参考資料

COSEL

TEST DATA OF MODULE R

(ACE series)

Regulated DC power supply
Jun.14.2003

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COSEL CO.,LTD.

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Object	+24V2.5A

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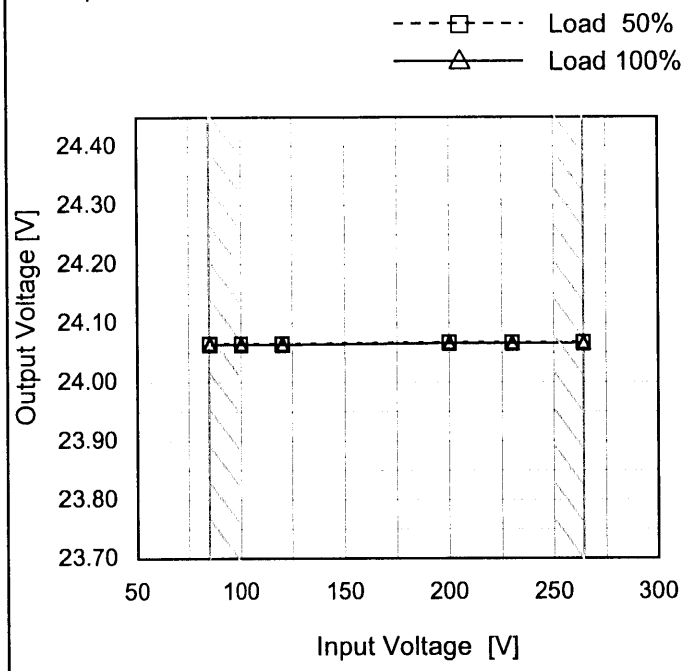

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	24.065	24.064
100	24.065	24.064
120	24.065	24.064
200	24.067	24.066
230	24.067	24.066
264	24.067	24.066
--	-	-
--	-	-
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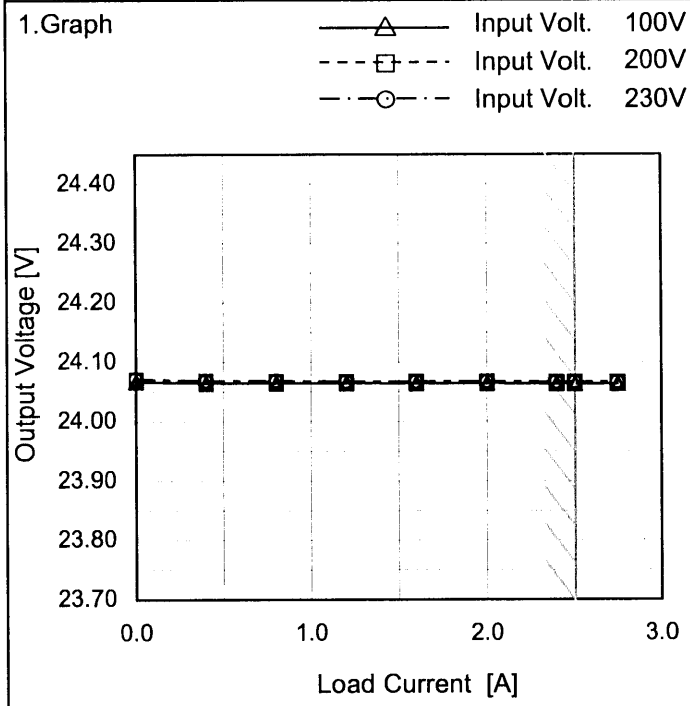
Model	MODULE R
Item	Load Regulation
Object	+24V2.5A

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]
0.00	24.067	24.070	24.071
0.40	24.065	24.068	24.068
0.80	24.065	24.067	24.068
1.20	24.065	24.067	24.067
1.60	24.064	24.067	24.067
2.00	24.064	24.067	24.067
2.40	24.063	24.066	24.066
2.50	24.063	24.066	24.066
2.75	24.063	24.066	24.066
--	-	-	-
--	-	-	-

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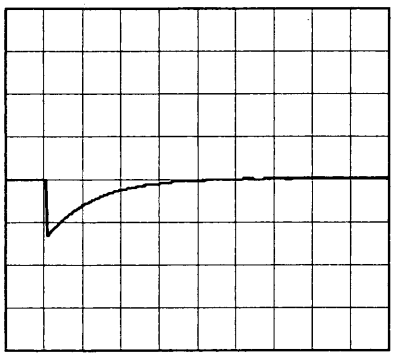
Model	MODULE R
Item	Dynamic Load Response
Object	+24V2.5A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

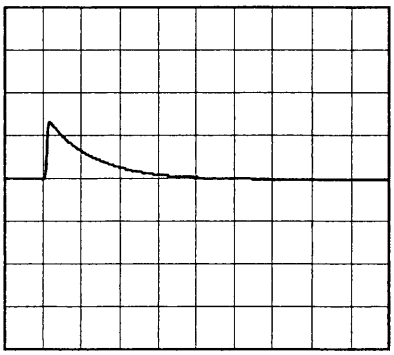
Load Current

Min. Load (0A) ⟷
Load 100% (2.5A)



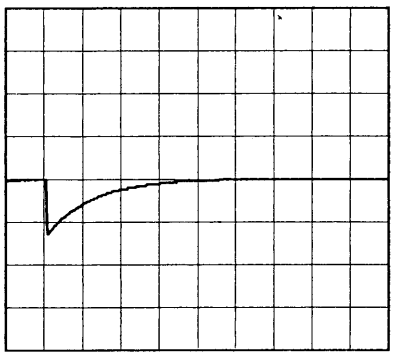
100 mV/div

10 ms/div



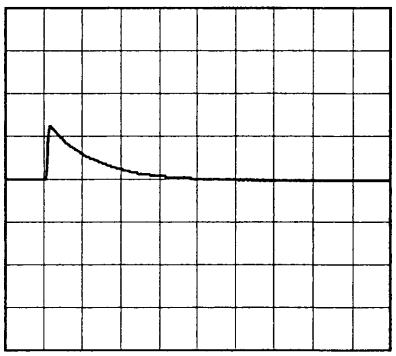
10 ms/div

Min. Load (0A) ⟷
Load 50% (1.25A)



100 mV/div

10 ms/div



10 ms/div

* The characteristic of AC200V is equal.

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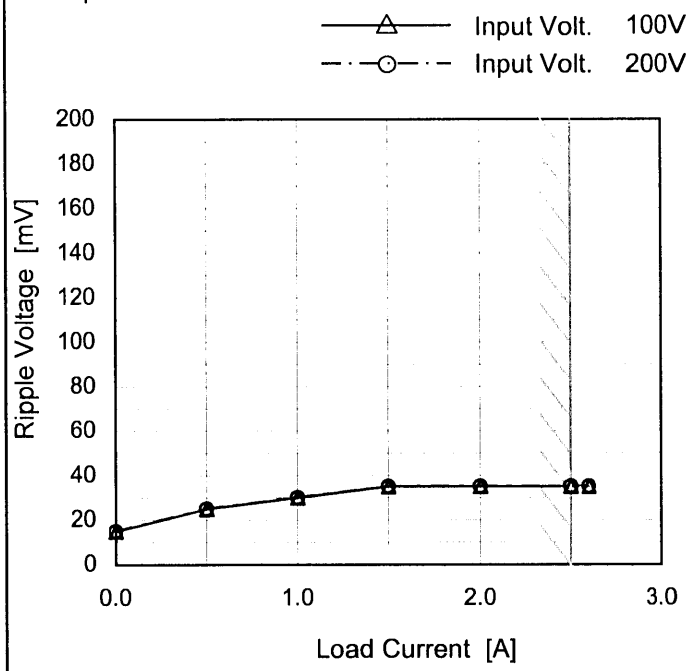
Model	MODULE R
Item	Ripple Voltage (by Load Current)
Object	+24V2.5A

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

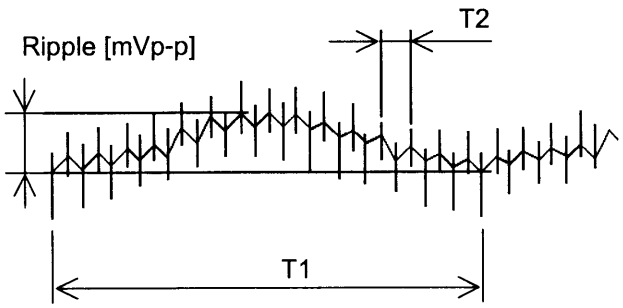


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 200 [V]
0.0	15	15
0.5	25	25
1.0	30	30
1.5	35	35
2.0	35	35
2.5	35	35
2.6	35	35
--	-	-
--	-	-
--	-	-
--	-	-

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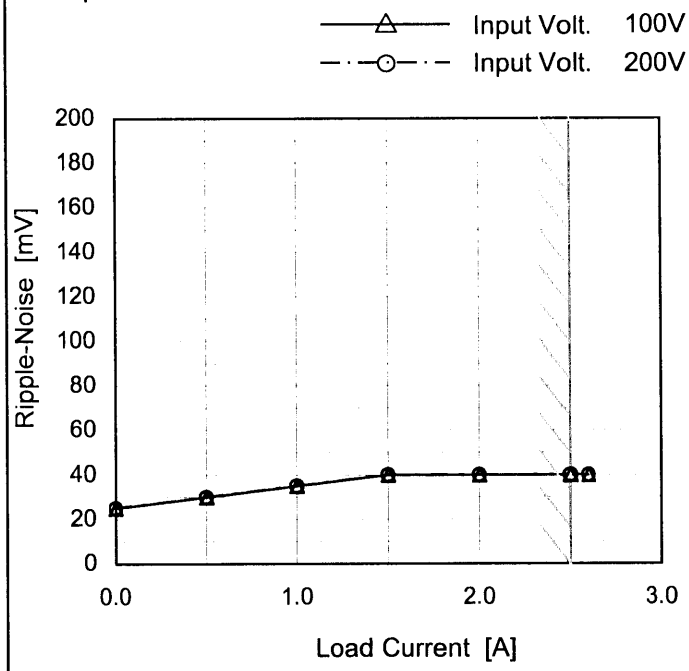
Model	MODULE R
Item	Ripple-Noise
Object	+24V2.5A

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
0.5	30	30
1.0	35	35
1.5	40	40
2.0	40	40
2.5	40	40
2.6	40	40
--	-	-
--	-	-
--	-	-
--	-	-

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

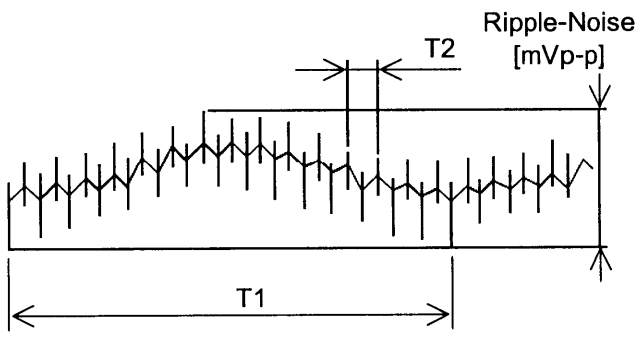


Fig. Complex Ripple Wave Form

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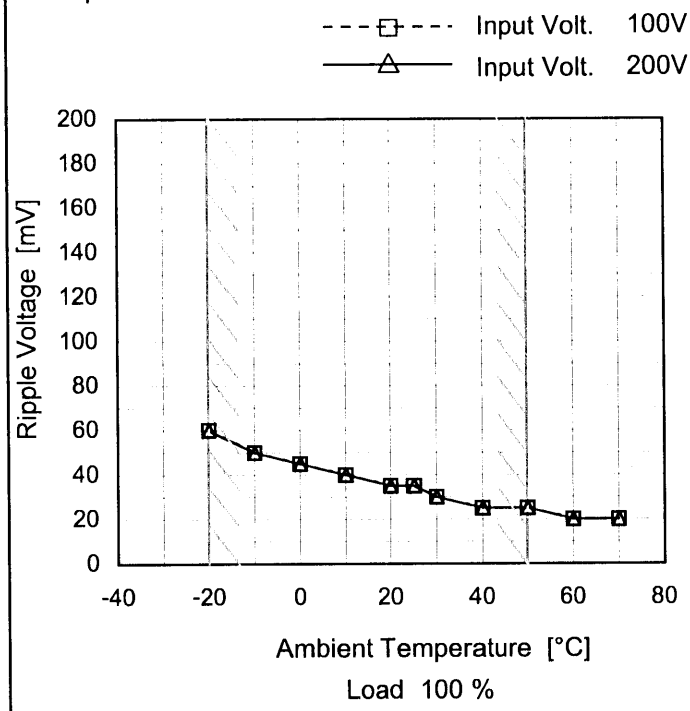
Model	MODULE R
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V2.5A

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	60	60
-10	50	50
0	45	45
10	40	40
20	35	35
25	35	35
30	30	30
40	25	25
50	25	25
60	20	20
70	20	20

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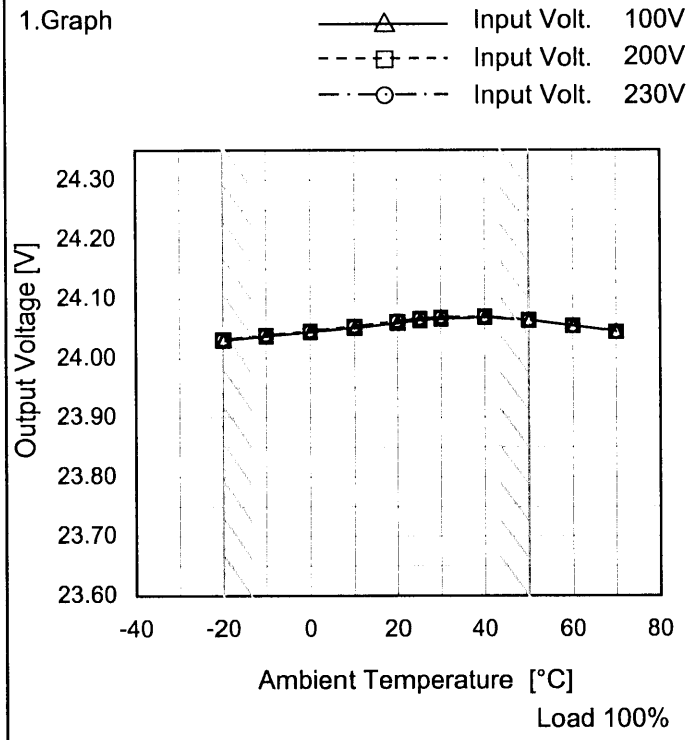
Model	MODULE R
Item	Ambient Temperature Drift
Object	+24V2.5A

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	24.030	24.031	24.031
-10	24.037	24.038	24.038
0	24.044	24.045	24.045
10	24.051	24.053	24.053
20	24.059	24.061	24.062
25	24.064	24.066	24.066
30	24.066	24.068	24.068
40	24.069	24.070	24.070
50	24.064	24.064	24.064
60	24.055	24.054	24.054
70	24.045	24.044	24.044

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Model	MODULE R
Item	Output Voltage Accuracy
Object	+24V2.5A

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 - 2.5A

* 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	25	170	0	24.070	±20	±0.1
Minimum Voltage	-20	85	2.5	24.030		

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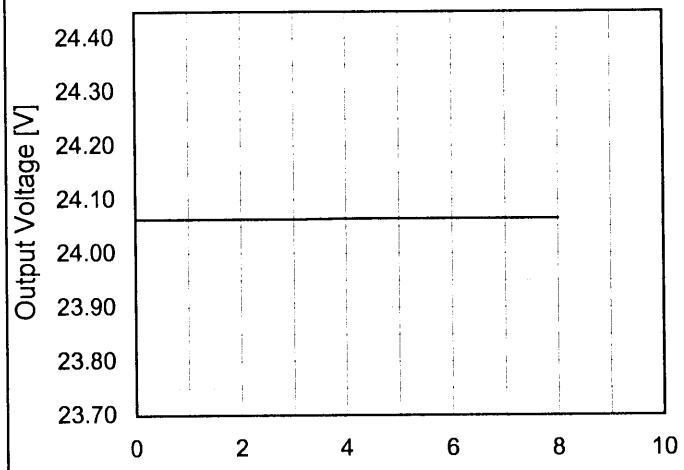
Model	MODULE R
Item	Time Lapse Drift
Object	+24V2.5A

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	24.063
0.5	24.064
1.0	24.064
2.0	24.064
3.0	24.064
4.0	24.065
5.0	24.065
6.0	24.065
7.0	24.065
8.0	24.065

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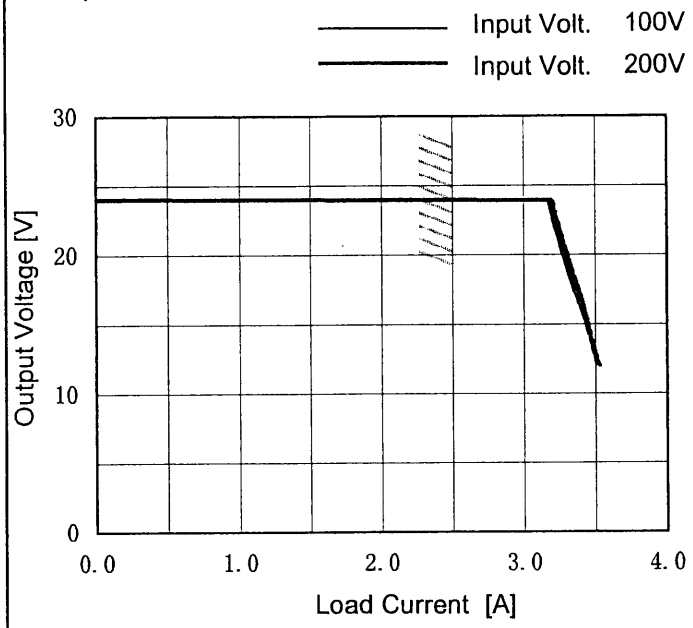
Model	MODULE R
Item	Overcurrent Protection
Object	+24V2.5A

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 12V to 0V.

2.Values

Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
24.0	3.18	3.21
22.8	3.21	3.24
21.6	3.24	3.27
19.2	3.31	3.34
16.8	3.39	3.41
14.4	3.46	3.47
12.0	3.52	3.54
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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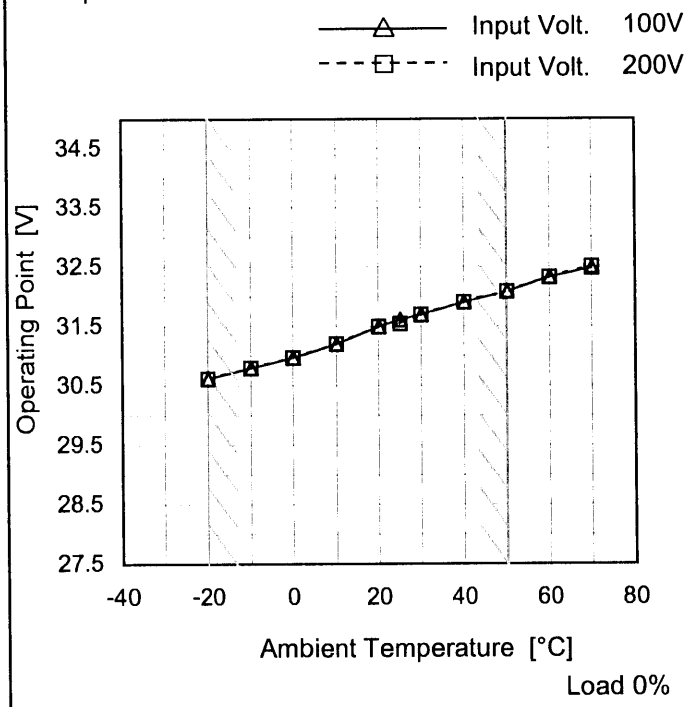
Model	MODULE R
Item	Overvoltage Protection
Object	+24V2.5A

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	30.59	30.59
-10	30.77	30.77
0	30.94	30.94
10	31.17	31.17
20	31.46	31.46
25	31.58	31.51
30	31.66	31.66
40	31.87	31.87
50	32.05	32.05
60	32.29	32.29
70	32.45	32.47

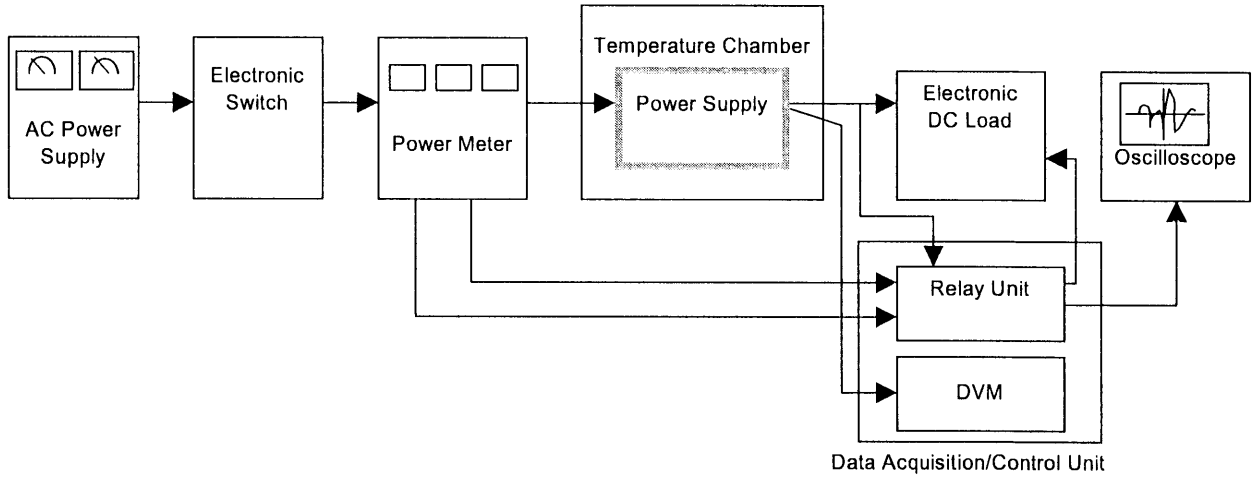


Figure A

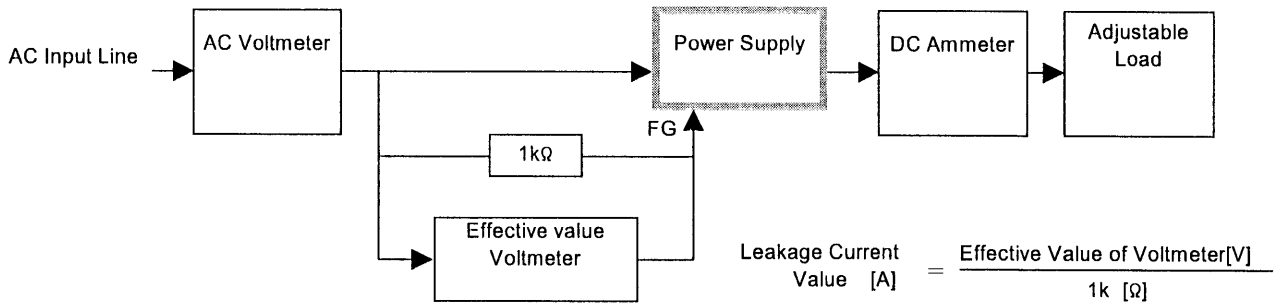


Figure B (DEN-AN)

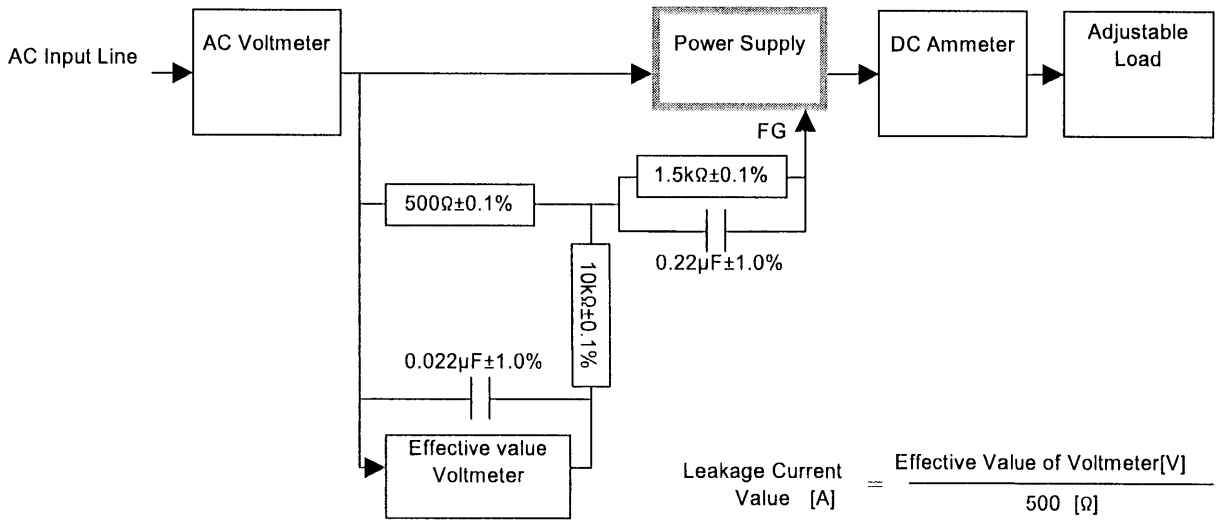


Figure B (IEC60950)