参考資料

COSEL

TEST DATA OF MODULE Z

(RB series)

Regulated DC Power Supply
November 5, 2018

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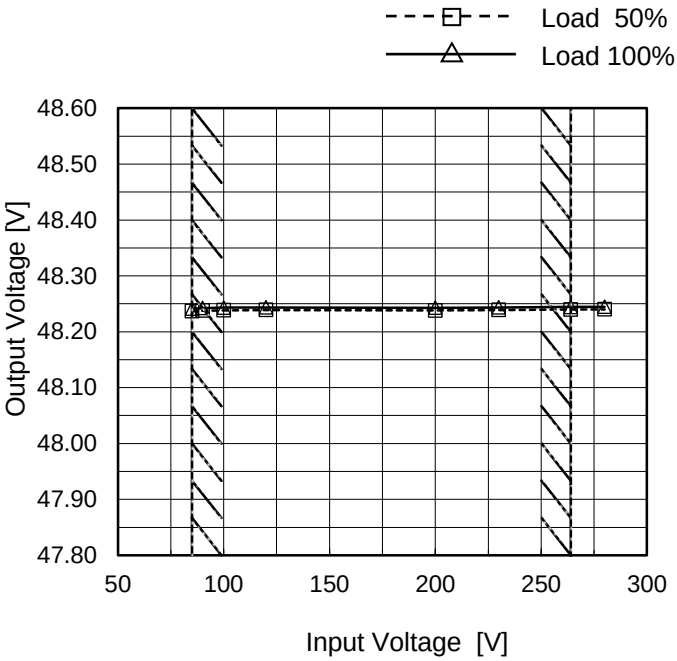

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	48.237	48.241
90	48.238	48.242
100	48.238	48.243
120	48.239	48.243
200	48.238	48.243
230	48.239	48.243
264	48.240	48.244
280	48.240	48.245
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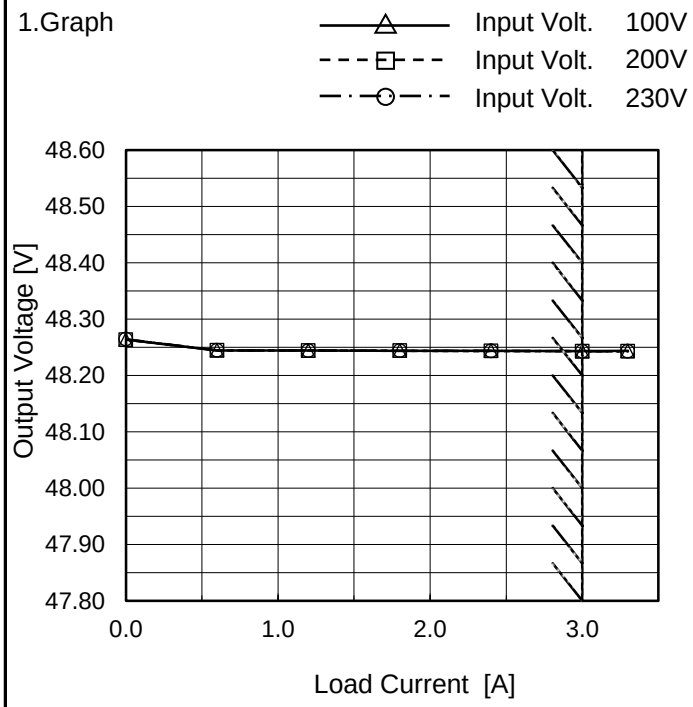
Model	MODULE Z
Item	Load Regulation
Object	+48V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

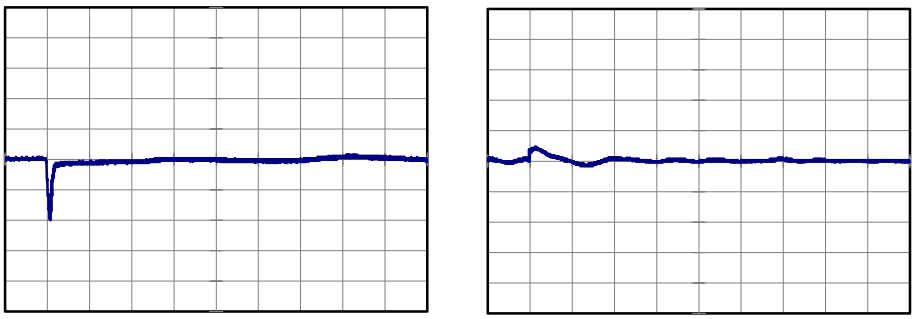
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	48.263	48.264	48.264
0.6	48.245	48.245	48.245
1.2	48.244	48.244	48.244
1.8	48.244	48.244	48.244
2.4	48.244	48.243	48.244
3.0	48.243	48.243	48.243
3.3	48.244	48.243	48.243
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	MODULE Z	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+48V3A	

Input Volt. 100 V
Cycle 1000 ms

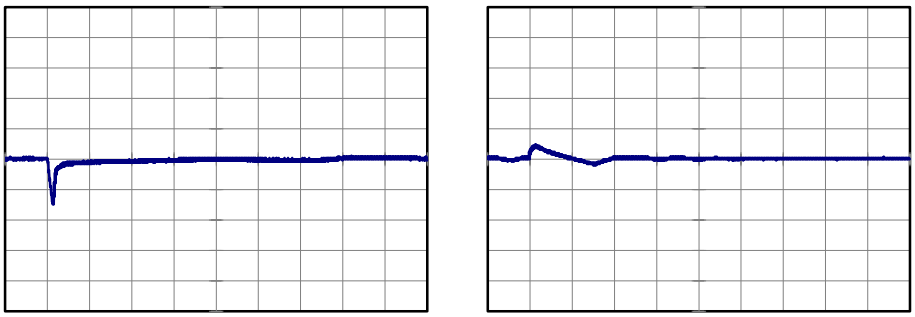
Min.Load (0A)←→
Load 100% (3A)



1 V/div

2 ms/div 10 ms/div

Min.Load (0A)←→
Load 50% (1.5A)



1 V/div

2 ms/div 10 ms/div

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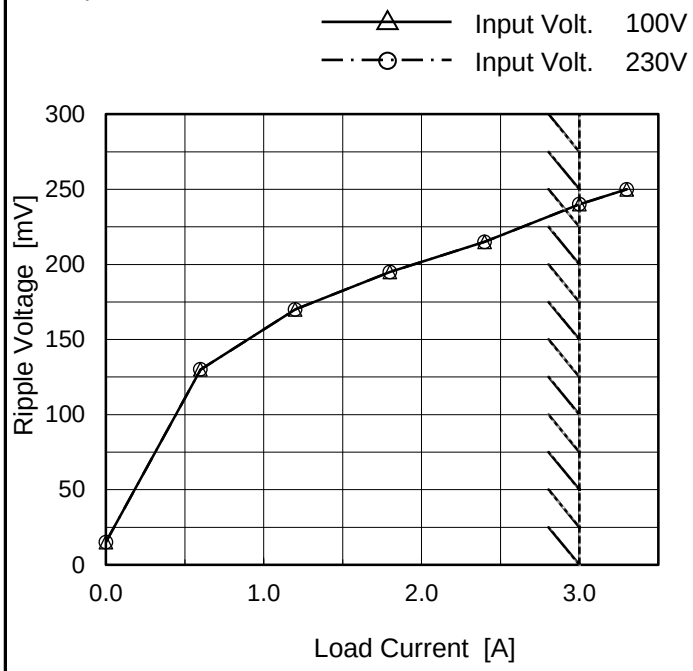
Model	MODULE Z
Item	Ripple Voltage (by Load Current)
Object	+48V3A

Temperature 25°C
Testing Circuitry Figure B

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

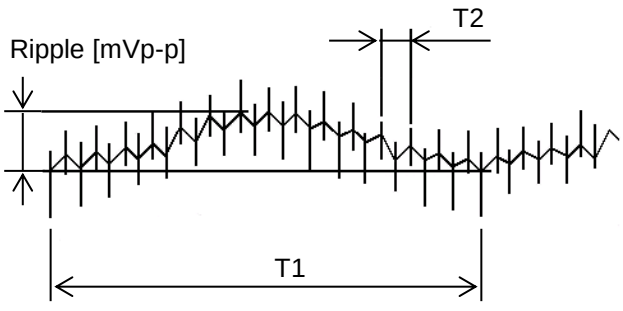


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 230 [V]
0.0	15	15
0.6	130	130
1.2	170	170
1.8	195	195
2.4	215	215
3.0	240	240
3.3	250	250
--	-	-
--	-	-
--	-	-
--	-	-

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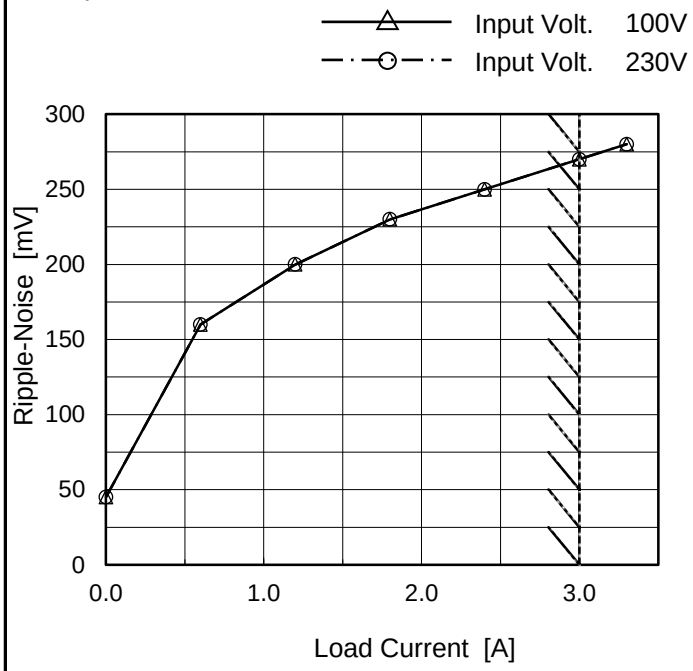
Model	MODULE Z
Item	Ripple-Noise
Object	+48V3A

Temperature 25°C
Testing Circuitry Figure B

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. 230 [V]
0.0	45	45
0.6	160	160
1.2	200	200
1.8	230	230
2.4	250	250
3.0	270	270
3.3	280	280
--	-	-
--	-	-
--	-	-
--	-	-

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

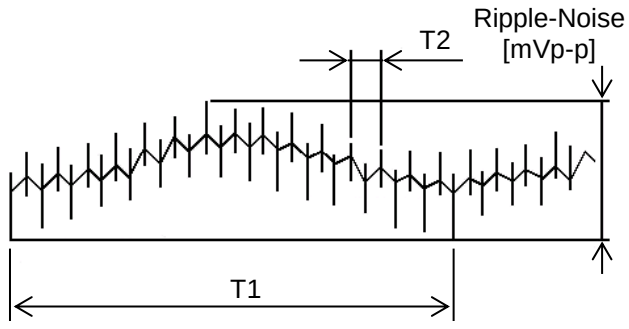


Fig. Complex Ripple Wave Form

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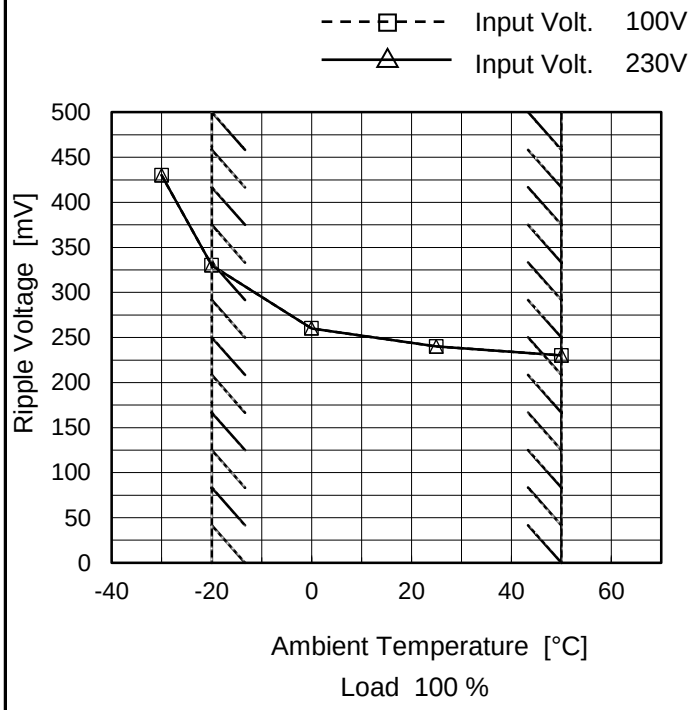
Model	MODULE Z
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V3A

Testing Circuitry Figure B

1.Graph



Load 100 %

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. 230 [V]
-30	430	430
-20	330	330
0	260	260
25	240	240
50	230	230
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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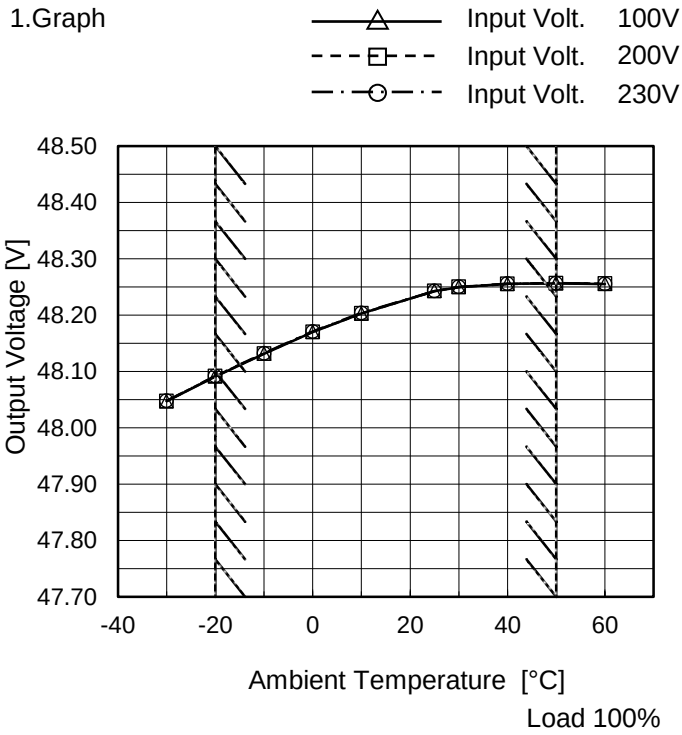
Model	MODULE Z
Item	Ambient Temperature Drift
Object	+48V3A

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]
-30	48.047	48.048	48.048
-20	48.091	48.092	48.092
-10	48.132	48.132	48.132
0	48.170	48.170	48.171
10	48.203	48.203	48.204
25	48.243	48.243	48.243
30	48.250	48.250	48.250
40	48.256	48.255	48.256
50	48.257	48.257	48.257
60	48.255	48.256	48.256
--	-	-	-

Model	MODULE Z	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V3A	

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 - 3A

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

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	50	264	0	48.261	±111	±0.2
Minimum Voltage	-20	100	3	48.039		

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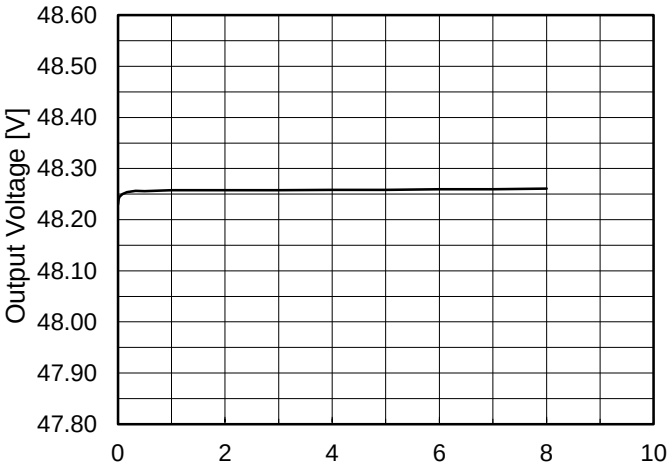
Model	MODULE Z
Item	Time Lapse Drift
Object	+48V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC230V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	48.230
0.5	48.256
1.0	48.257
2.0	48.258
3.0	48.258
4.0	48.258
5.0	48.258
6.0	48.259
7.0	48.260
8.0	48.261

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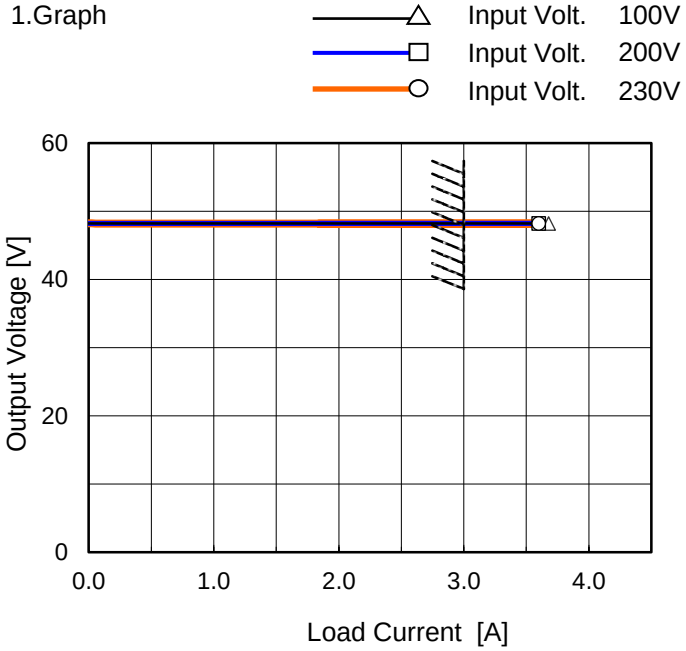
Model	MODULE Z
Item	Overcurrent Protection
Object	+48V3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
48	3.68	3.60	3.60
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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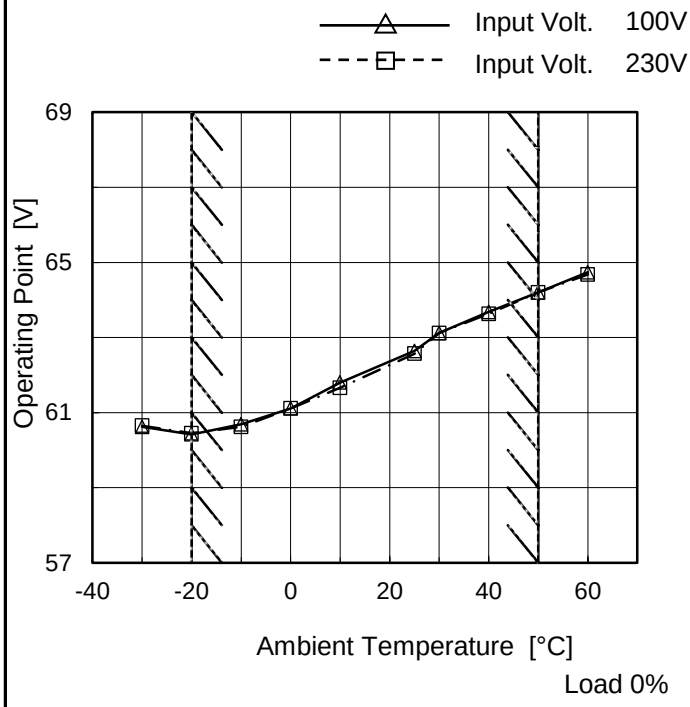
Model	MODULE Z
Item	Overvoltage Protection
Object	+48V3A

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. 230[V]
-30	60.62	60.65
-20	60.42	60.45
-10	60.69	60.62
0	61.11	61.11
10	61.80	61.66
25	62.64	62.57
30	63.12	63.12
40	63.68	63.63
50	64.20	64.20
60	64.74	64.68
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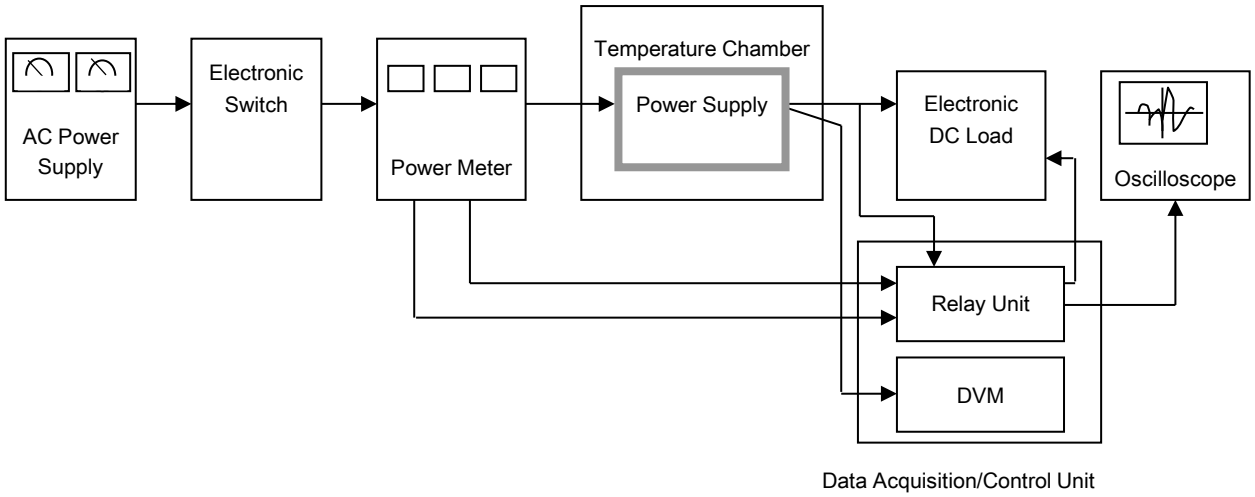
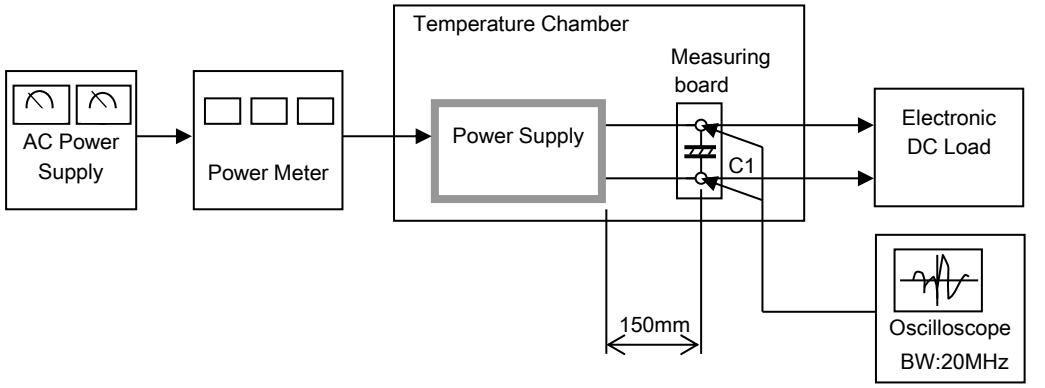


Figure A



C1= 22 μF
(Electrolytic capacitor)

Figure B