

TEST DATA OF WDA120F-24

Regulated DC Power Supply
April 7, 2025

Approved by : Takashi Kajii
Design Manager

Prepared by : Yuya Sakai
Design Engineer

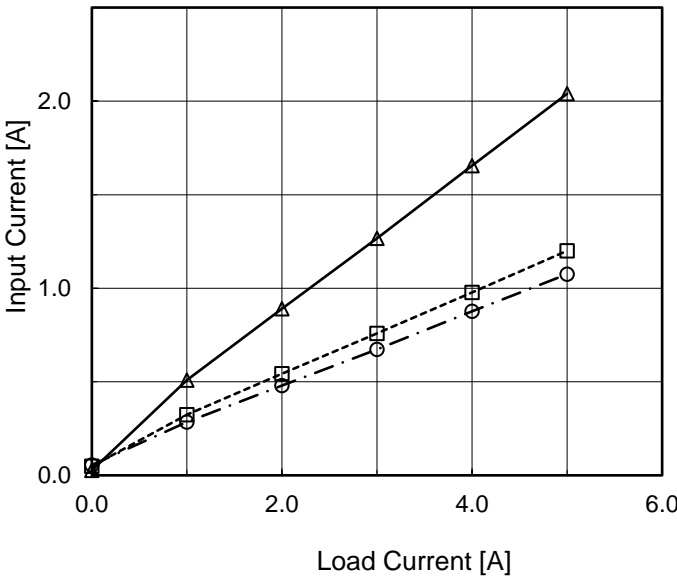
COSEL CO.,LTD.

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Model		WDA120F-24	Temperature25°C Testing CircuitryFigure A																																																					
Item		Input Current (by Load Current)																																																						
Object		+24V5A																																																						
1.Graph <div><div><div><div>—△—</div><div>Input Volt.</div><div>115V</div></div><div><div>---□---</div><div>Input Volt.</div><div>230V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>264V</div></div></div></div>			2.Values <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0</td><td>0.027</td><td>0.049</td><td>0.056</td></tr><tr><td>1</td><td>0.509</td><td>0.324</td><td>0.285</td></tr><tr><td>2</td><td>0.890</td><td>0.543</td><td>0.480</td></tr><tr><td>3</td><td>1.267</td><td>0.758</td><td>0.674</td></tr><tr><td>4</td><td>1.654</td><td>0.977</td><td>0.876</td></tr><tr><td>5</td><td>2.039</td><td>1.200</td><td>1.075</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>			Load Current [A]	Input Current [A]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0	0.027	0.049	0.056	1	0.509	0.324	0.285	2	0.890	0.543	0.480	3	1.267	0.758	0.674	4	1.654	0.977	0.876	5	2.039	1.200	1.075	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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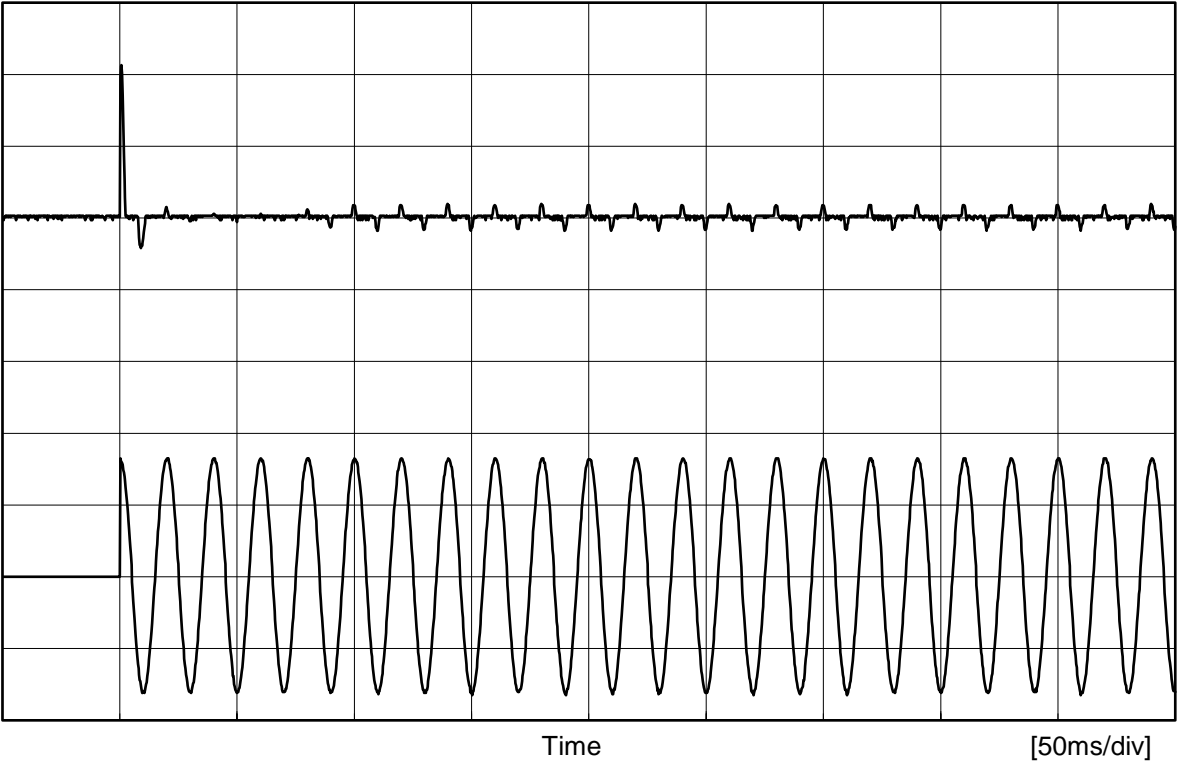
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Model		WDA120F-24	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current	
Object		+24V5A	

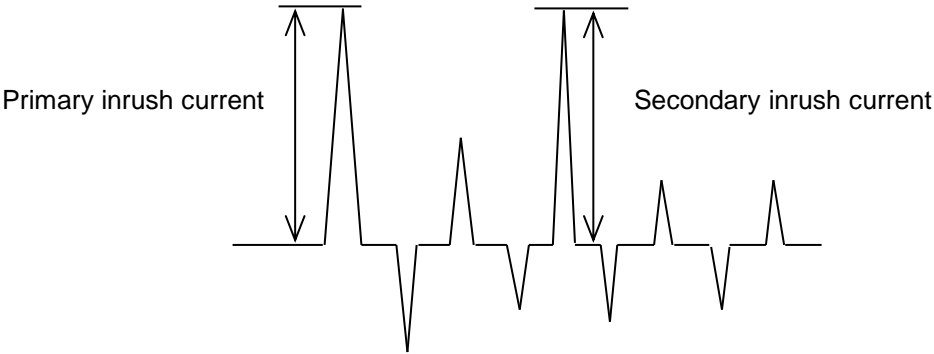
Input
Current
[20A/div]

Input
Voltage
[200V/div]



Input Voltage 230 V
Frequency 50 Hz
Load 100 %

Primary inrush current 42.6 A
Secondary inrush current 3.9 A





Model		WDA120F-24	Temperature 25°C Testing Circuitry Figure C
Item		Leakage Current	
Object		+24V5A	

1.Results

[mA]

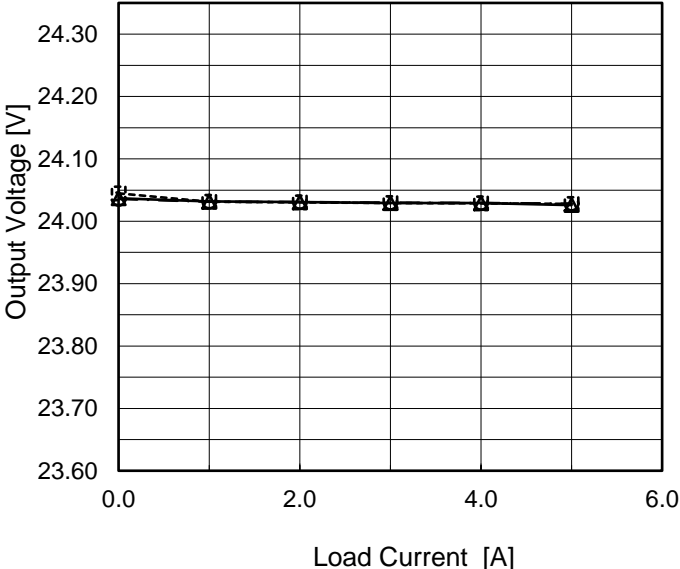

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			115 [V]	240 [V]	264 [V]	
DEN-AN	Figure C-1	Both phases	0.20	0.45	0.51	Operation
		One of phases	0.37	0.81	0.92	Stand by
IEC62368-1	Figure C-2	Both phases	0.20	0.45	0.47	Operation
		One of phases	0.36	0.82	0.84	Stand by
	Figure C-3	Both phases	0.20	0.52	0.48	Operation
		One of phases	0.35	0.93	0.85	Stand by

The value for "One of phases" is the reference value only.

2.Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

Model	WDA120F-24	Temperature25°C Testing CircuitryFigure A																																	
Item	Line Regulation																																		
Object	+24V5A																																		
1.Graph		2.Values																																	
<div><div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div><div><div>—</div><div>△</div><div>—</div></div><div>Load 100%</div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>85</td><td>24.044</td><td>-</td></tr><tr><td>100</td><td>24.044</td><td>-</td></tr><tr><td>115</td><td>24.043</td><td>24.034</td></tr><tr><td>132</td><td>24.043</td><td>24.032</td></tr><tr><td>170</td><td>24.043</td><td>24.032</td></tr><tr><td>200</td><td>24.042</td><td>24.032</td></tr><tr><td>230</td><td>24.042</td><td>24.031</td></tr><tr><td>264</td><td>24.042</td><td>24.031</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	85	24.044	-	100	24.044	-	115	24.043	24.034	132	24.043	24.032	170	24.043	24.032	200	24.042	24.032	230	24.042	24.031	264	24.042	24.031	--	-	-		
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Model		WDA120F-24	Temperature 25°C																																																				
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Item		Ripple-Noise	Temperature 25°C																																																				
Object		+24V5A	Testing Circuitry Figure B																																																				
1.Graph		<div><div>Input Voltage 230V</div><div>Load 100%</div><div>20[mV/div]</div><div>20[ms/div]</div></div>																																																					

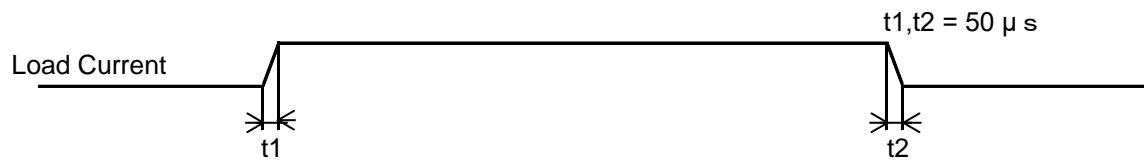
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Model	WDA120F-24	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+24V5A		

Input Volt. 230 V

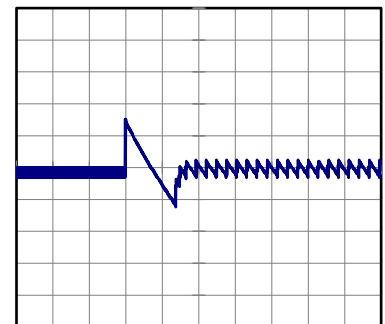
Cycle 1000 ms



Min.Load (0A) \longleftrightarrow
Load 100% (5A)

200 mV/div

40 ms/div

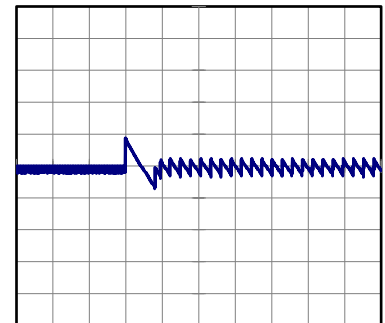


40 ms/div

Load 0% (0A) \longleftrightarrow
Load 50% (2.5A)

200 mV/div

40 ms/div

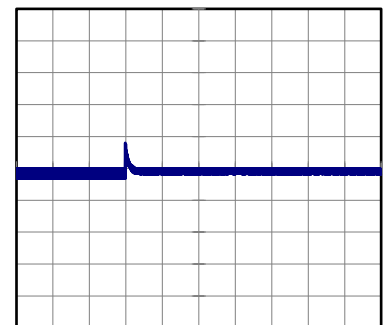


40 ms/div

Load 50% (2.5A) \longleftrightarrow
Load 100% (5A)

200 mV/div

40 ms/div

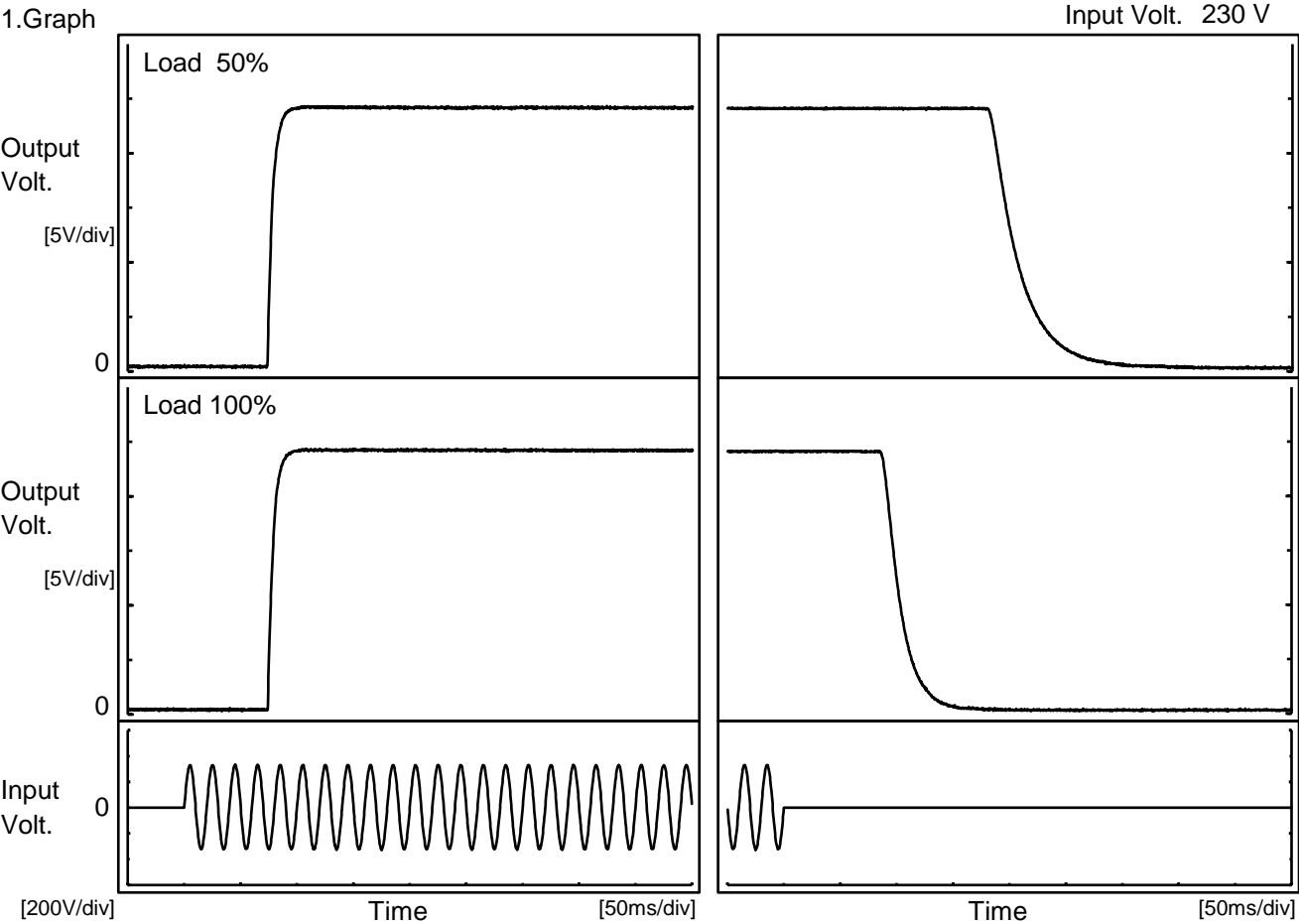


40 ms/div



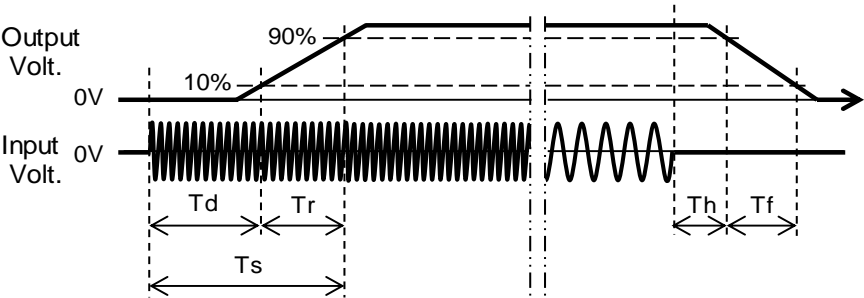
Model		WDA120F-24	Temperature 25°C Testing Circuitry Figure A
Item		Rise and Fall Time	
Object		+24V5A	

1.Graph



2.Values

		[ms]				
Load \ Time	Time	Td	Tr	Ts	Th	Tf
50 %		74.3	9.8	84.1	186.0	56.5
100 %		74.5	9.5	84.0	89.8	33.5





Model		WDA120F-24	Temperature25°C Testing CircuitryFigure A
Item		Hold-Up Time	
Object		+24V5A	
1.Graph			2.Values
<div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div>Hold-Up Time [ms]</div><div>1000</div><div>100</div><div>10</div><div>1</div><div>50</div><div>100</div><div>150</div><div>200</div><div>250</div><div>300</div><div>Input Voltage [V]</div></div>			
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p>			



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		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1</td><td>108</td><td>712</td><td>856</td></tr><tr><td>2</td><td>48</td><td>233</td><td>310</td></tr><tr><td>3</td><td>28</td><td>153</td><td>205</td></tr><tr><td>4</td><td>18</td><td>112</td><td>152</td></tr><tr><td>5</td><td>14</td><td>88</td><td>119</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>	Load Current [A]	Time [ms]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0	-	-	-	1	108	712	856	2	48	233	310	3	28	153	205	4	18	112	152	5	14	88	119	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	Time [ms]																																																		
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COSEL			
Model	WDA120F-24		
Item	Ambient Temperature Drift	Testing Circuitry Figure A	
Object	+24V5A		
1.Values		Load 100%	
Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	24.046	24.047	24.047
25	24.042	24.043	24.043
50	24.021	24.020	24.020
Item		Minimum Input Voltage for Regulated Output Voltage	
Object		+24V5A	
Item		Minimum Input Voltage for Regulated Output Voltage	
Object		+24V5A	
1.Values			
Ambient Temperature[°C]	Input Voltage [V]		
	Load 50%	Load 100%	
-20	48	77	
25	47	76	
50	47	76	
Item		Overvoltage Protection	
Object		+24V5A	
Item		Overvoltage Protection	
Object		+24V5A	
1.Values		Load 0%	
Ambient Temperature[°C]	Operating Point [V]		
	Input Volt. 115V	Input Volt. 264V	
-20	29.80	29.56	
25	30.00	30.10	
50	30.37	30.43	

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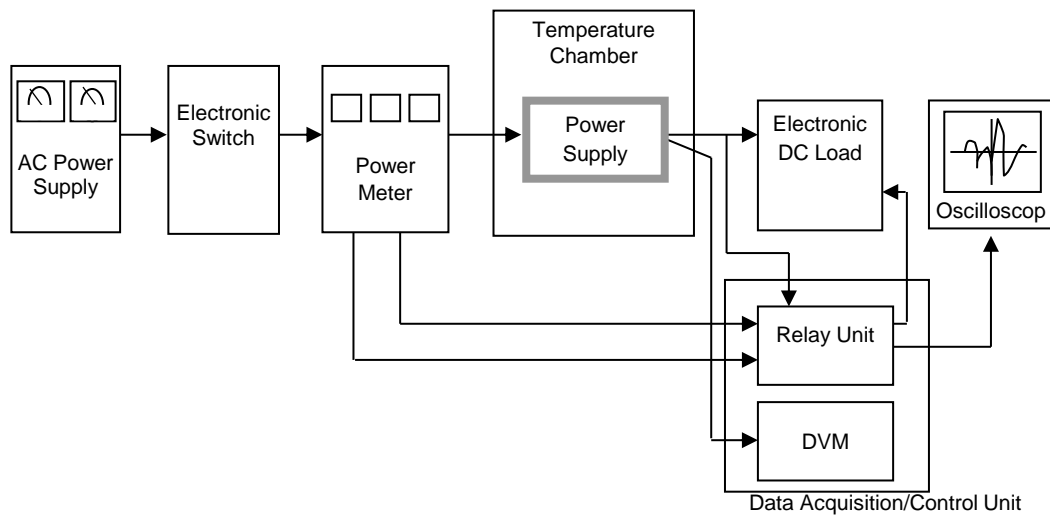
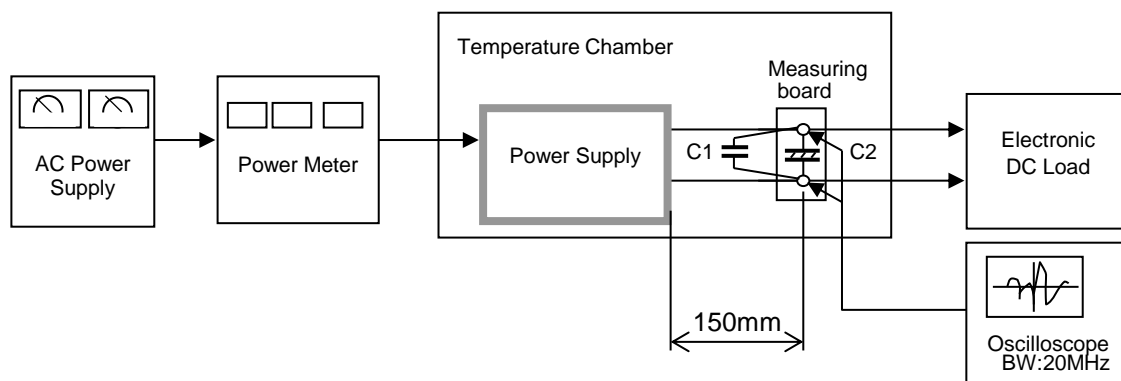


Figure A



C1= 0.1 μ F
(Ceramic capacitor)
C2= 47 μ F
(Electrolytic capacitor)

Figure B

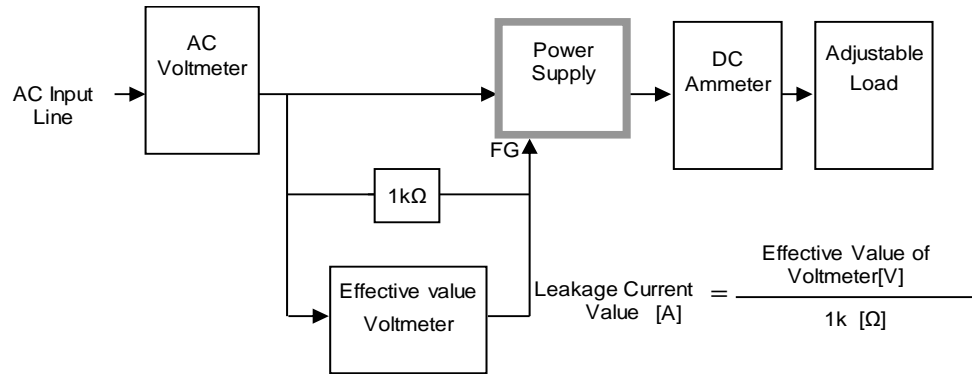


Figure C-1 (DEN-AN)

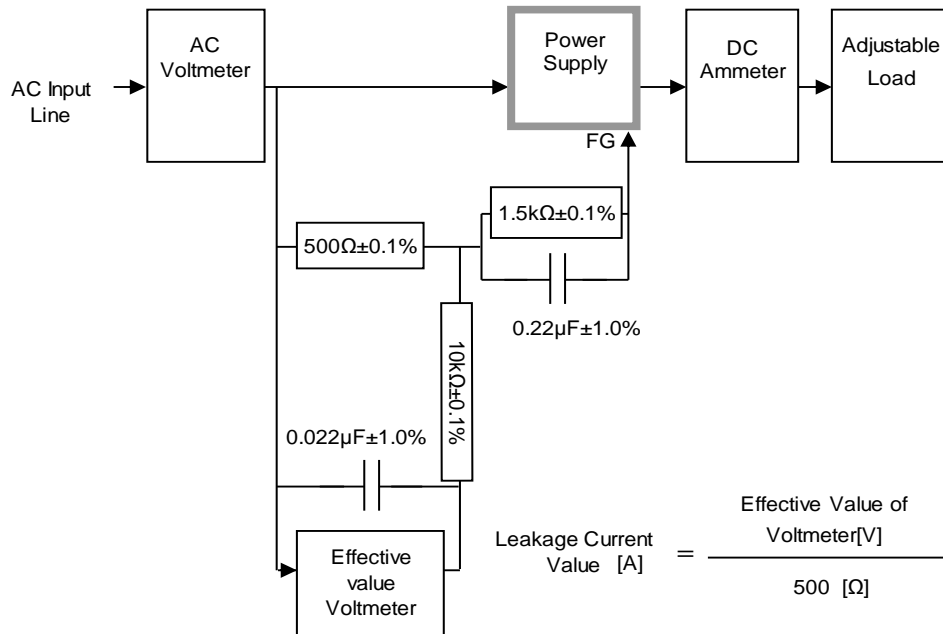


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

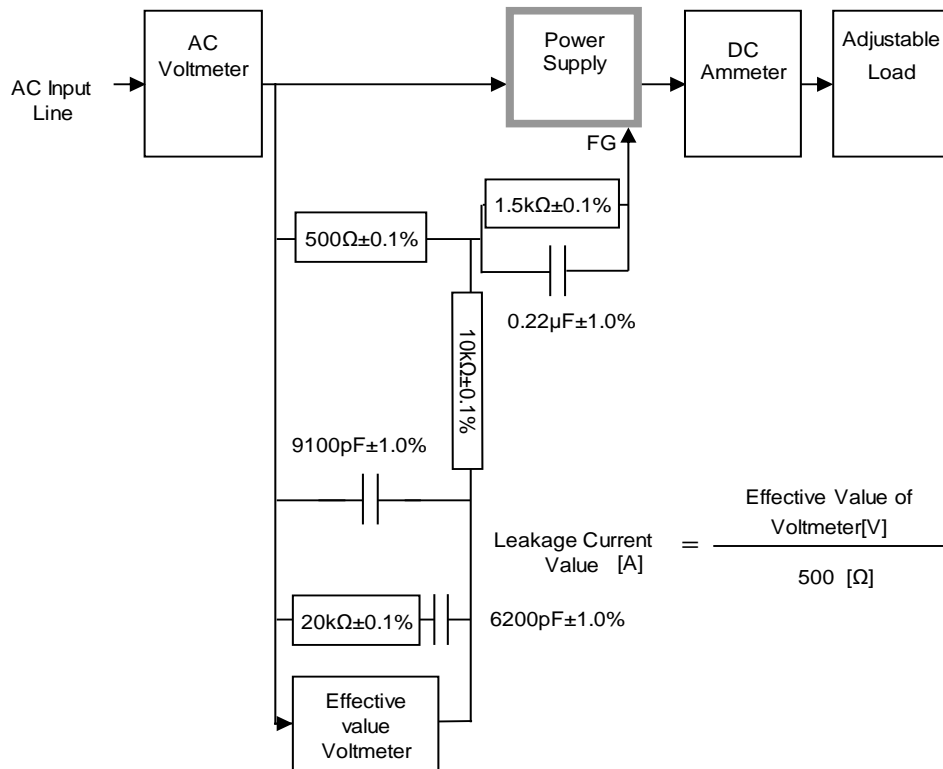


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)