



TEST DATA OF UMA60F-48

Regulated DC Power Supply
January 12, 2023

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Design Manager

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Design Engineer

COSEL CO.,LTD.



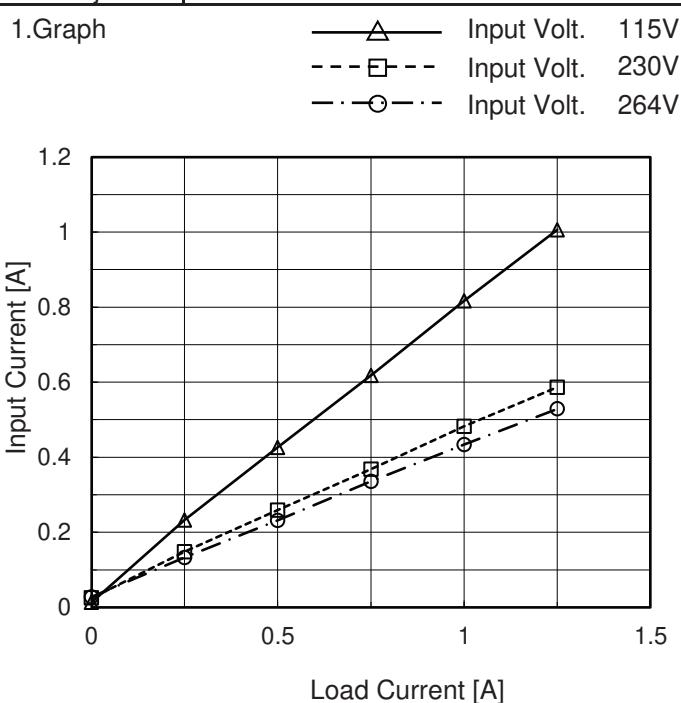
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(Final Page 15)

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Model	UMA60F-48
Item	Input Current (by Load Current)
Object	+48V1.25A

 Temperature 25°C
 Testing Circuitry Figure A


2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.00	0.014	0.025	0.028
0.25	0.232	0.148	0.133
0.50	0.426	0.259	0.232
0.75	0.618	0.369	0.335
1.00	0.817	0.482	0.434
1.25	1.006	0.587	0.529
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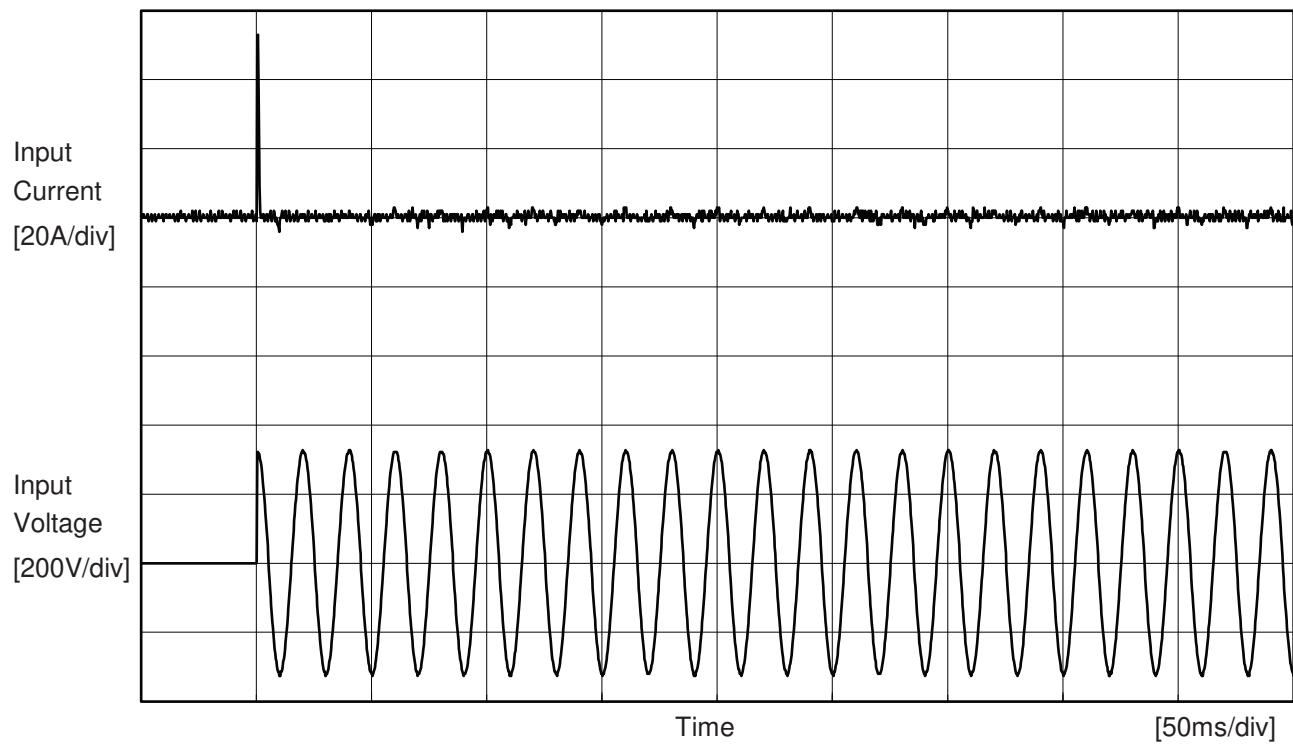
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<p>The graph plots Efficiency [%] on the y-axis (70 to 100) against Load Current [A] on the x-axis (0 to 1.5). Three data series are shown: Input Volt. 115V (solid line with open triangle markers), Input Volt. 230V (dashed line with open square markers), and Input Volt. 264V (dash-dot line with open circle markers). All series show efficiency increasing with load current, with the 264V curve being the highest and the 115V curve being the lowest.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Efficiency [%]</th> </tr> <tr> <th>Input Volt. 115[V]</th> <th>Input Volt. 230[V]</th> <th>Input Volt. 264[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.25</td><td>88.5</td><td>88.3</td><td>87.4</td></tr> <tr><td>0.50</td><td>88.9</td><td>89.1</td><td>88.8</td></tr> <tr><td>0.75</td><td>89.8</td><td>89.7</td><td>88.3</td></tr> <tr><td>1.00</td><td>89.1</td><td>89.8</td><td>89.6</td></tr> <tr><td>1.25</td><td>89.3</td><td>91.4</td><td>91.2</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> </tbody> </table>		Load Current [A]	Efficiency [%]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0.00	-	-	-	0.25	88.5	88.3	87.4	0.50	88.9	89.1	88.8	0.75	89.8	89.7	88.3	1.00	89.1	89.8	89.6	1.25	89.3	91.4	91.2	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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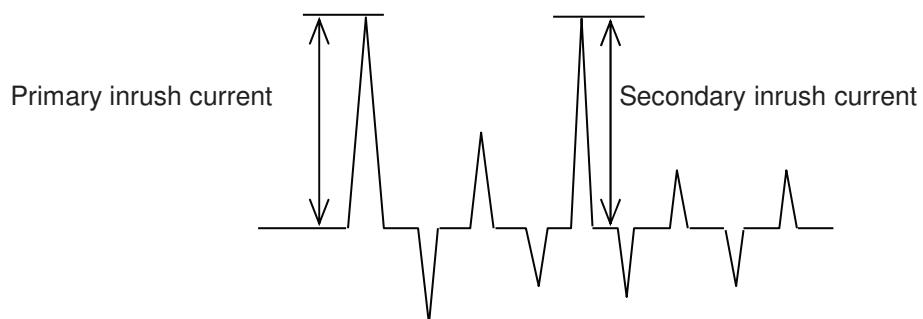
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Model	UMA60F-48	Temperature Testing Circuitry Figure A	25°C
Item	Inrush Current		
Object	+48V1.25A		



Input Voltage	230 V
Frequency	50 Hz
Load	100 %

Primary inrush current	53.0 A
Secondary inrush current	4.0 A





Model	UMA60F-48	Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure C
Object	+48V1.25A		

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	0.11	0.13	Operation
		One of phases	0.10	0.21	0.25	Stand by
IEC62368-1	Figure C-2	Both phases	0.05	0.11	0.13	Operation
		One of phases	0.10	0.21	0.25	Stand by
	Figure C-3	Both phases	0.05	0.11	0.13	Operation
		One of phases	0.10	0.21	0.25	Stand by

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

2. Condition

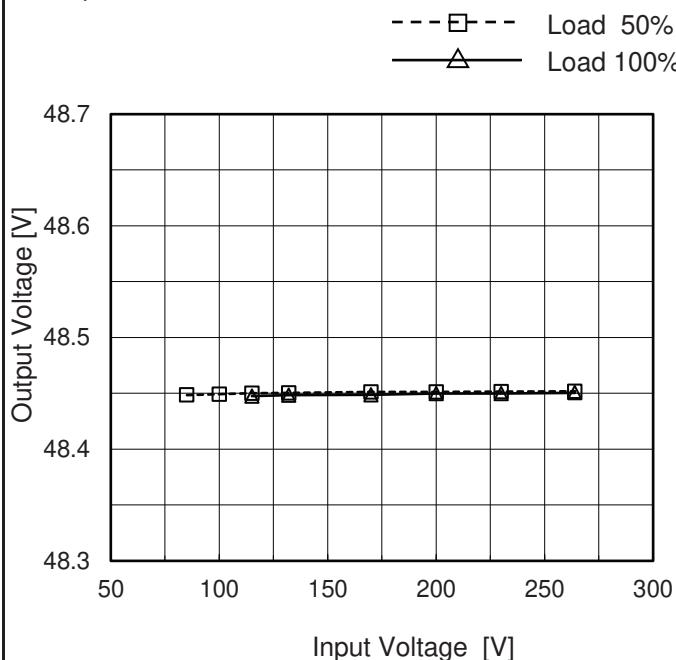
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

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Model	UMA60F-48
Item	Line Regulation
Object	+48V1.25A

 Temperature 25°C
 Testing Circuitry Figure A

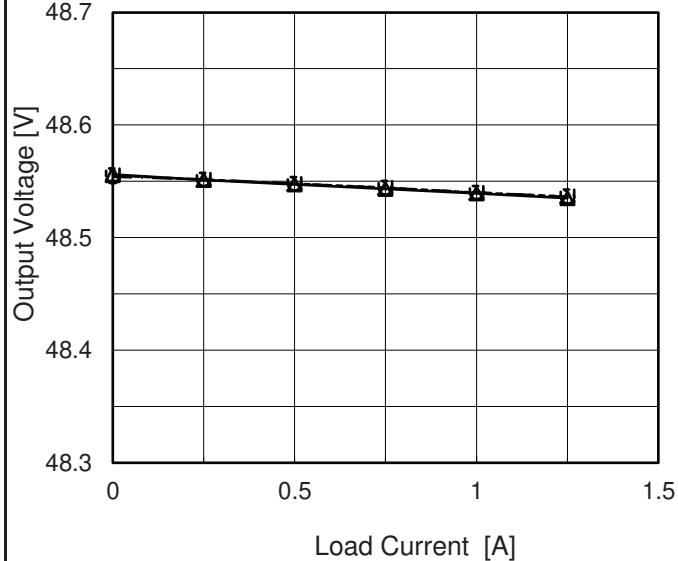
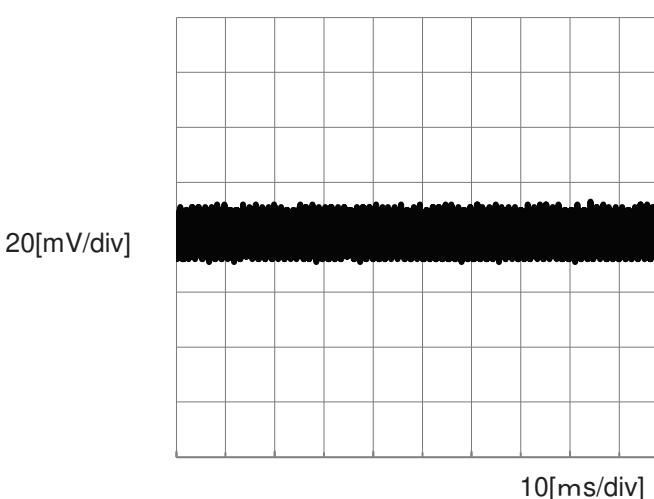
1.Graph



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	48.449	-
100	48.449	-
115	48.450	48.448
132	48.450	48.448
170	48.451	48.449
200	48.451	48.450
230	48.451	48.450
264	48.452	48.451
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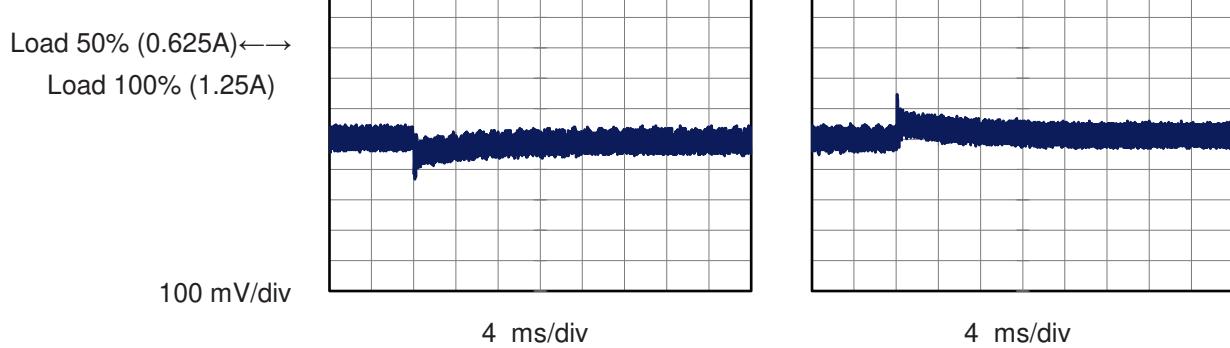
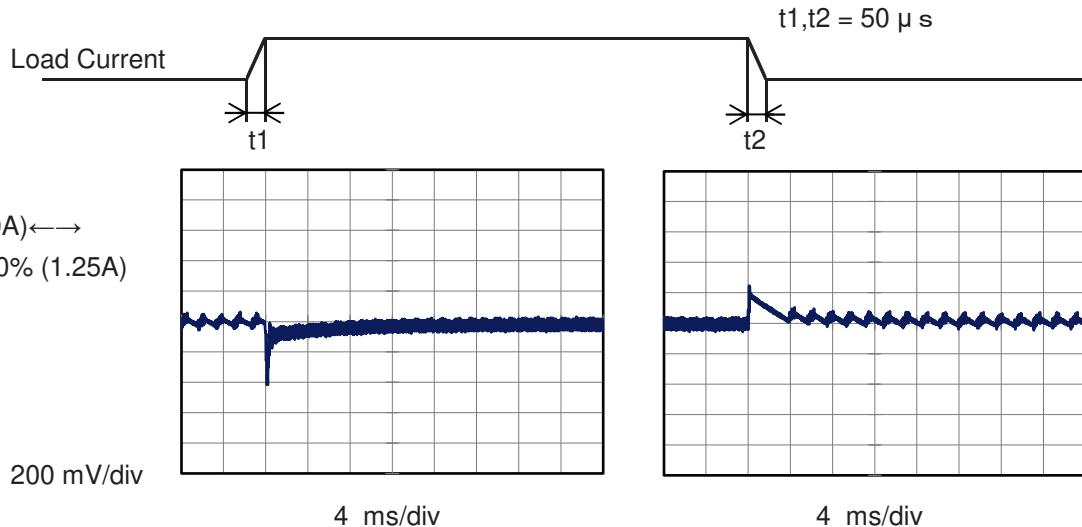
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Item	Ripple-Noise	Temperature	25°C																																																			
Object	+48V1.25A	Testing Circuitry	Figure B																																																			
1.Graph		Input Voltage 230V Load 100%																																																				
																																																						

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Model	UMA60F-48	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+48V1.25A		

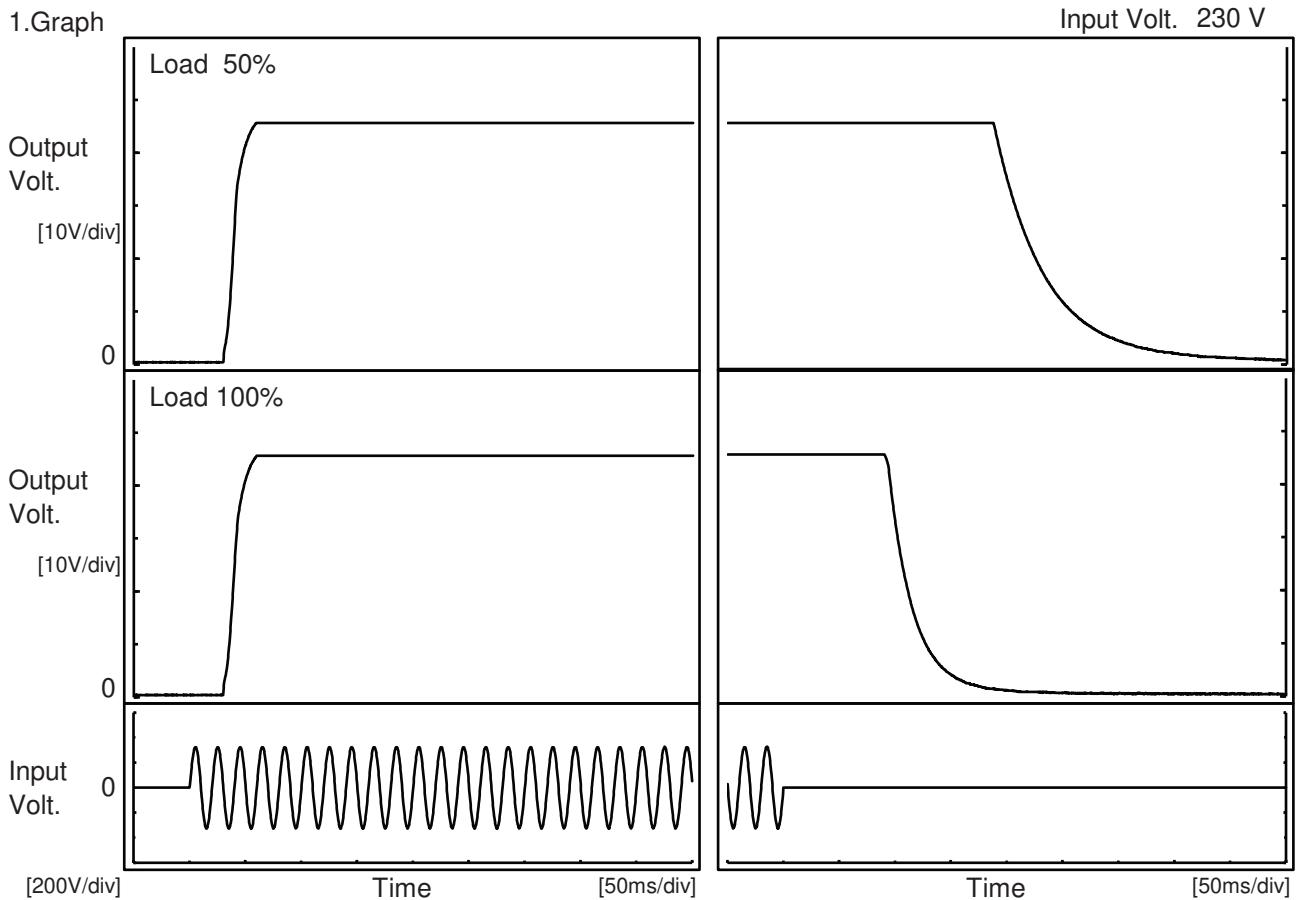
Input Volt. 230 V
 Cycle 1000 ms



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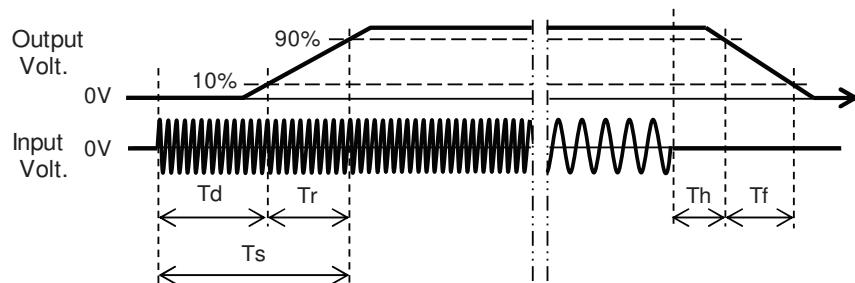
Model	UMA60F-48	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+48V1.25A		

1. Graph



2. Values

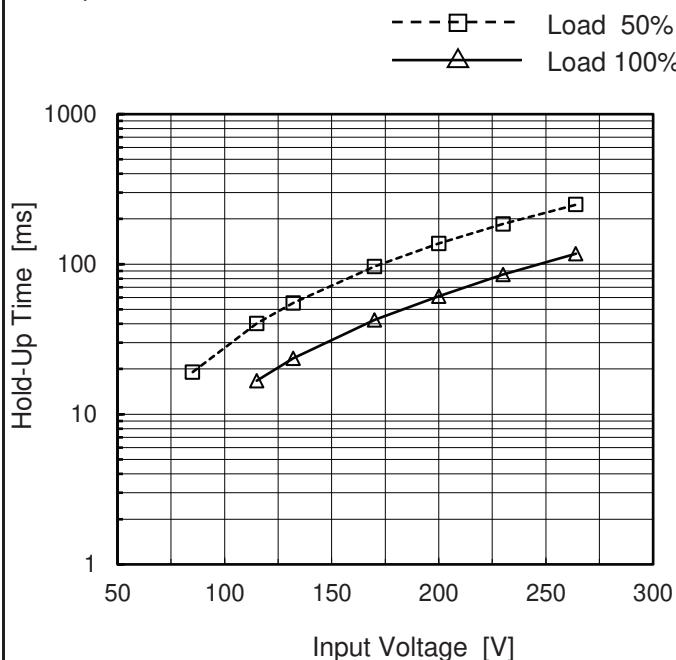
Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		33.5	20.5	54.0	190.0	100.8	
100 %		33.5	20.8	54.3	93.8	49.5	



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Model	UMA60F-48	Temperature	25°C
Item	Hold-Up Time	Testing Circuitry	Figure A
Object	+48V1.25A		

1. Graph



2. Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	19	-
100	29	-
115	40	17
132	55	24
170	97	42
200	137	61
230	186	85
264	250	117
--	-	-

This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.

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Model	UMA60F-48	Temperature Testing Circuitry	25°C Figure A																																																			
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<p>The graph plots Output Voltage [V] on the Y-axis (24, 36, 48, 60) against Load Current [A] on the X-axis (0, 0.5, 1, 1.5, 2). Three curves are shown for Input Volt. 115V (black), Input Volt. 230V (blue), and Input Volt. 264V (orange). All curves show a constant output voltage of 48V until a load current of approximately 1.25A, after which the voltage drops sharply. A slanted line connects the points where the voltage begins to drop for each curve.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 115[V]</th> <th>Input Volt. 230[V]</th> <th>Input Volt. 264[V]</th> </tr> </thead> <tbody> <tr><td>48</td><td>1.61</td><td>1.55</td><td>1.61</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>		Output Voltage [V]	Load Current [A]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	48	1.61	1.55	1.61	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.

Overcurrent protection is Hiccup mode.

COSEL

Model	UMA60F-48	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+48V1.25A	

1.Values

Load 100%

Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	48.240	48.244	48.246
25	48.441	48.442	48.442
50	48.505	48.506	48.506

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+48V1.25A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	38	66
25	36	67
50	35	67

Item	Overvoltage Protection	Testing Circuitry Figure A
Object	+48V1.25A	

1.Values

Load 0%

Ambient Temperature[°C]	Operating Point [V]	
	Input Volt. 115V	Input Volt. 264V
-20	61.92	62.81
25	60.65	61.92
50	59.45	63.41

COSEL

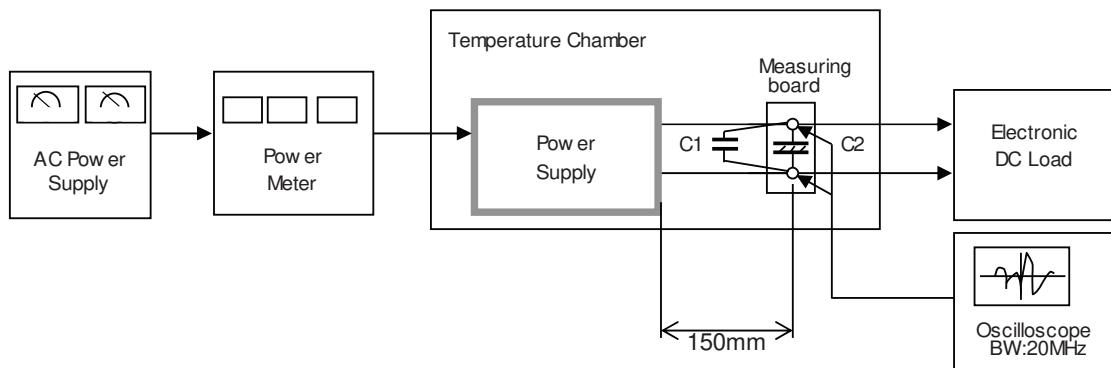
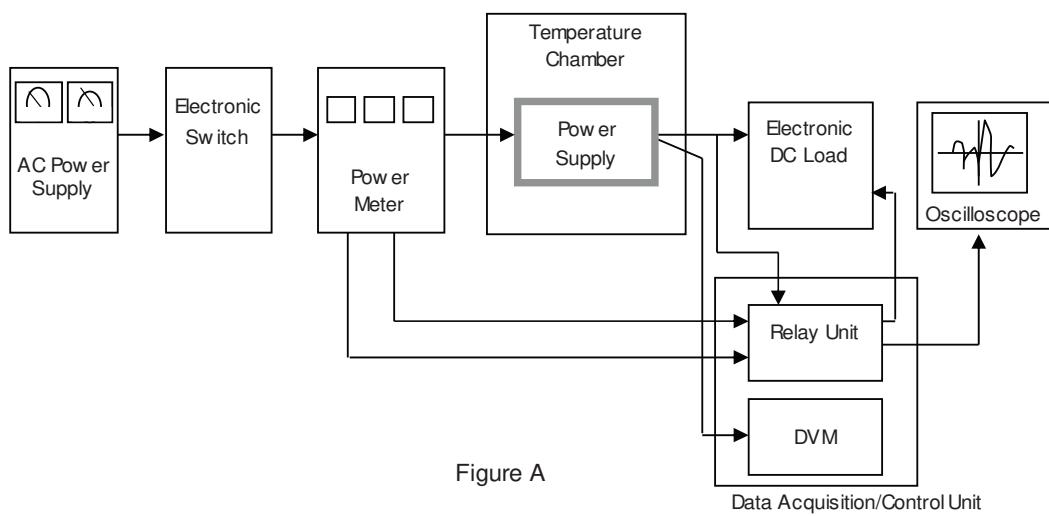


Figure B

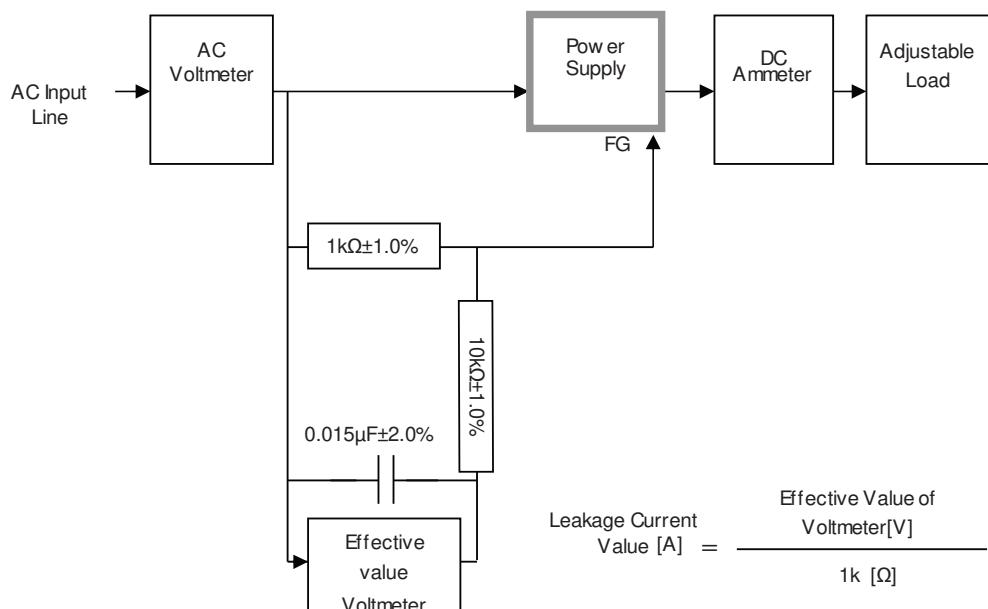


Figure C-1 (IEC60601-1)

COSEL

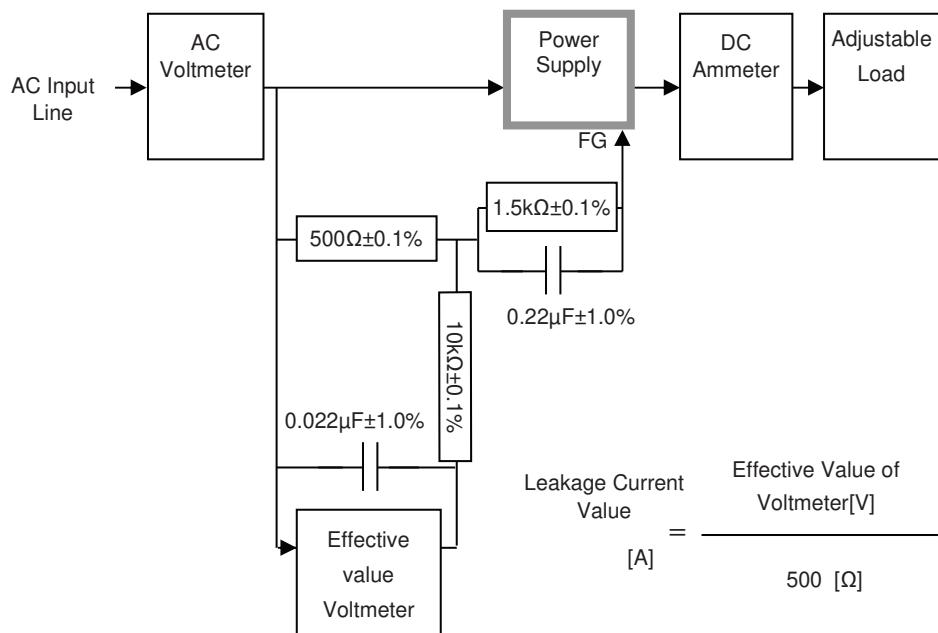


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

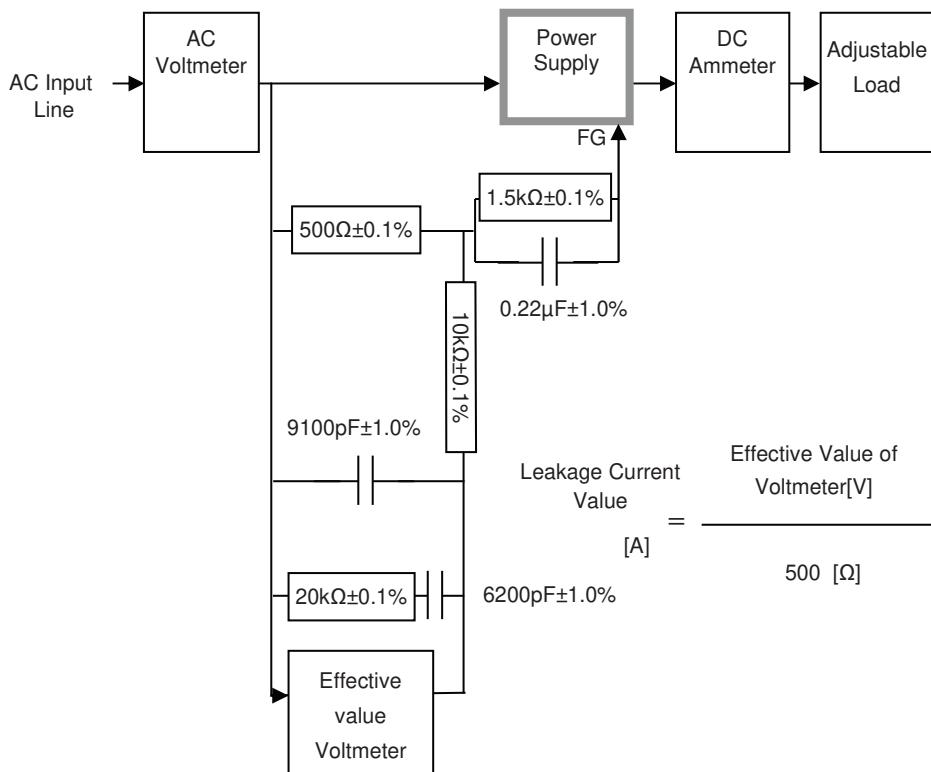


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)