



# TEST DATA OF WXA150H-24

(115V INPUT)

Regulated DC Power Supply  
March 6, 2018

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Tatsuya Mano Design Manager

Prepared by : Noriaki Nakase  
Noriaki Nakase Design Engineer

**COSEL CO.,LTD.**

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(Final Page 23)

Model

WXA150H-24

Item

Input Current (by Load Current)

Object

1.Graph

—△—

Input Volt.

90V

---□---

Input Volt.

115V

---○---

Input Volt.

132V

Input Current [A]

5.0

4.0

3.0

2.0

1.0

0.0

0

2

4

6

8

Load Current [A]

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

Temperature

25℃

Testing Circuitry

Figure A

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 115[V]	Input Volt. 132[V]
0.0	0.045	0.054	0.061
0.5	0.380	0.326	0.297
1.0	0.653	0.564	0.514
2.0	1.136	0.966	0.868
3.0	1.595	1.340	1.204
4.0	2.059	1.714	1.542
5.0	2.540	2.088	1.879
6.5	3.297	2.657	2.380
7.2	-	2.941	2.629
--	-	-	-
--	-	-	-

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Model		WXA150H-24	Temperature 25°C Testing Circuitry Figure A
Item		Efficiency (by Input Voltage)	
Object			
1.Graph			2.Values
<div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div>Load 50%</div></div><div><div></div><div></div></div><div>Load 100%</div></div> <div><div><div>Efficiency [%]</div><div>100</div><div>92</div><div>84</div><div>76</div><div>68</div><div>60</div><div>52</div><div>44</div></div><div><div>70</div><div>90</div><div>110</div><div>130</div><div>150</div></div><div><div>Input Voltage [V]</div></div></div>			
<div>Note: Slanted line shows the range of the rated input voltage.</div>			

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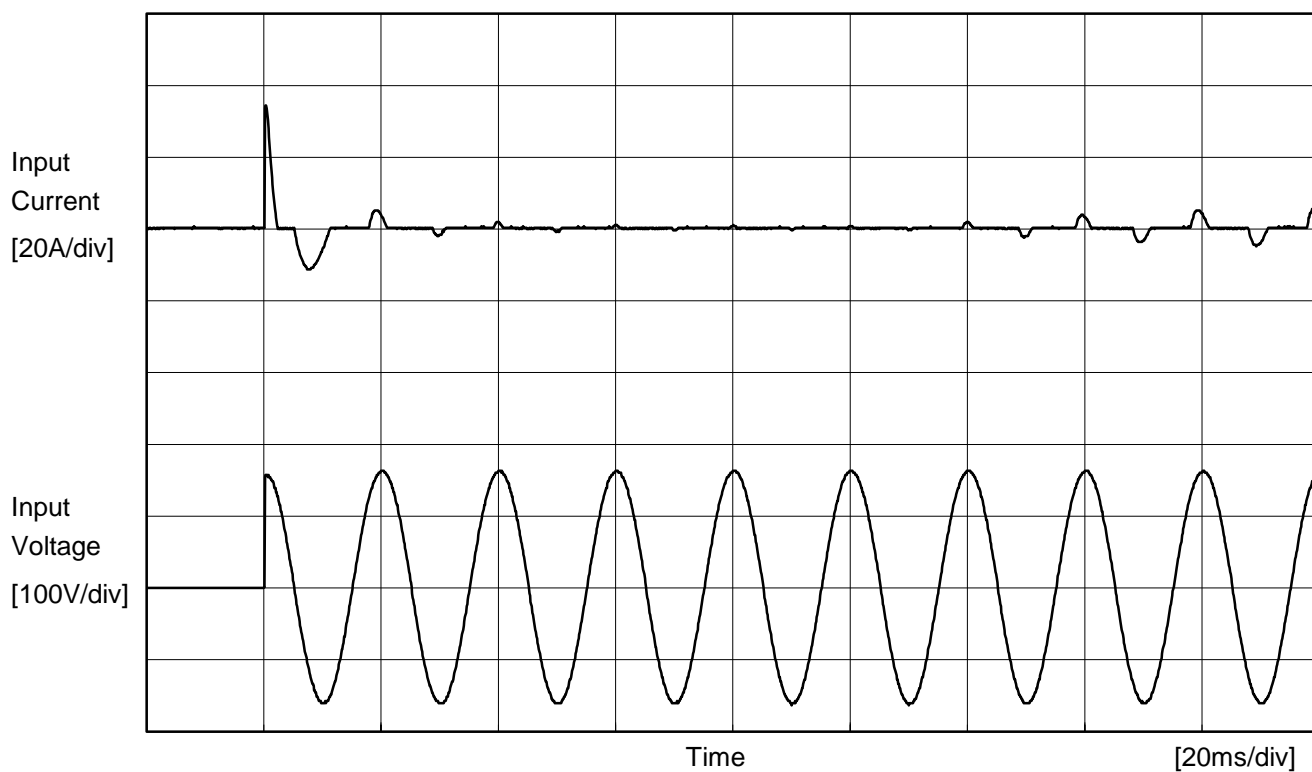
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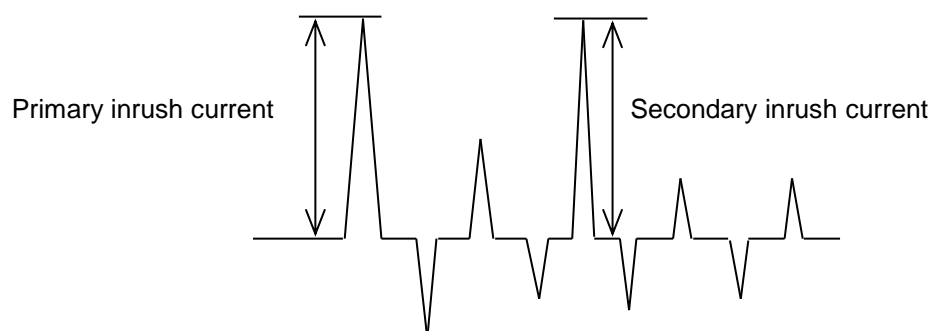
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Model		WXA150H-24	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current	
Object		_____	



Input Voltage 115 V  
Frequency 50 Hz  
Load 100 %

Primary inrush current 34.4 A  
Secondary inrush current 0.0 A





		Temperature 25°C Testing Circuitry Figure B
Model	WXA150-24	
Item	Leakage Current	
Object	_____	

### 1.Results

[mA]

Standards		Input Volt.			Note
		90 [V]	115 [V]	132 [V]	
IEC60950-1	Both phases	0.24	0.30	0.35	Operation
	One of phases	0.48	0.60	0.70	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		WXA150H-24	Temperature25°C Testing CircuitryFigure A																															
Item		Line Regulation																																
Object		+24V6.5A																																
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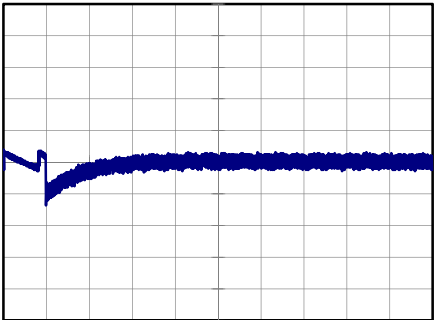
Model	WXA150H-24		
Item	Dynamic Load Response	Temperature	25°C
Object	+24V6.5A	Testing Circuitry	Figure A

Input Volt.      24 V  
Cycle            1000 ms

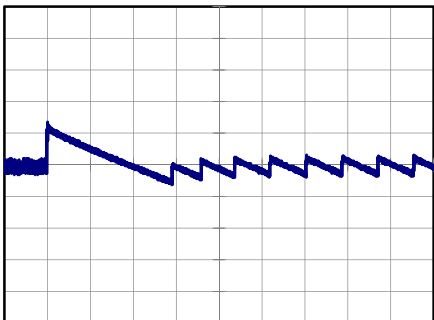


Min.Load (0A)←→  
Load 100% (6.5A)

200 mV/div



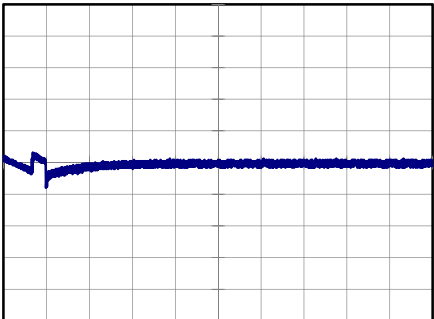
20 ms/div



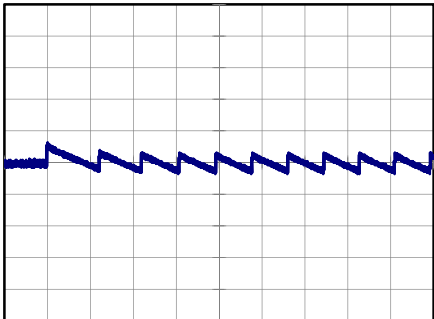
20 ms/div

Min.Load (0A)←→  
Load 50% (3.25A)

200 mV/div



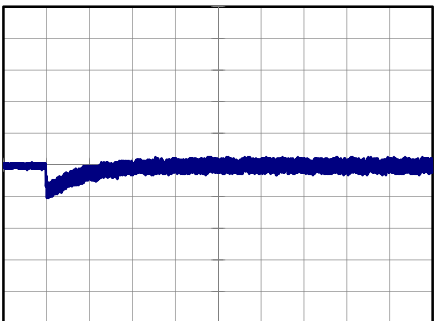
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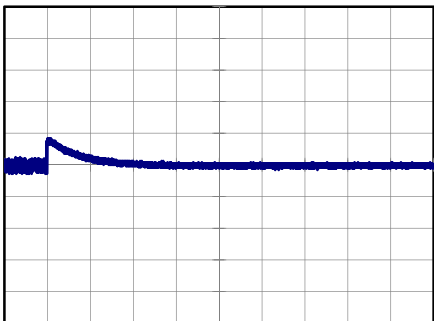
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Load 50% (3.25A)←→  
Load 100% (6.5A)

200 mV/div




20 ms/div



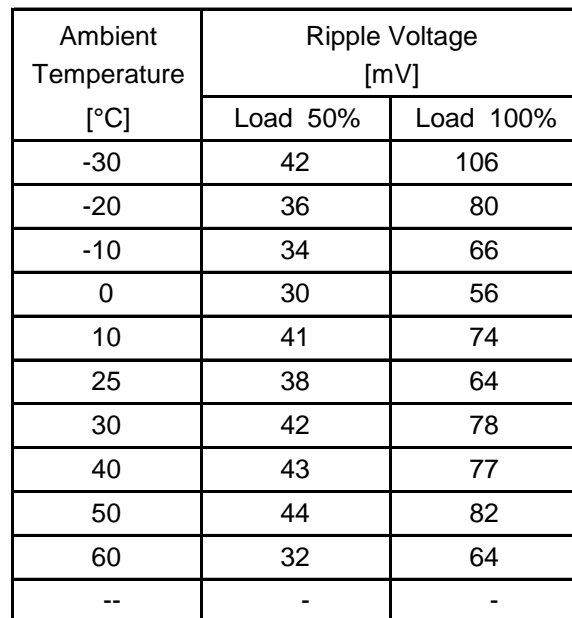
20 ms/div

Model		WXA150H-24	
Item		Ripple-Noise	
Object		+24V6.5A	
1.Graph		2.Values	
<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> 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Testing Circuitry Figure C

## 2.Values



Note: Slanted line shows the range of the rated ambient temperature.

Model		WXA150H-24																																																				
Item		Ambient Temperature Drift																																																				
Object		+24V6.5A																																																				
1.Graph		<div><div><div><div>—△—</div><div>Input Volt.</div><div>90V</div></div><div><div>---□---</div><div>Input Volt.</div><div>115V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>132V</div></div></div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p><p>Note: Slanted line shows the range of the rated ambient temperature.</p></div>																																																				
2.Values		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 90[V]</th><th>Input Volt. 115[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>-30</td><td>24.000</td><td>24.000</td><td>24.000</td></tr><tr><td>-20</td><td>24.019</td><td>24.019</td><td>24.018</td></tr><tr><td>-10</td><td>24.041</td><td>24.041</td><td>24.039</td></tr><tr><td>0</td><td>24.061</td><td>24.059</td><td>24.057</td></tr><tr><td>10</td><td>24.075</td><td>24.074</td><td>24.070</td></tr><tr><td>25</td><td>24.087</td><td>24.087</td><td>24.084</td></tr><tr><td>30</td><td>24.095</td><td>24.092</td><td>24.089</td></tr><tr><td>40</td><td>24.096</td><td>24.097</td><td>24.093</td></tr><tr><td>50</td><td>24.104</td><td>24.102</td><td>24.098</td></tr><tr><td>60</td><td>24.106</td><td>24.106</td><td>24.103</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 90[V]	Input Volt. 115[V]	Input Volt. 132[V]	-30	24.000	24.000	24.000	-20	24.019	24.019	24.018	-10	24.041	24.041	24.039	0	24.061	24.059	24.057	10	24.075	24.074	24.070	25	24.087	24.087	24.084	30	24.095	24.092	24.089	40	24.096	24.097	24.093	50	24.104	24.102	24.098	60	24.106	24.106	24.103	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
	Input Volt. 90[V]	Input Volt. 115[V]	Input Volt. 132[V]																																																			
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Model		WXA150H-24	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+24V6.5A	

### 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 : 90 - 132V

Load Current : 0 - 6.5A


\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

### 2. Values

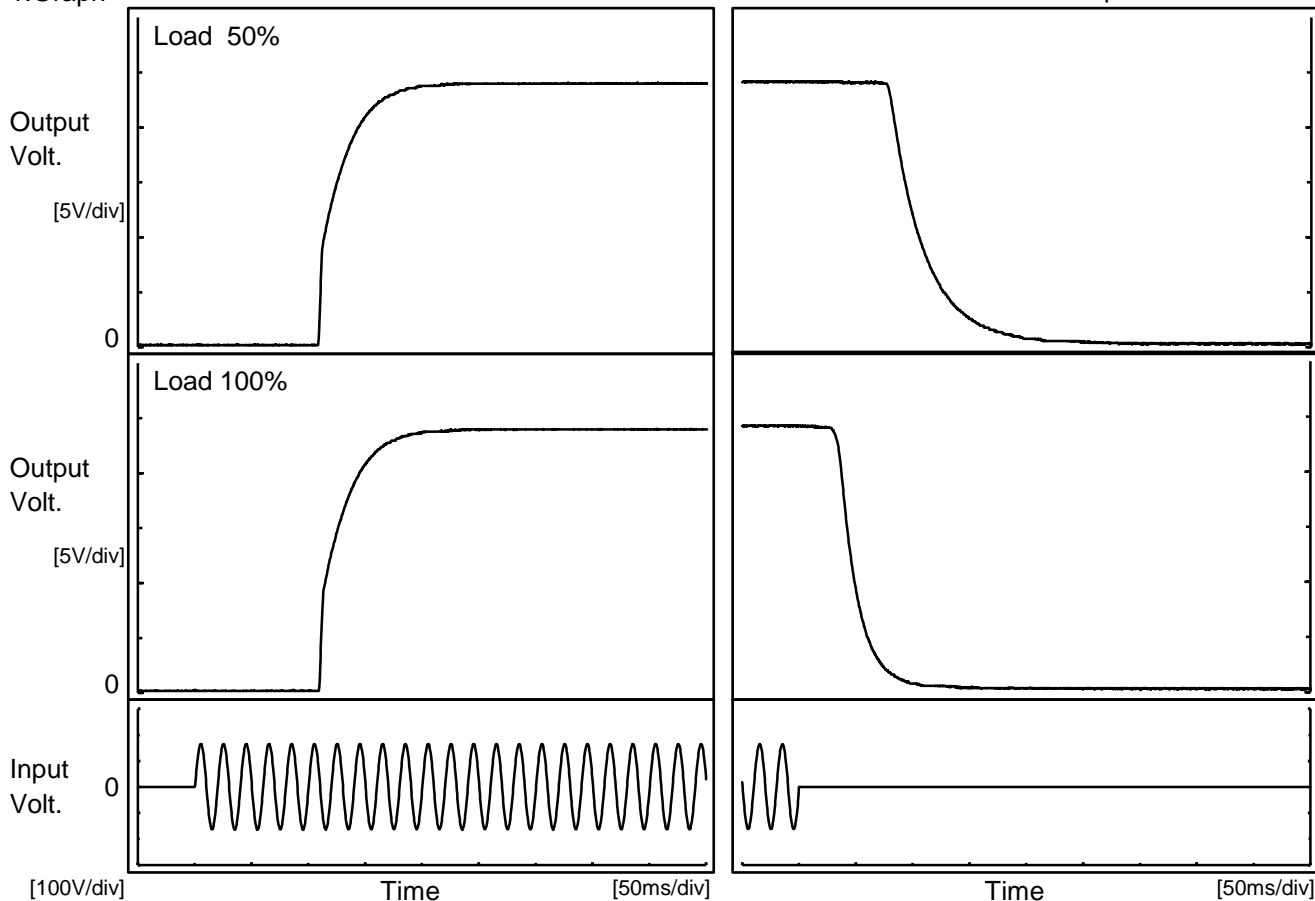
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	40	132	0	24.139	±61	±0.3
Minimum Voltage	-20	132	6.5	24.018		

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		<div> <div>Temperature</div> <div>25°C</div> </div> <div> <div>Testing Circuitry</div> <div>Figure A</div> </div>
Model	WXA150H-24	
Item	Rise and Fall Time	
Object	+24V6.5A	

## 1. Graph

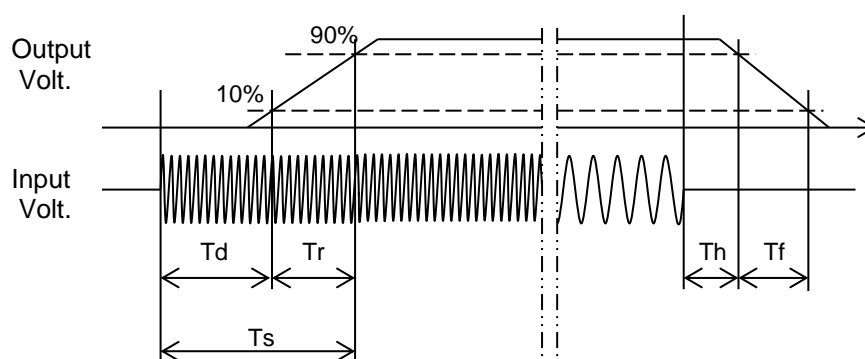
Input Volt. 115 V



## 2.Values

[ms]

Time \ Load	Td	Tr	Ts	Th	Tf
50 %	109.8	47.3	157.1	81.8	67.8
100 %	110.3	48.0	158.3	35.3	36.3





Model		WXA150H-24	Temperature25°C Testing CircuitryFigure A																																
Item		Hold-Up Time																																	
Object		+24V6.5A																																	
1.Graph			2.Values																																
<div><div><div>-----□-----Load 50%</div><div>-----△-----Load 100%</div></div><div><div>Hold-Up Time [ms]</div><div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><div>70</div><div>90</div><div>110</div><div>130</div><div>150</div></div><div>Input Voltage [V]</div></div></div>																																			
<div><div>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</div><div>Note: Slanted line shows the range of the rated input voltage.</div></div>			<table><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><tr><td>75</td><td>26</td><td>4</td></tr><tr><td>80</td><td>31</td><td>6</td></tr><tr><td>85</td><td>37</td><td>9</td></tr><tr><td>90</td><td>43</td><td>12</td></tr><tr><td>100</td><td>56</td><td>19</td></tr><tr><td>115</td><td>78</td><td>30</td></tr><tr><td>120</td><td>86</td><td>34</td></tr><tr><td>132</td><td>107</td><td>45</td></tr><tr><td>140</td><td>122</td><td>53</td></tr></table>	Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	75	26	4	80	31	6	85	37	9	90	43	12	100	56	19	115	78	30	120	86	34	132	107	45	140	122	53
Input Voltage [V]	Hold-Up Time [ms]																																		
	Load 50%	Load 100%																																	
75	26	4																																	
80	31	6																																	
85	37	9																																	
90	43	12																																	
100	56	19																																	
115	78	30																																	
120	86	34																																	
132	107	45																																	
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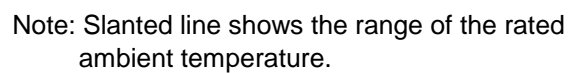
Model		WXA150H-24	Temperature 25°C Testing Circuitry Figure A																																																			
Item		Instantaneous Interruption Compensation																																																				
Object		+24V6.5A																																																				
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>90V</div></div><div><div>---□---</div><div>Input Volt.</div><div>115V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>132V</div></div></div> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>	2.Values																																																			
		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 90[V]</th><th>Input Volt. 115[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.5</td><td>336</td><td>556</td><td>739</td></tr><tr><td>1.0</td><td>168</td><td>279</td><td>371</td></tr><tr><td>2.0</td><td>87</td><td>138</td><td>183</td></tr><tr><td>3.0</td><td>55</td><td>95</td><td>127</td></tr><tr><td>4.0</td><td>36</td><td>67</td><td>93</td></tr><tr><td>5.0</td><td>25</td><td>48</td><td>68</td></tr><tr><td>6.5</td><td>11</td><td>33</td><td>47</td></tr><tr><td>7.2</td><td>-</td><td>26</td><td>37</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. 90[V]	Input Volt. 115[V]	Input Volt. 132[V]	0.0	-	-	-	0.5	336	556	739	1.0	168	279	371	2.0	87	138	183	3.0	55	95	127	4.0	36	67	93	5.0	25	48	68	6.5	11	33	47	7.2	-	26	37	--	-	-	-	--	-	-	-	
Load Current [A]	Time [ms]																																																					
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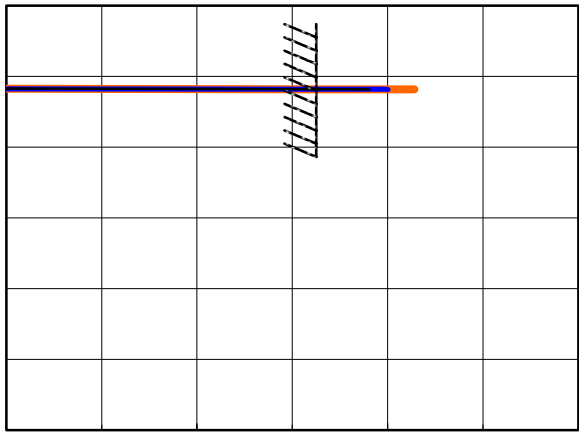
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Testing Circuitry Figure A

## 2.Values



Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	45	75
-20	45	74
-10	44	74
0	44	73
10	44	73
25	44	73
30	44	73
40	44	72
50	44	72
60	44	72
--	-	-

Model		WXA150H-24		Temperature Testing Circuitry	25°C Figure A
Item		Overcurrent Protection			
Object		+24V6.5A			
1.Graph					
		<div></div>	Input Volt.	90V	
		<div></div>	Input Volt.	115V	
		<div></div>	Input Volt.	132V	
Output Voltage [V]					
		Load Current [A]			
Note: Slanted line shows the range of the rated load current.					
2.Values					
Output Voltage [V]	Load Current [A]				
	Input Volt. 90[V]	Input Volt. 115[V]	Input Volt. 132[V]		
24	7.62	8.00	8.56		
--	-	-	-		
--	-	-	-		
--	-	-	-		
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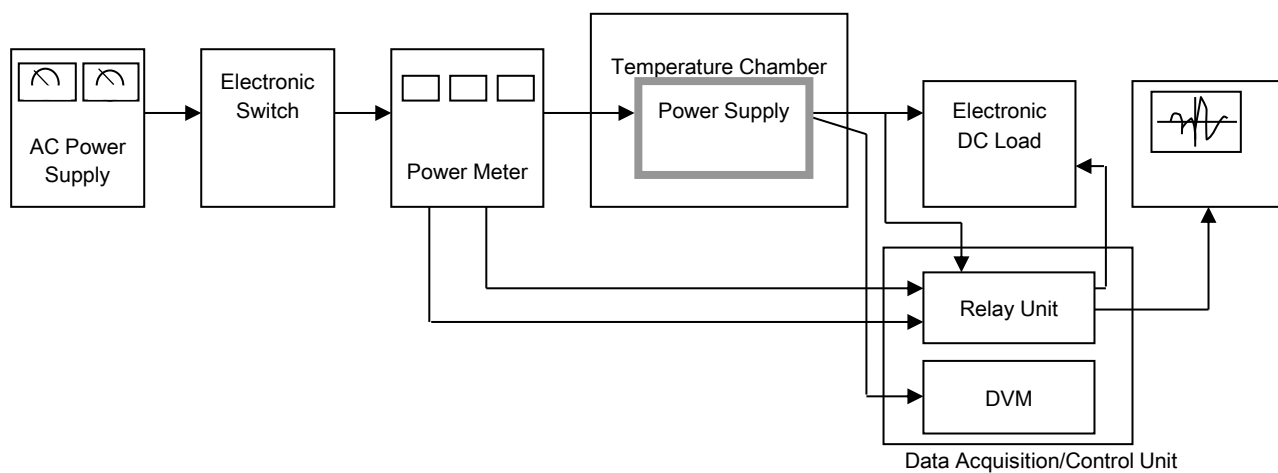


Figure A

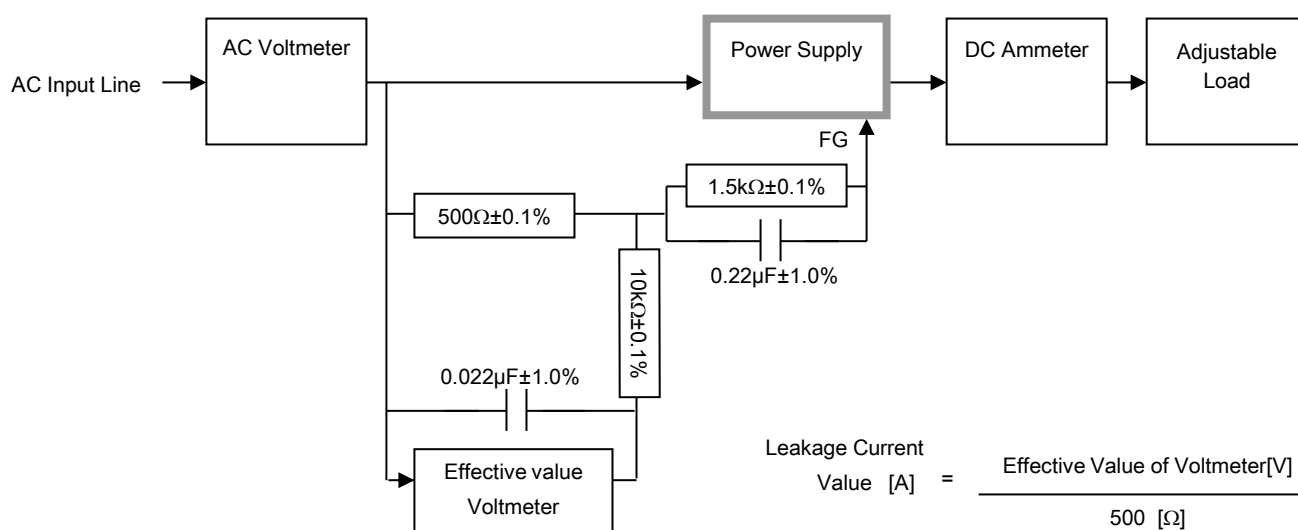


Figure B ( IEC60950-1 )

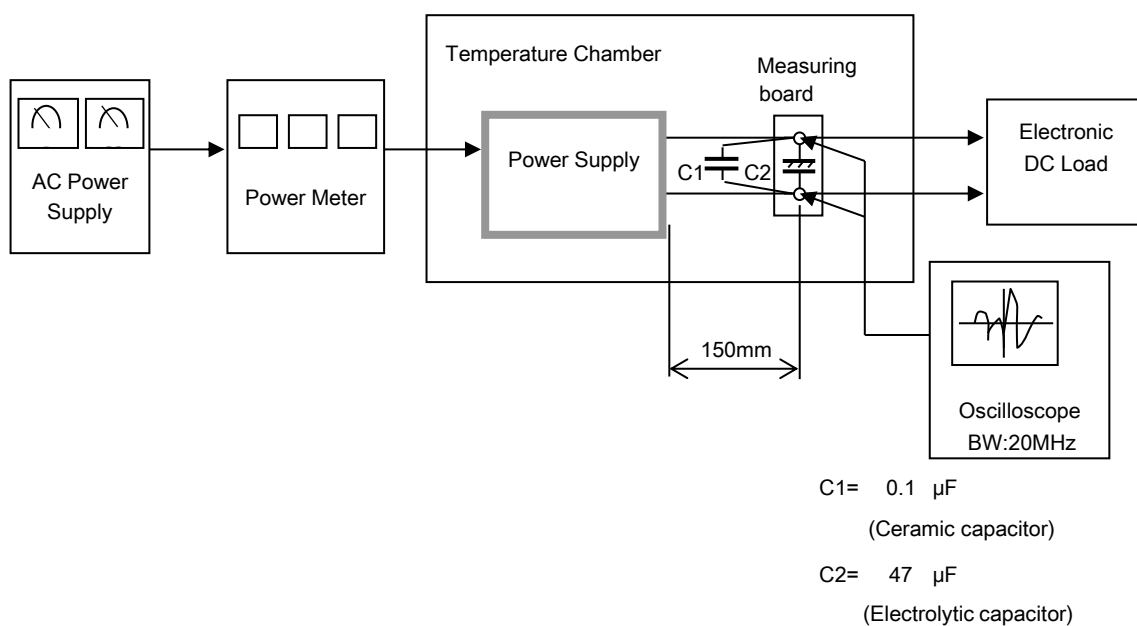


Figure C