参考資料

COSEL

TEST DATA OF MODULE K

(RB series)

Regulated DC Power Supply
November 5, 2018

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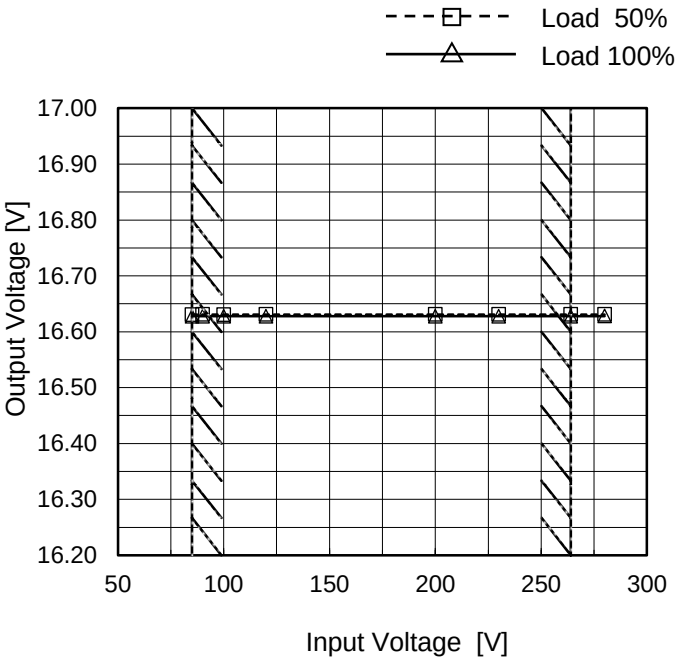

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	16.631	16.628
90	16.631	16.628
100	16.631	16.628
120	16.631	16.628
200	16.631	16.628
230	16.631	16.628
264	16.631	16.628
280	16.631	16.628
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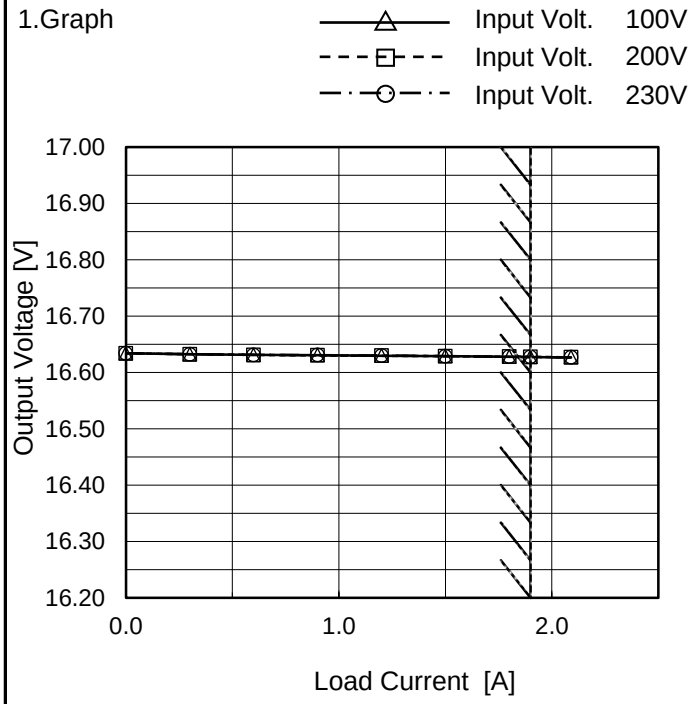
Model	MODULE K
Item	Load Regulation
Object	+16.5V1.9A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



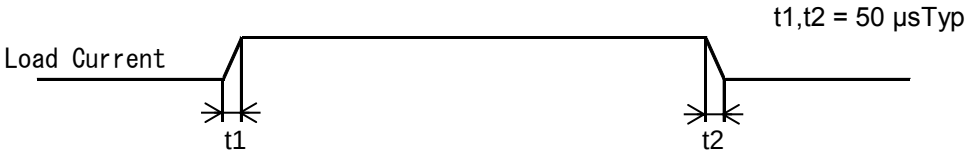
Note: Slanted line shows the range of the rated load current.

2.Values

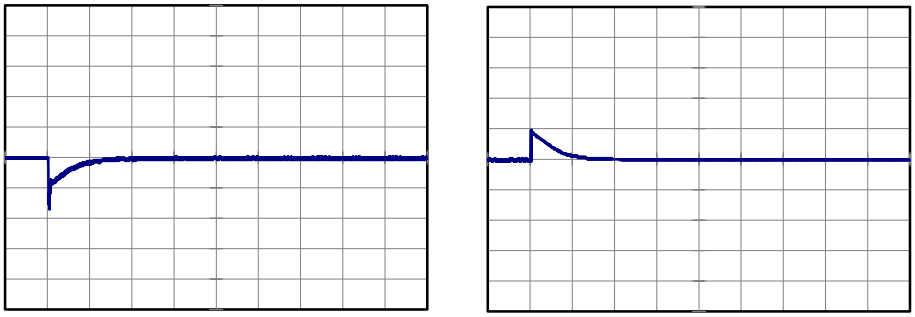
Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	16.634	16.634	16.634
0.30	16.632	16.632	16.632
0.60	16.631	16.631	16.631
0.90	16.631	16.630	16.631
1.20	16.630	16.630	16.630
1.50	16.629	16.629	16.629
1.80	16.628	16.628	16.628
1.90	16.628	16.628	16.628
2.09	16.627	16.627	16.627
--	-	-	-
--	-	-	-

Model	MODULE K	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+16.5V1.9A	

Input Volt. 100 V
Cycle 1000 ms



Min.Load (0A)←→
Load 100% (1.9A)

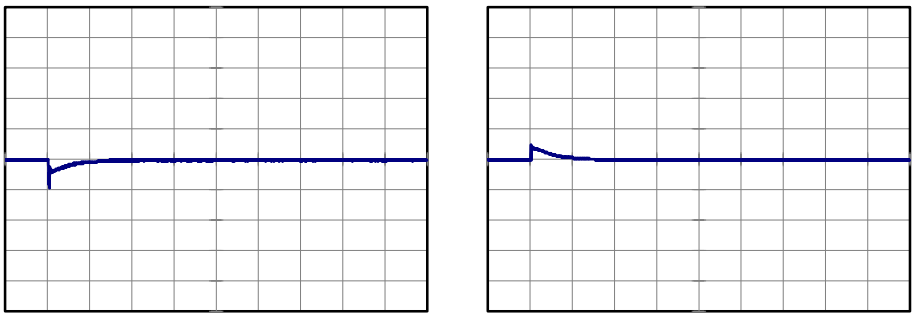


200 mV/div

10 ms/div

10 ms/div

Min.Load (0A)←→
Load 50% (0.95A)



200 mV/div

10 ms/div

10 ms/div

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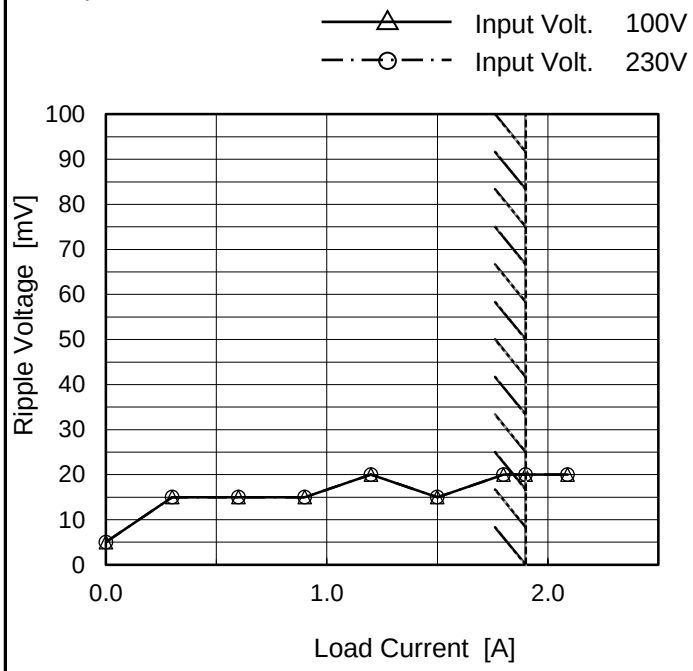
Model	MODULE K
Item	Ripple Voltage (by Load Current)
Object	+16.5V1.9A

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

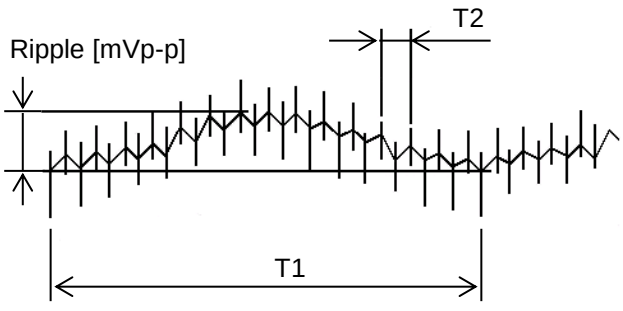


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 230 [V]
0.00	5	5
0.30	15	15
0.60	15	15
0.90	15	15
1.20	20	20
1.50	15	15
1.80	20	20
1.90	20	20
2.09	20	20
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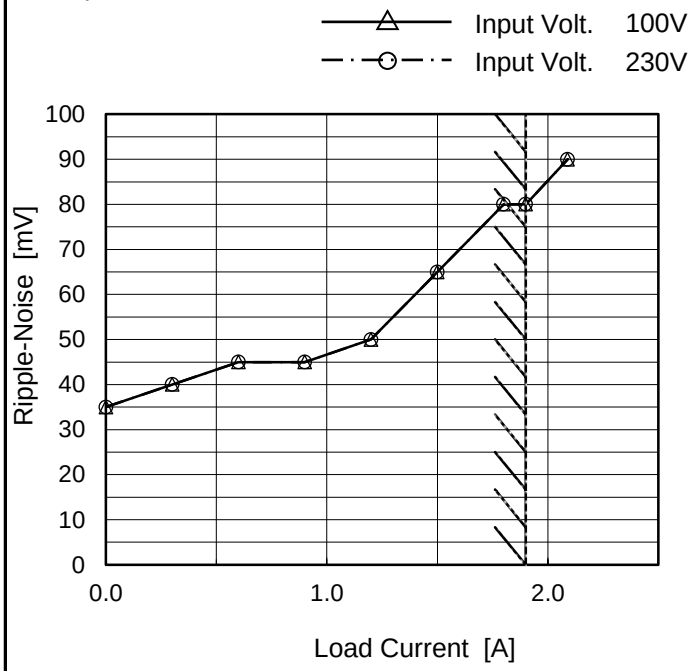
Model	MODULE K
Item	Ripple-Noise
Object	+16.5V1.9A

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.

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

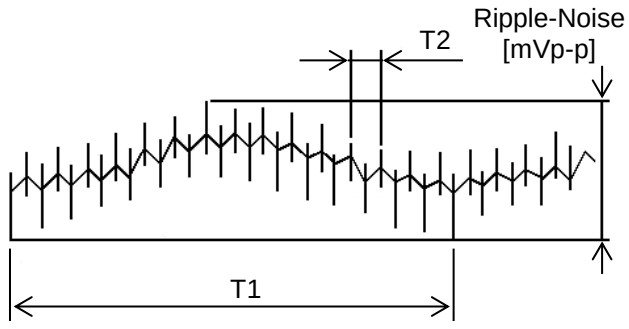


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
0.00	35	35
0.30	40	40
0.60	45	45
0.90	45	45
1.20	50	50
1.50	65	65
1.80	80	80
1.90	80	80
2.09	90	90
--	-	-
--	-	-

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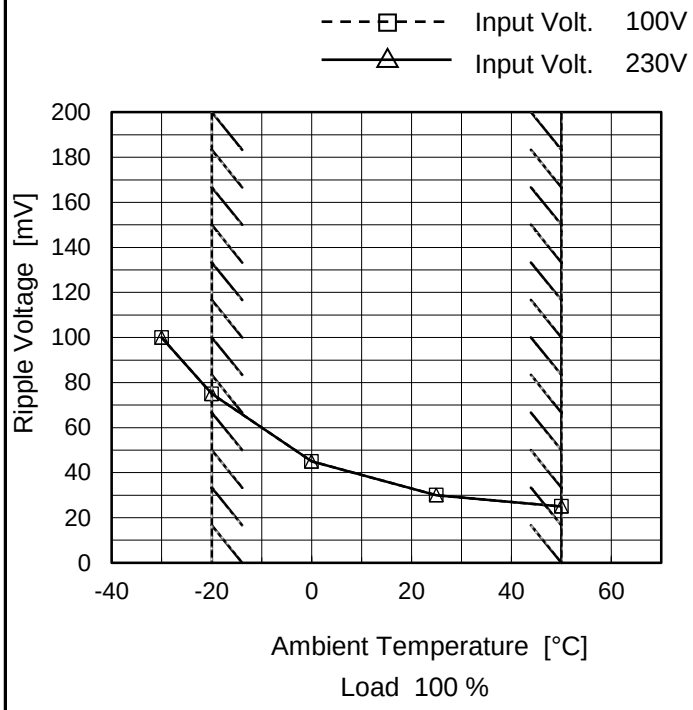
Model	MODULE K
Item	Ripple Voltage (by Ambient Temp.)
Object	+16.5V1.9A

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	100	100
-20	75	75
0	45	45
25	30	30
50	25	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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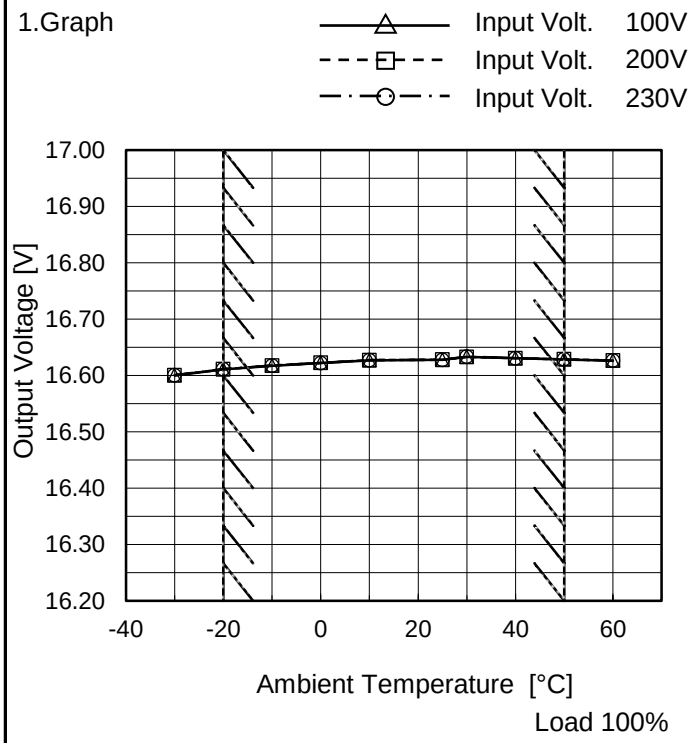
Model	MODULE K
Item	Ambient Temperature Drift
Object	+16.5V1.9A

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	16.600	16.601	16.601
-20	16.611	16.611	16.611
-10	16.617	16.618	16.617
0	16.622	16.622	16.622
10	16.627	16.627	16.627
25	16.628	16.628	16.628
30	16.633	16.633	16.633
40	16.631	16.631	16.631
50	16.629	16.629	16.629
60	16.626	16.627	16.626
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Model	MODULE K	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+16.5V1.9A	

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 - 1.9A

* 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	100	0	16.629	±11	±0.1
Minimum Voltage	-20	85	1.9	16.607		

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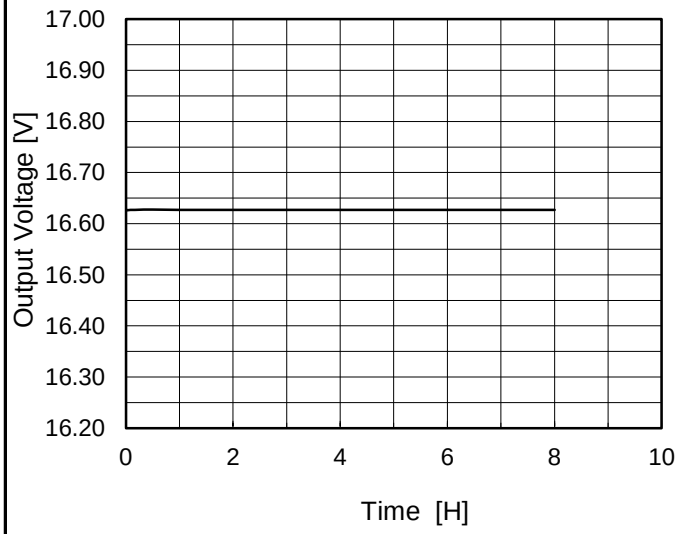
Model	MODULE K
Item	Time Lapse Drift
Object	+16.5V1.9A

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	16.626
0.5	16.627
1.0	16.627
2.0	16.627
3.0	16.627
4.0	16.627
5.0	16.627
6.0	16.627
7.0	16.627
8.0	16.627

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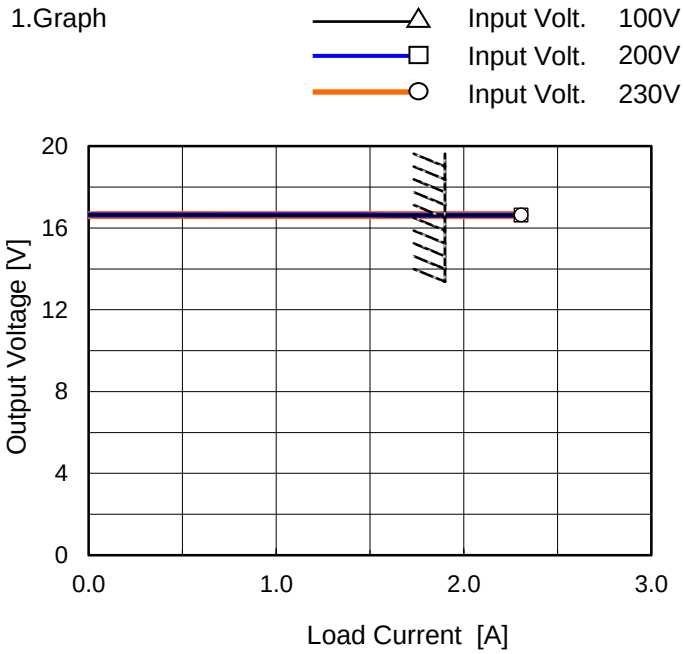
Model	MODULE K
Item	Overcurrent Protection
Object	+16.5V1.9A

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]
16.5	2.30	2.31	2.31
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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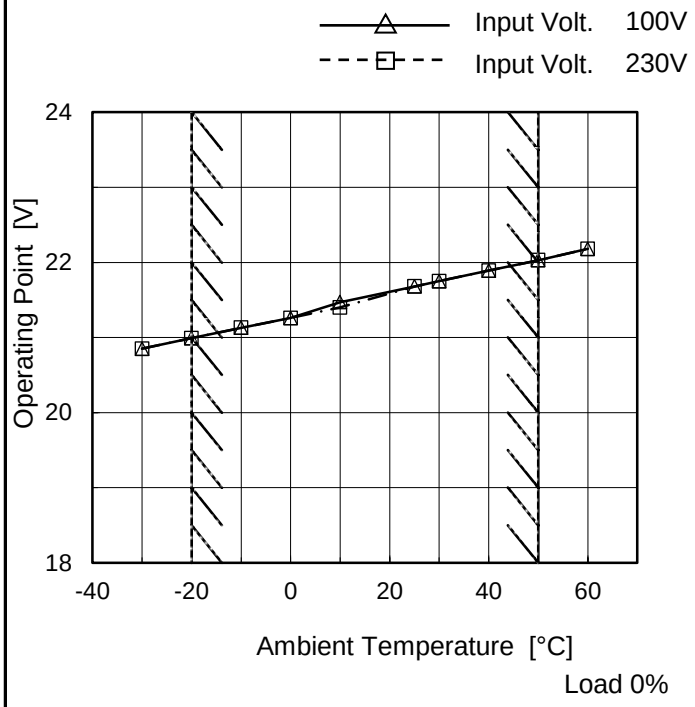
Model	MODULE K
Item	Overvoltage Protection
Object	+16.5V1.9A

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	20.85	20.85
-20	20.99	20.99
-10	21.13	21.13
0	21.26	21.26
10	21.47	21.40
25	21.68	21.68
30	21.75	21.75
40	21.89	21.89
50	22.03	22.03
60	22.18	22.18
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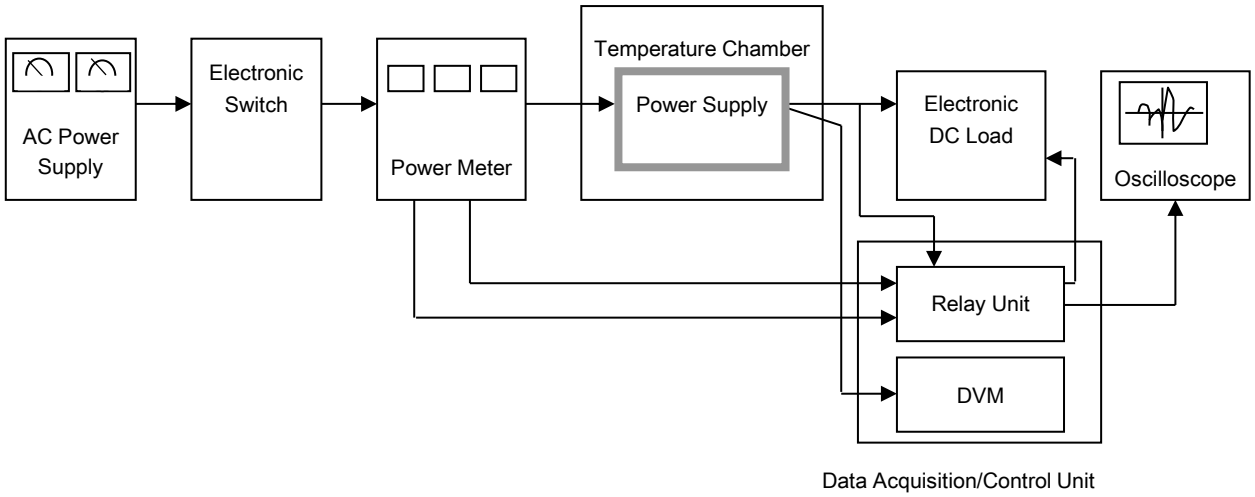
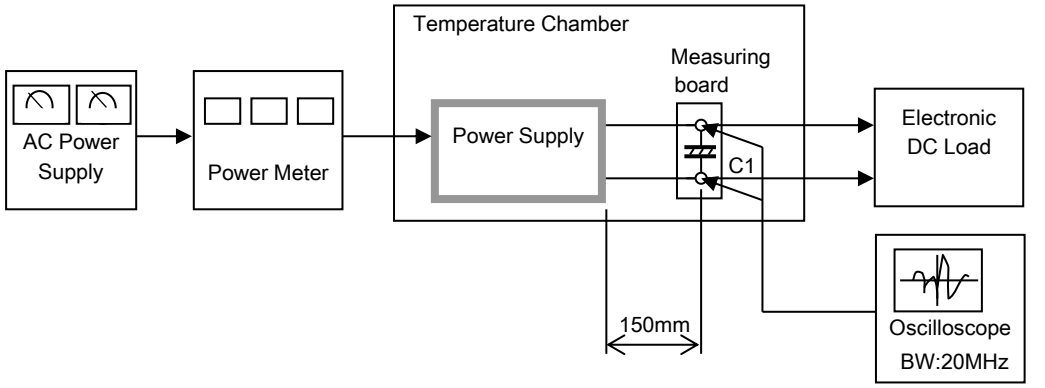


Figure A



C1= 22 μF
(Electrolytic capacitor)

Figure B