

# TEST DATA OF UMA120F-24-Y

Regulated DC Power Supply  
November 6, 2024

Approved by : \_\_\_\_\_  
Takashi Kajii  
Design Manager

Prepared by : \_\_\_\_\_  
Kyosuke Kurata  
Design Engineer

**COSEL CO.,LTD.**



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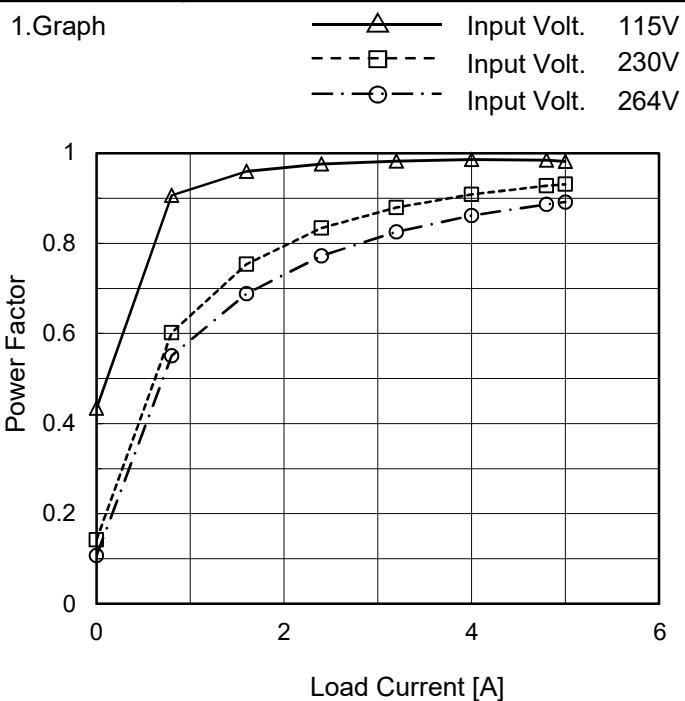
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Model	UMA120F-24-Y
Item	Power Factor (by Load Current)
Object	+24V5A

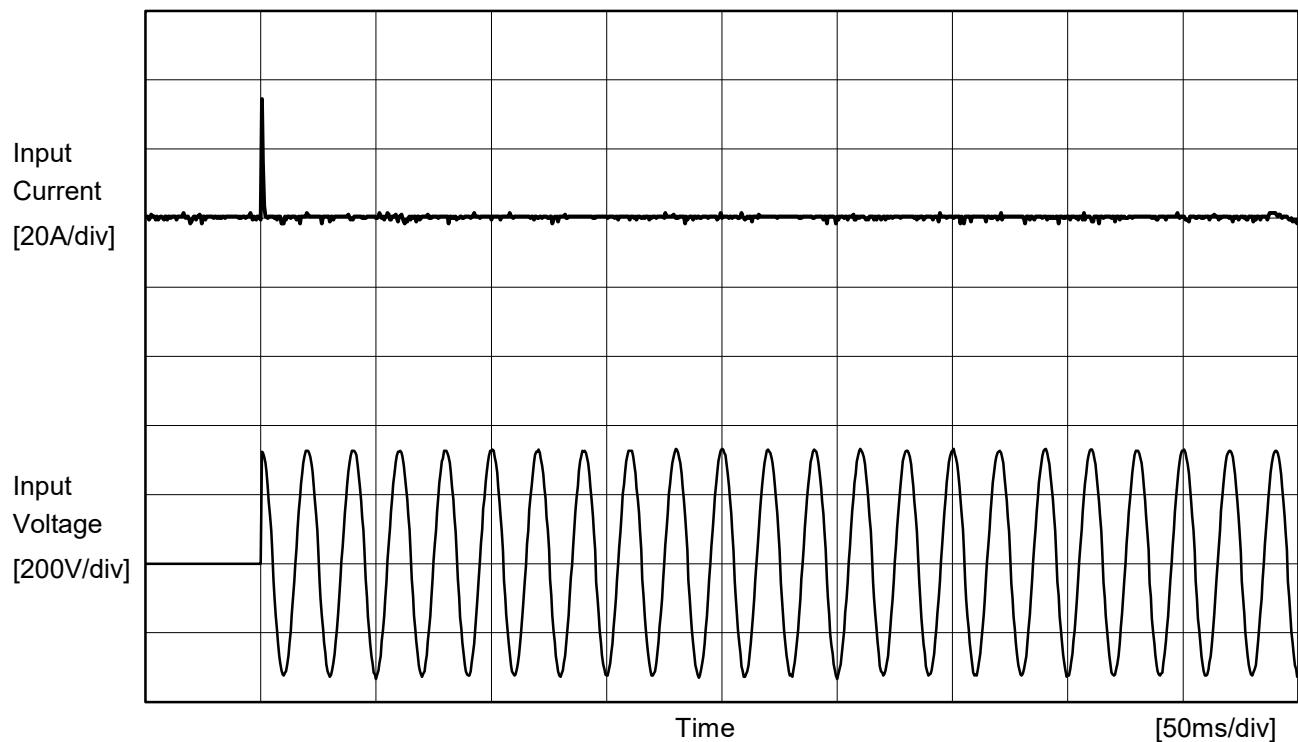
 Temperature 25°C  
 Testing Circuitry Figure A


## 2.Values

Load Current [A]	Power Factor		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	0.434	0.142	0.107
0.8	0.907	0.602	0.550
1.6	0.959	0.753	0.688
2.4	0.976	0.834	0.772
3.2	0.982	0.879	0.825
4.0	0.986	0.908	0.862
4.8	0.985	0.928	0.887
5.0	0.982	0.931	0.892
--	-	-	-
--	-	-	-
--	-	-	-

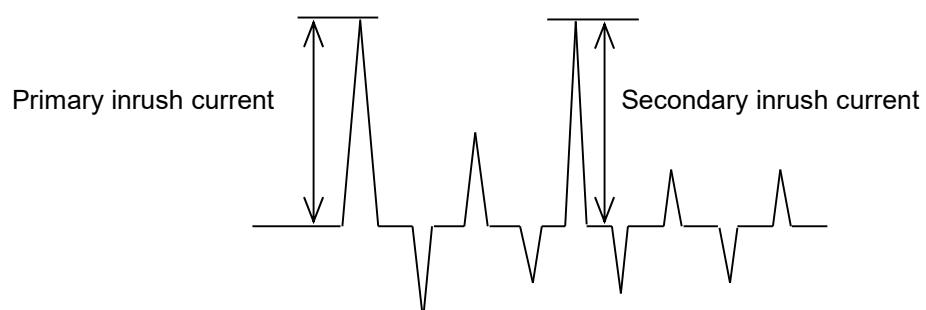
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Model	UMA120F-24-Y	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	+24V5A		



Input Voltage	230 V
Frequency	50 Hz
Load	100 %

Primary inrush current	34.5 A
Secondary inrush current	3.0 A





Model	UMA120F-24-Y	Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure C
Object	+24V5A		

## 1. Results

[mA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			115 [V]	230 [V]	264 [V]	
IEC60601-1	Figure C-1	Both phases	0.05	0.10	0.12	Operation
		One of phases	0.09	0.20	0.23	Stand by
IEC62368-1	Figure C-2	Both phases	0.05	0.10	0.12	Operation
		One of phases	0.09	0.20	0.23	Stand by
	Figure C-3	Both phases	0.05	0.10	0.12	Operation
		One of phases	0.09	0.20	0.23	Stand by

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

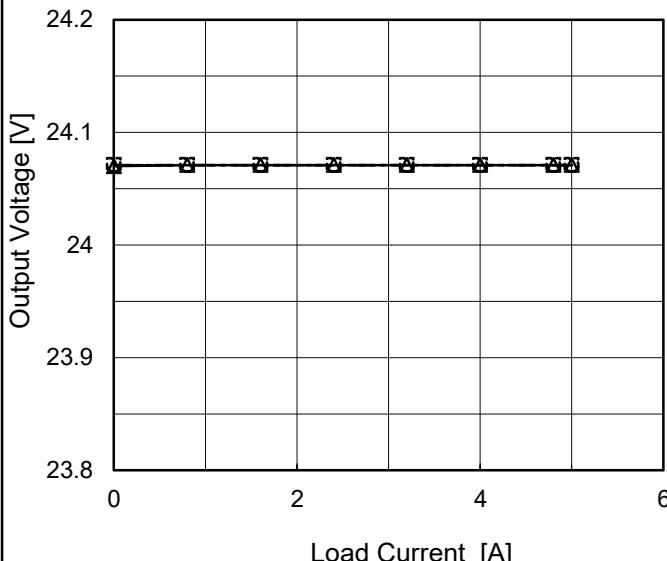
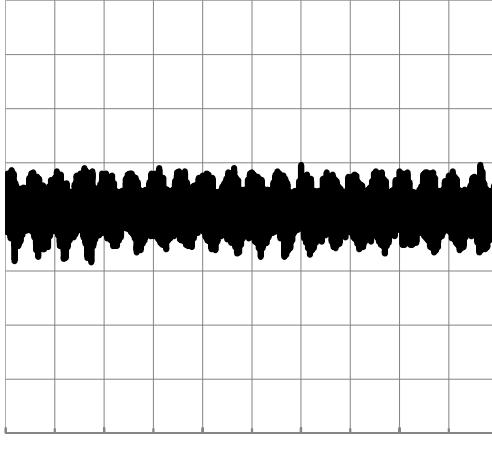
## 2. Condition

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

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Model	UMA120F-24-Y	Temperature	25°C																																
Item	Line Regulation	Testing Circuitry	Figure A																																
Object	+24V5A																																		
1.Graph			2.Values																																
<p>Output Voltage [V]</p> <p>Input Voltage [V]</p> <p>Legend: Load 50% (dashed line with open squares), Load 100% (solid line with solid triangles)</p>			<table border="1"> <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>24.066</td> <td>-</td> </tr> <tr> <td>100</td> <td>24.066</td> <td>-</td> </tr> <tr> <td>115</td> <td>24.066</td> <td>24.067</td> </tr> <tr> <td>132</td> <td>24.066</td> <td>24.066</td> </tr> <tr> <td>170</td> <td>24.066</td> <td>24.066</td> </tr> <tr> <td>200</td> <td>24.066</td> <td>24.068</td> </tr> <tr> <td>230</td> <td>24.066</td> <td>24.068</td> </tr> <tr> <td>264</td> <td>24.066</td> <td>24.069</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	85	24.066	-	100	24.066	-	115	24.066	24.067	132	24.066	24.066	170	24.066	24.066	200	24.066	24.068	230	24.066	24.068	264	24.066	24.069	--	-	-
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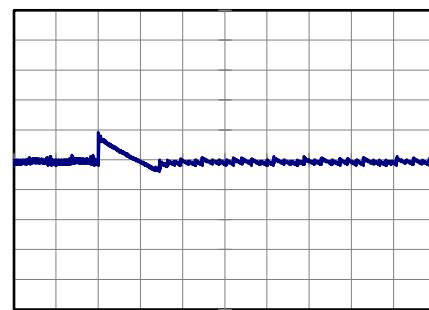
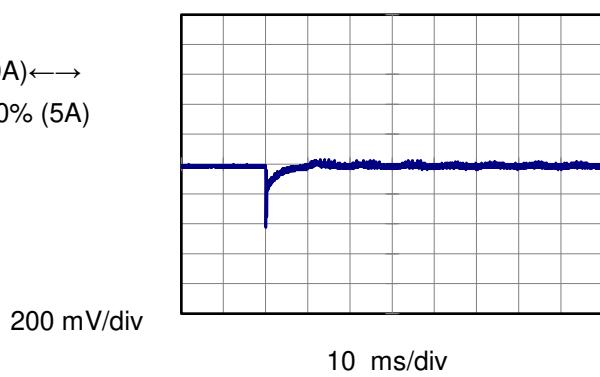
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Model	UMA120F-24-Y	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+24V5A		

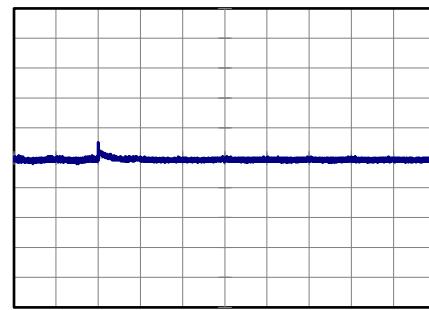
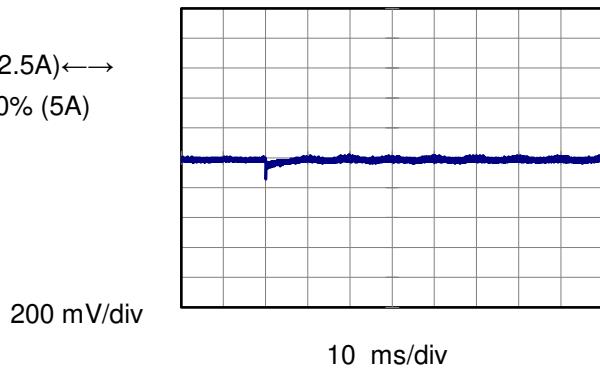
Input Volt. 230 V  
 Cycle 1000 ms



Min.Load (0A)↔  
 Load 100% (5A)



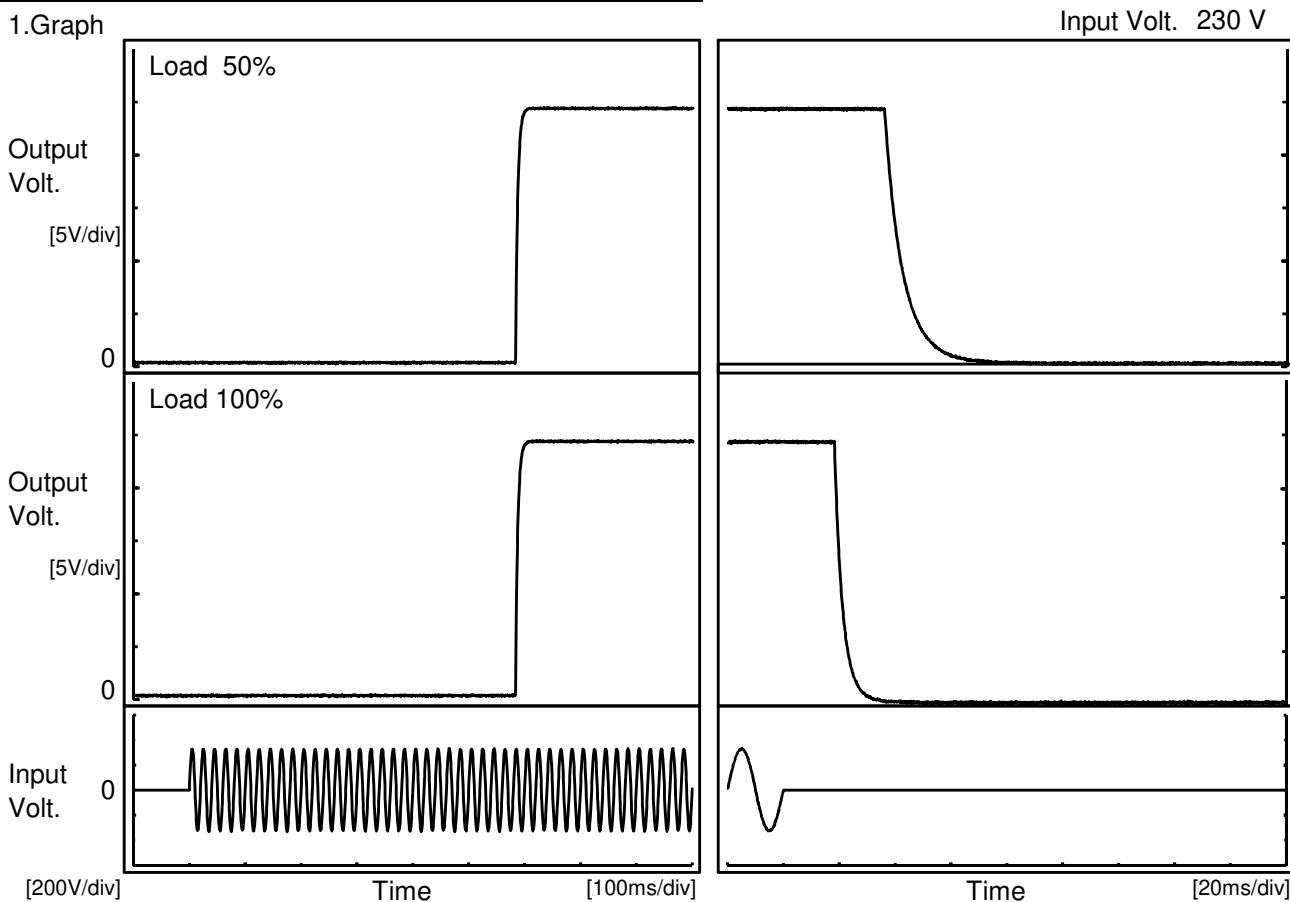
Load 50% (2.5A)↔  
 Load 100% (5A)



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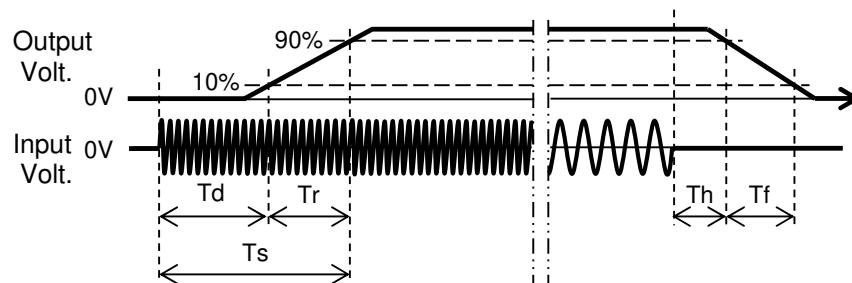
Model	UMA120F-24-Y	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+24V5A		

## 1. Graph



## 2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		583.5	8.0	591.5	36.8	14.9	
100 %		583.5	8.0	591.5	18.4	6.8	



**COSEL**

Model	UMA120F-24-Y	Temperature	25°C																																
Item	Hold-Up Time	Testing Circuitry	Figure A																																
Object	+24V5A																																		
1. Graph			2. Values																																
<p>The graph illustrates the hold-up time characteristics of the UMA120F-24-Y module. The Y-axis represents the hold-up time in milliseconds (ms), ranging from 1 to 1000 on a logarithmic scale. The X-axis represents the input voltage in volts (V), ranging from 50 to 300. Two data series are shown: one for a 50% load (dashed line with square markers) and one for a 100% load (solid line with triangle markers). Both series exhibit a constant hold-up time of approximately 36 ms across the entire input voltage range.</p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Hold-Up Time [ms]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>85</td> <td>36</td> <td>-</td> </tr> <tr> <td>100</td> <td>36</td> <td>-</td> </tr> <tr> <td>115</td> <td>36</td> <td>18</td> </tr> <tr> <td>132</td> <td>36</td> <td>18</td> </tr> <tr> <td>170</td> <td>36</td> <td>18</td> </tr> <tr> <td>200</td> <td>36</td> <td>18</td> </tr> <tr> <td>230</td> <td>36</td> <td>18</td> </tr> <tr> <td>264</td> <td>36</td> <td>18</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	85	36	-	100	36	-	115	36	18	132	36	18	170	36	18	200	36	18	230	36	18	264	36	18	--	-	-
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<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>																																			

**COSEL**

Model	UMA120F-24-Y																																																					
Item	Instantaneous Interruption Compensation																																																					
Object	+24V5A																																																					
1.Graph	<p>Graph showing Instantaneous Compensation Time [ms] vs Load Current [A]. The Y-axis is logarithmic from 1 to 1000 ms. The X-axis ranges from 0 to 6 A. Three curves are shown for Input Volt. 115V (solid line with triangles), Input Volt. 230V (dashed line with squares), and Input Volt. 264V (dash-dot line with circles). All curves show a decreasing trend as load current increases.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 115V [ms]</th> <th>Input Volt. 230V [ms]</th> <th>Input Volt. 264V [ms]</th> </tr> </thead> <tbody> <tr> <td>0.8</td> <td>96</td> <td>107</td> <td>108</td> </tr> <tr> <td>1.6</td> <td>55</td> <td>55</td> <td>56</td> </tr> <tr> <td>2.4</td> <td>37</td> <td>37</td> <td>37</td> </tr> <tr> <td>3.2</td> <td>28</td> <td>28</td> <td>28</td> </tr> <tr> <td>4.0</td> <td>22</td> <td>22</td> <td>22</td> </tr> <tr> <td>4.8</td> <td>17</td> <td>18</td> <td>18</td> </tr> <tr> <td>5.0</td> <td>17</td> <td>17</td> <td>18</td> </tr> </tbody> </table>			Load Current [A]	Input Volt. 115V [ms]	Input Volt. 230V [ms]	Input Volt. 264V [ms]	0.8	96	107	108	1.6	55	55	56	2.4	37	37	37	3.2	28	28	28	4.0	22	22	22	4.8	17	18	18	5.0	17	17	18																			
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**COSEL**

Model	UMA120F-24-Y	Temperature	25°C																																																																															
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																																															
Object	+24V5A																																																																																	
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<p>Note: Slanted line shows the range of the rated load current.</p> <p>Overcurrent protection is Hiccup mode.</p>																																																																																		



Model	UMA120F-24-Y	Testing Circuitry Figure A
Item	Ambient Temperature Drift	
Object	+24V5A	

## 1.Values

Load 100%

Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	24.027	24.028	24.029
25	24.074	24.073	24.073
50	24.080	24.079	24.078

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A	
Object	+24V5A		

## 1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	50	57
25	50	57
50	49	59

Item	Overvoltage Protection	Testing Circuitry Figure A	
Object	+24V5A		

## 1.Values

Load 0%

Ambient Temperature[°C]	Operating Point [V]	
	Input Volt. 115V	Input Volt. 264V
-20	30.14	30.14
25	30.36	30.29
50	30.59	30.51

COSEL

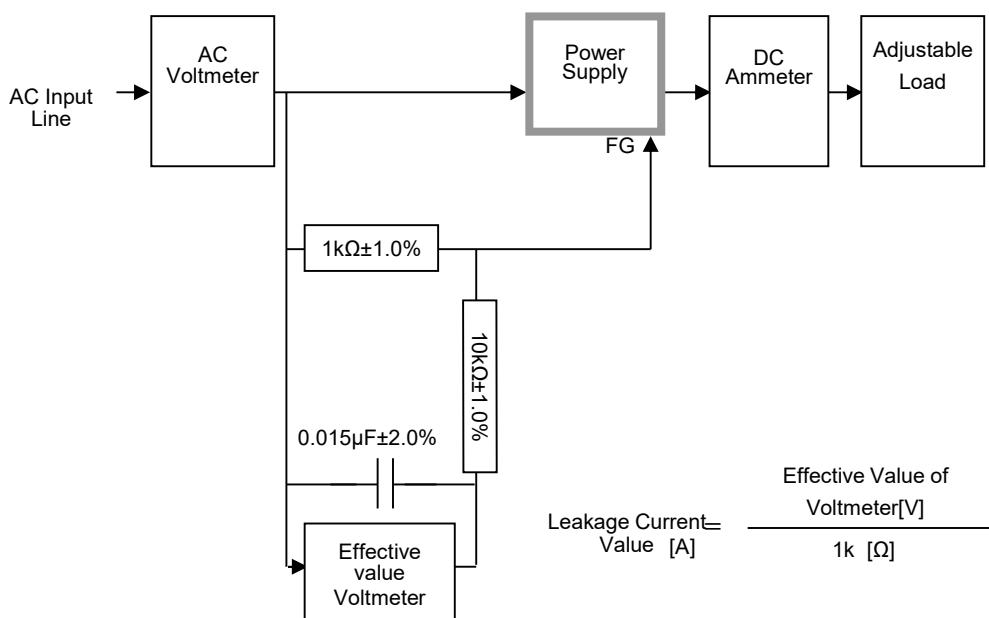
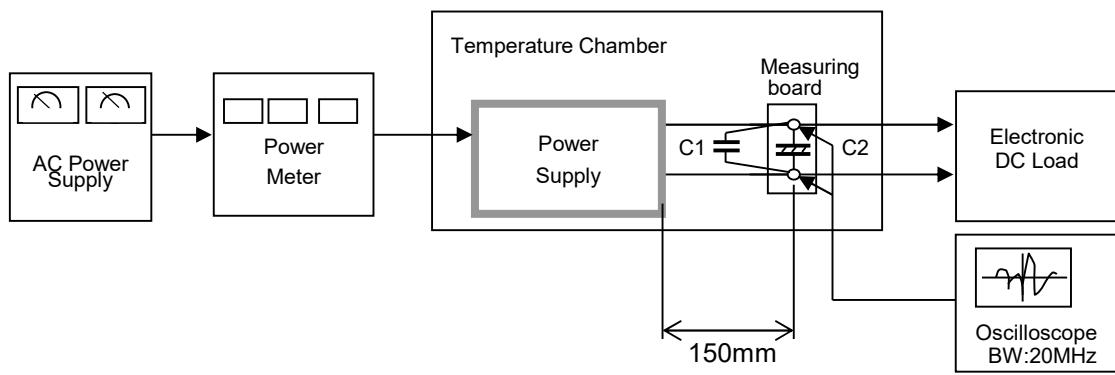
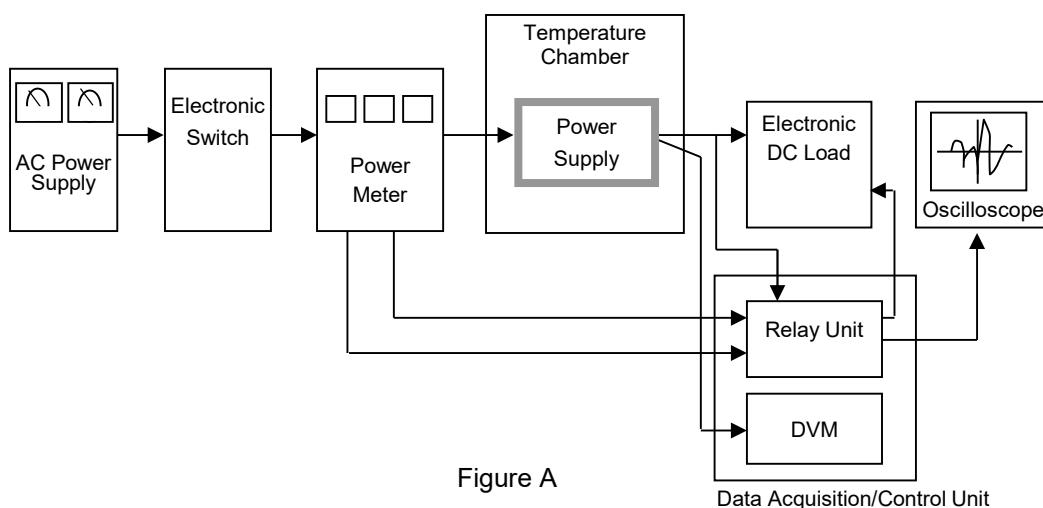


Figure C-1 ( IEC60601-1 )

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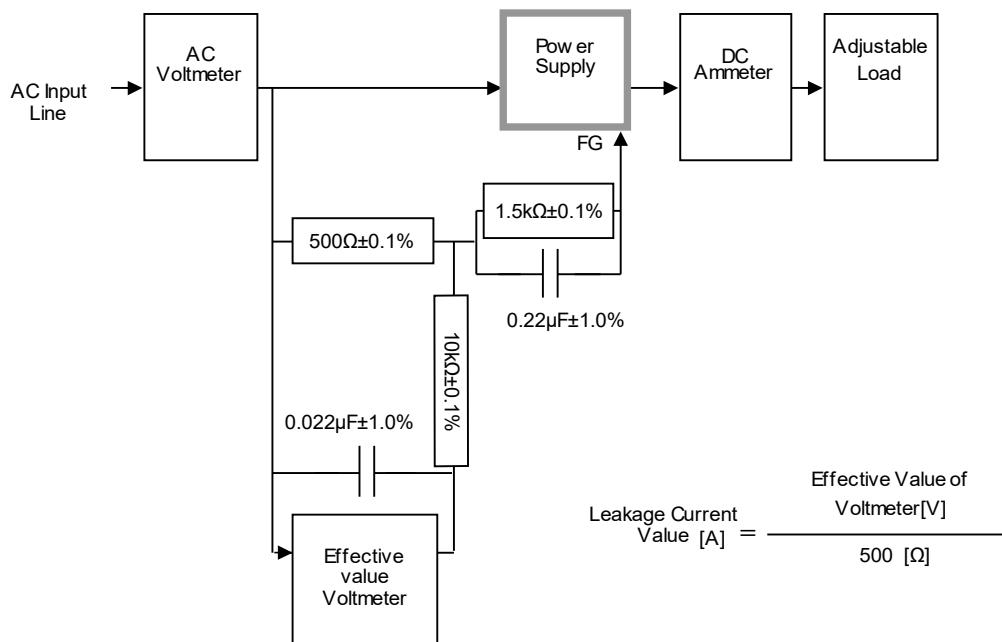


Figure C-2 ( IEC62368-1 refer to IEC60990 Fig.4 )

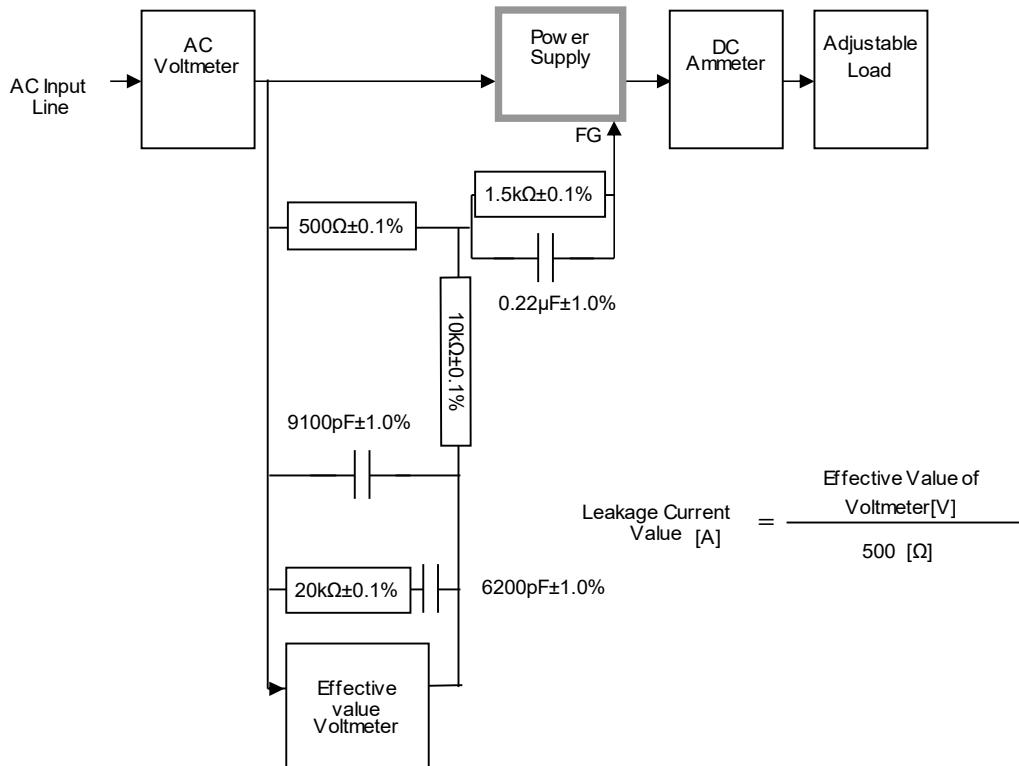


Figure C-3 ( IEC62368-1 refer to IEC60990 Fig.5 )