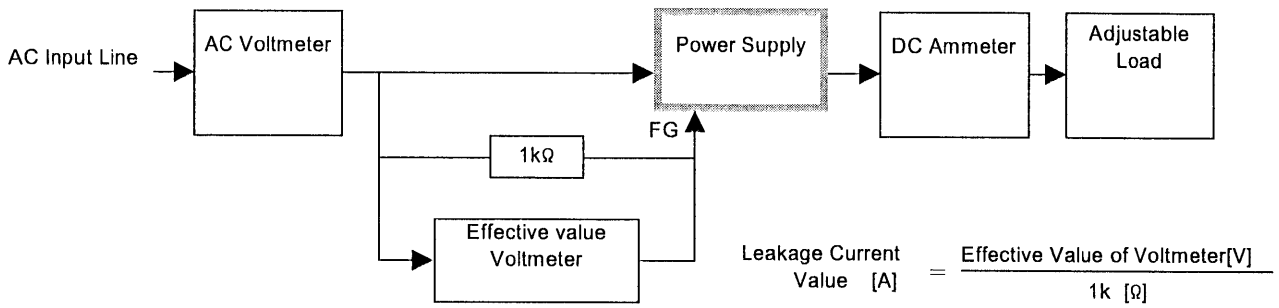


Figure B (DEN-AN)

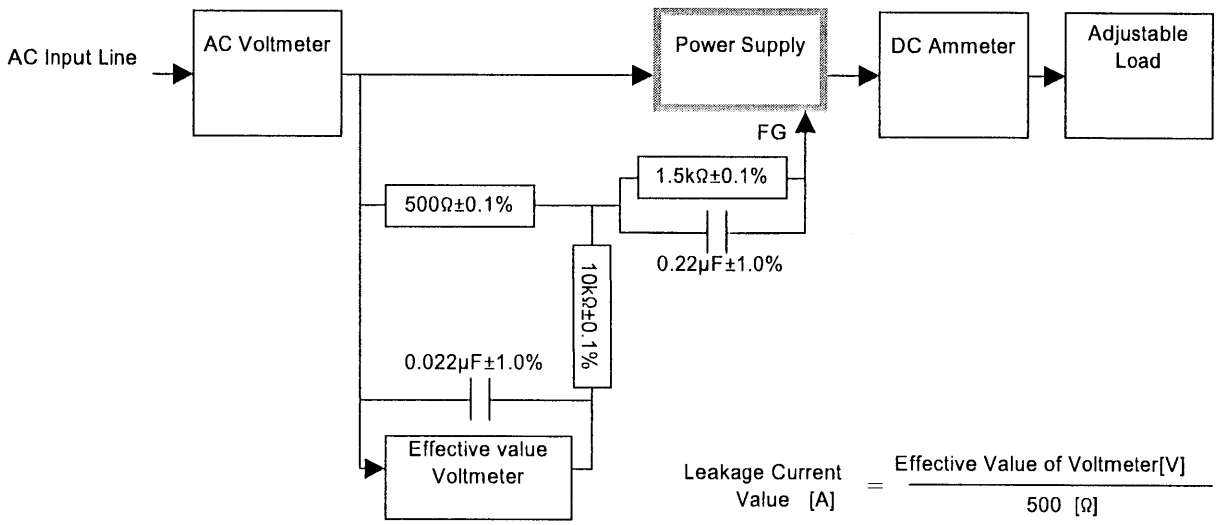


Figure B (IEC60950)