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TEST DATA OF AEA800F-24

Regulated DC Power Supply
August 9, 2022

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COSEL CO.,LTD.

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Model	AEA800F-24
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph

————△———— Input Volt. 100V
– – –☐– – – Input Volt. 200V
–·–○–·– Input Volt. 230V

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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.142	0.181	0.203
4.0	1.225	0.667	0.612
8.0	2.263	1.175	1.049
12.0	3.300	1.684	1.490
16.0	4.327	2.190	1.931
20.0	5.358	2.697	2.373
24.0	6.395	3.208	2.814
28.0	7.453	3.722	3.256
32.0	-	4.232	3.704
34.0	-	4.490	3.929
37.4	-	4.935	4.315

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Model	AEA800F-24
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph

△ Input Volt. 100V
⊟ Input Volt. 200V
○ Input Volt. 230V

Load Current [A]

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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
4.0	88.0	89.2	89.1
8.0	91.3	92.7	92.9
12.0	92.5	94.0	94.2
16.0	92.9	94.5	94.8
20.0	93.0	94.8	95.1
24.0	93.0	94.9	95.1
28.0	92.9	94.9	95.1
32.0	-	94.8	95.1
34.0	-	94.7	95.0
37.4	-	94.5	94.9

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Model	AEA800F-24
Item	Power Factor (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph

———△——— Input Volt. 100V
- - -⊟- - - Input Volt. 200V
-·-○-·- Input Volt. 230V

Power Factor vs Load Current [A]

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

2.Values

Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.550	0.192	0.149
4.0	0.905	0.818	0.778
8.0	0.945	0.894	0.869
12.0	0.958	0.923	0.905
16.0	0.969	0.941	0.925
20.0	0.977	0.952	0.938
24.0	0.982	0.959	0.948
28.0	0.985	0.965	0.956
32.0	-	0.970	0.961
34.0	-	0.972	0.963
37.4	-	0.975	0.966

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Model	AEA800F-24
Item	Inrush Current
Object	————————

Temperature   25°C
Testing Circuitry   Figure A

Input
Current
[20A/div]

Input
Voltage
[100V/div]

Input Voltage   100 V
Frequency   60 Hz
Load   100 %

Primary inrush current :
             14.4 A
Secondary inrush current :
             12.8 A

Time   [100ms/div]

Input
Current
[20A/div]

Input
Voltage
[200V/div]

Input Voltage   200 V
Frequency   60 Hz
Load   100 %

Primary inrush current :
             28.8 A
Secondary inrush current :
             15.2 A

Time   [100ms/div]

Primary inrush current   Secondary inrush current

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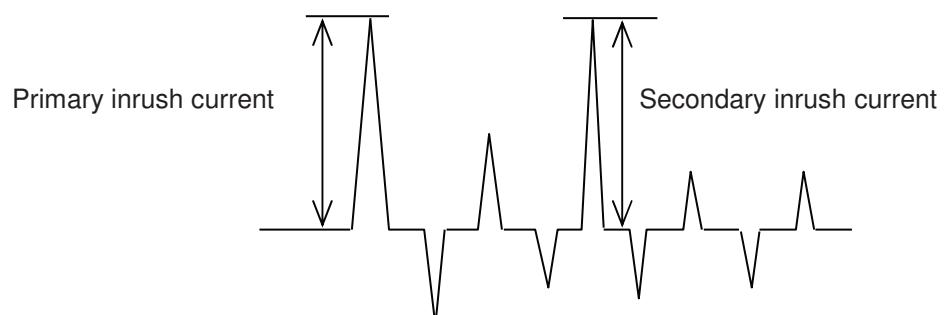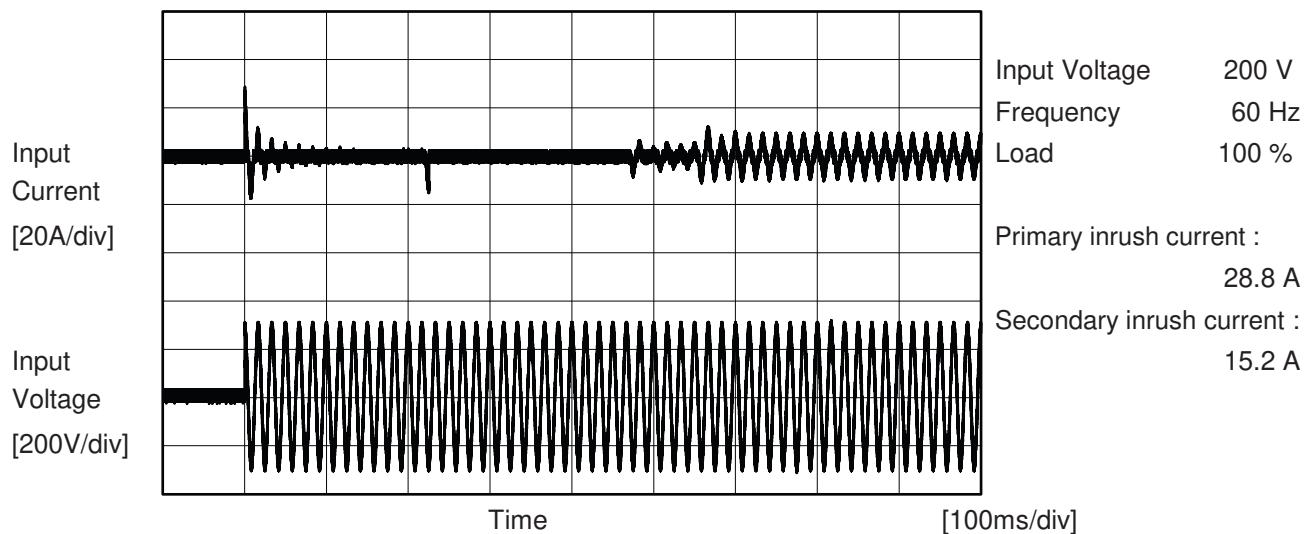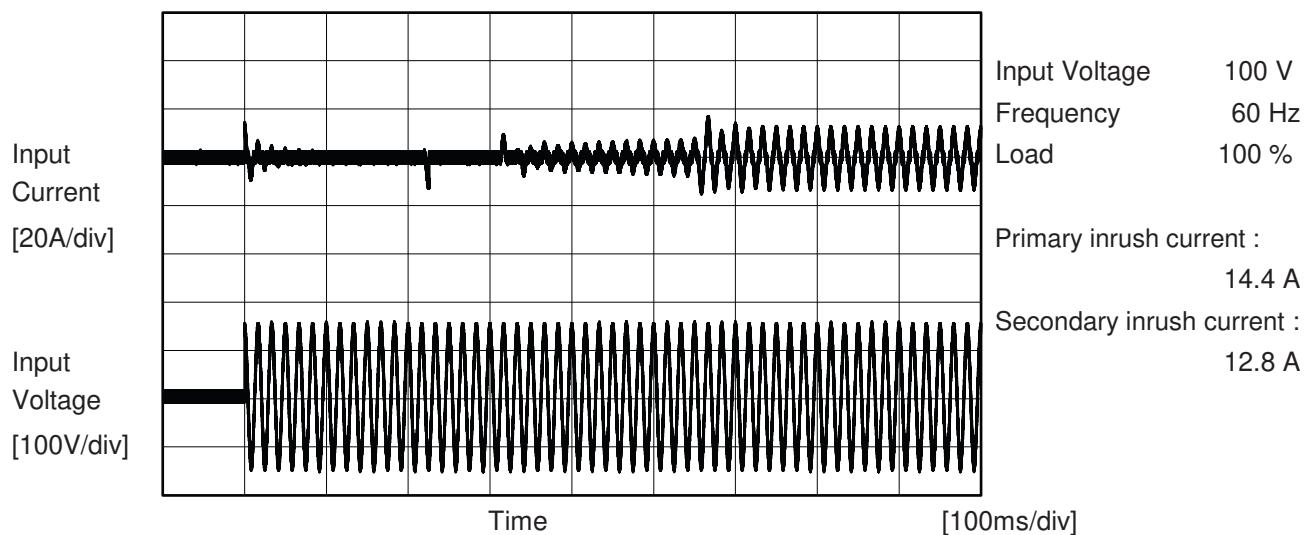
Model	AEA800F-24
Item	Leakage Current
Object	————————

Temperature   25°C
Testing Circuitry   Figure B

1.Results

[mA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			100 [V]	240 [V]	264 [V]	
DEN-AN	Figure B-1	Both phases	0.08	0.21	0.23	Operation
		One of phases	0.15	0.39	0.44	Stand by
IEC62368-1	Figure B-2	Both phases	0.08	0.20	0.23	Operation
		One of phases	0.15	0.39	0.43	Stand by
	Figure B-3	Both phases	0.08	0.20	0.23	Operation
		One of phases	0.15	0.38	0.43	Stand by
IEC60601-1	Figure B-4	Both phases	0.08	0.20	0.23	Operation
		One of phases	0.15	0.38	0.43	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	AEA800F-24
Item	Line Regulation
Object	+24V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

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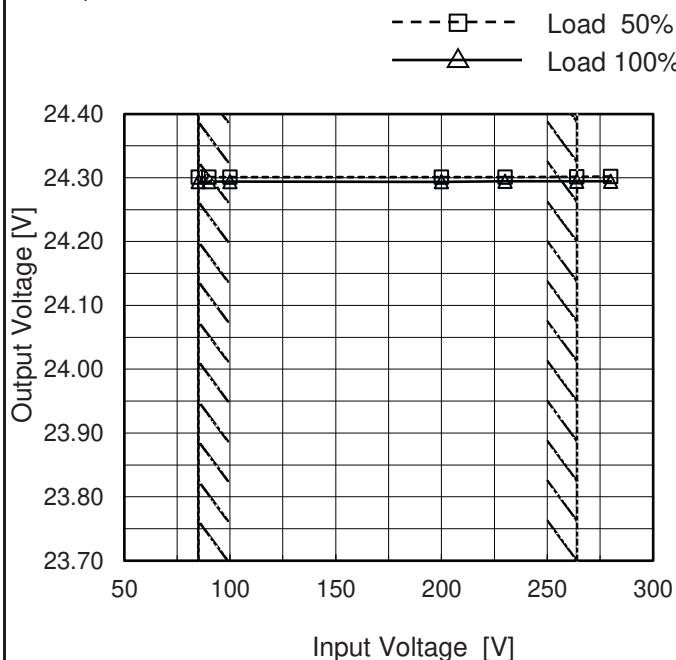
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	24.301	24.294 ※1
90	24.301	24.294 ※2
100	24.301	24.294 ※2
200	24.301	24.294
230	24.301	24.295
264	24.302	24.294
280	24.302	24.294
--	-	-
--	-	-

※1 : Load 60%
※2 : Load 75%

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Model	AEA800F-24

Item	Load Regulation

Object	+24V34A

Temperature　　　25°C
Testing Circuitry　Figure A

1.Graph

	Input Volt.	100V
	Input Volt.	200V
	Input Volt.	230V

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	24.319	24.319	24.320
4.0	24.310	24.311	24.312
8.0	24.308	24.308	24.309
12.0	24.306	24.307	24.307
16.0	24.304	24.305	24.305
20.0	24.302	24.303	24.303
24.0	24.300	24.301	24.301
28.0	--	24.298	24.298
32.0	--	24.296	24.296
34.0	--	24.295	24.295
37.4	--	24.294	24.294

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

Item	Ripple-Noise

Object	+24V34A

Temperature　　　25°C
Testing Circuitry　Figure C

1.Graph

Input Voltage　　　200V
Load　　　　　　　100%

50[mV/div]

20[μs/div]

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Model	AEA800F-24
Item	Dynamic Load Response
Object	+24V34A

Temperature   25°C
Testing Circuitry   Figure A

Input Volt.   200 V   Response. t1=t2=50μs. Typ
Cycle   1000 ms

Load Current

t1   t2

Load 0%(0A) ←→
  Load 100%(34A)

500[mV/div]   10[ms/div]   10[ms/div]
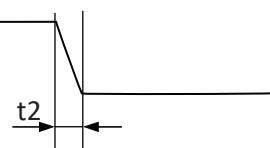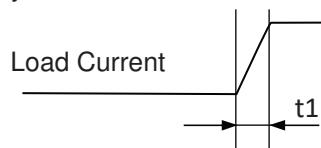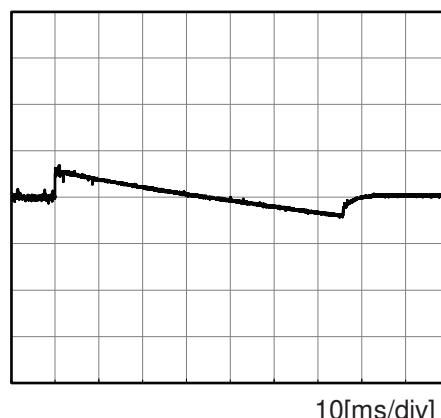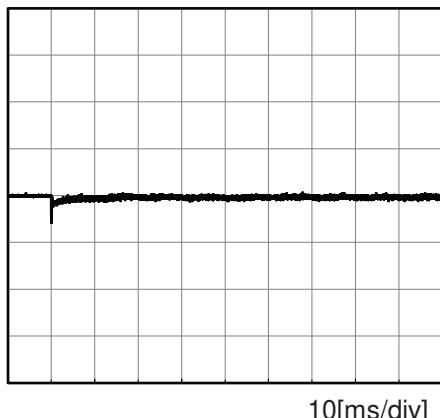
Load 50%(17A) ←→
  Load 100%(34A)

500[mV/div]   10[ms/div]   10[ms/div]

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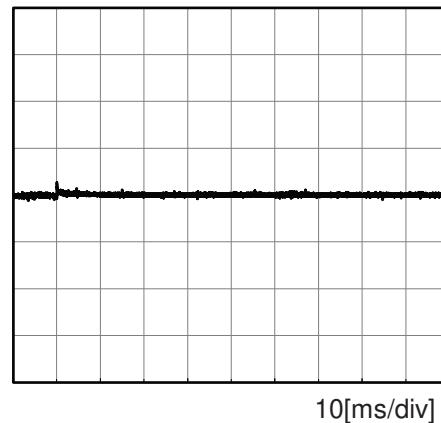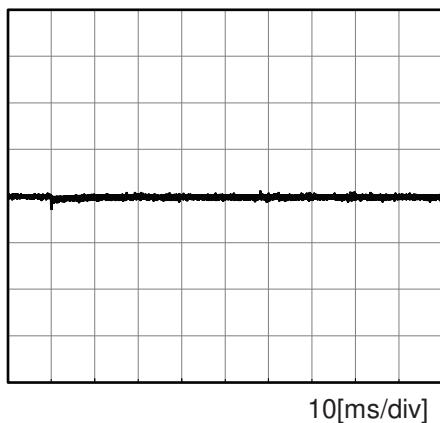
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Model	AEA800F-24		
Item	Rise and Fall Time	Temperature	25°C
		Testing Circuitry	Figure A
Object	+24V34A		

1.Graph

Load 75%

Output Volt. [5V/div]

0

Input Volt. 100 V

Load 100%

Output Volt. [5V/div]

0

Input Volt. 200 V

Input Volt. 0

Time [100ms/div]

Time [10ms/div]
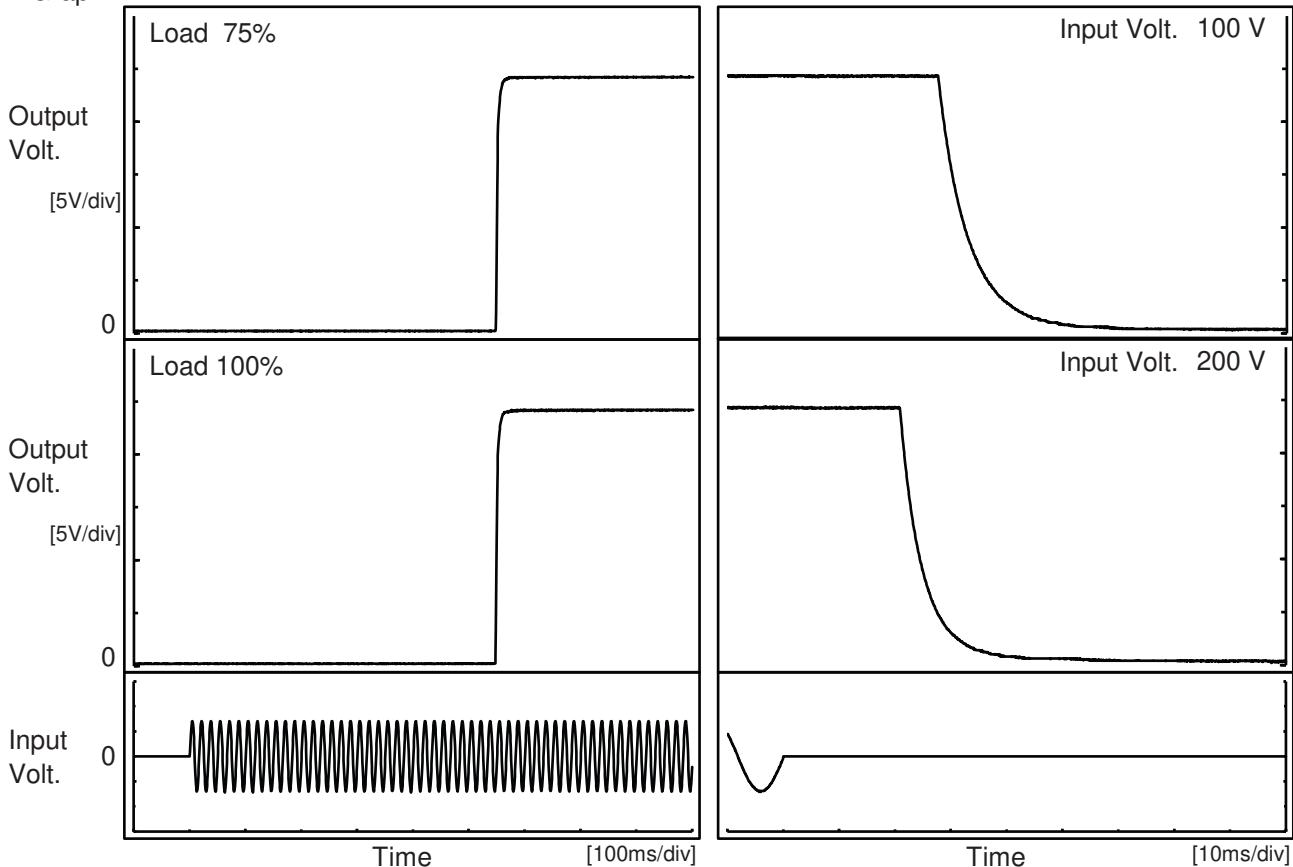
2.Values [ms]

Load \ Time	Td	Tr	Ts	Th	Tf
100 %	548.0	6.0	554.4	28.0	12.5
100 %	547.5	6.0	553.5	21.3	9.7
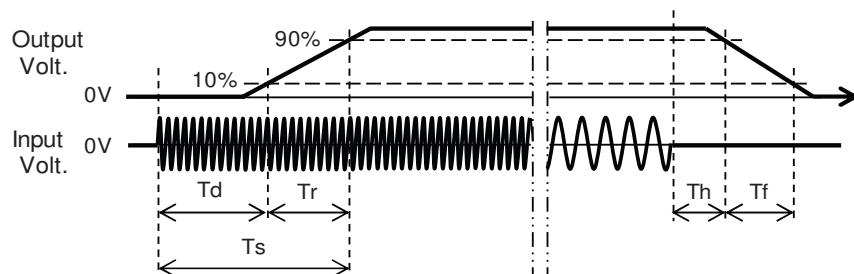
Output Volt.
90%
10%
0V

Input Volt. 0V

Td   Tr
Ts
Th   Tf

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Model	AEA800F-24
Item	Hold-Up Time
Object	+24V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

- - -◻- - - Load 50%
─────△───── Load 100%

Hold-Up Time [ms] vs Input Voltage [V]
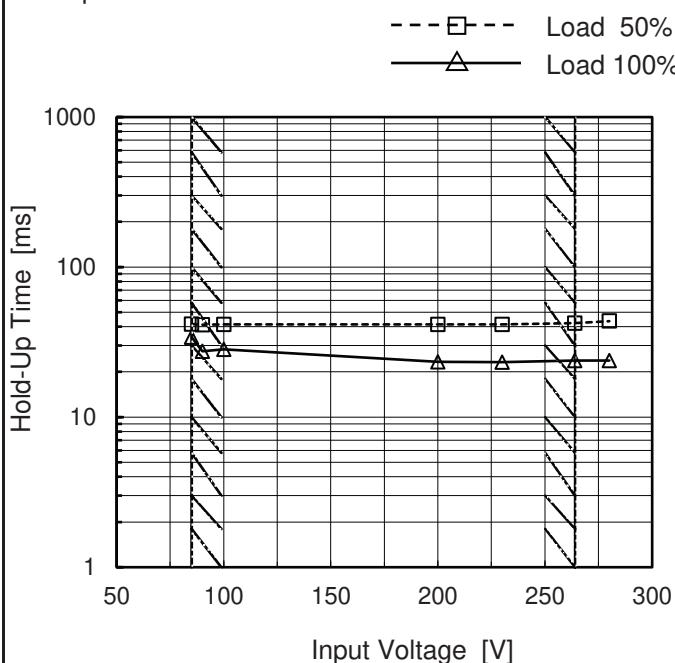
2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	42	34 ※1
90	41	28 ※2
100	41	28 ※2
200	41	23
230	41	23
264	42	24
280	44	24
--	-	-
--	-	-

※1 : Load 60%
※2 : Load 75%

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

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Model	AEA800F-24
Item	Instantaneous Interruption Compensation
Object	+24V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

△ Input Volt. 100V
◻ Input Volt. 200V
○ Input Volt. 230V

Instantaneous Compensation Time [ms] vs Load Current [A]

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

2.Values

Load Current [A]	Time [ms]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
4.0	165	165	166
8.0	85	85	86
12.0	56	57	58
16.0	43	43	43
20.0	35	34	35
24.0	29	29	28
28.0	23	24	24
32.0	-	21	21
34.0	-	20	20
37.4	-	18	18

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Model	AEA800F-24
Item	Overcurrent Protection
Object	+24V34A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

—————△ Input Volt. 100V
- - - - -□ Input Volt. 200V
-·-·-·-○ Input Volt. 230V

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

Overcurrent protection is Hiccup mode

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
24	73.00	79.50	79.50
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	AEA800F-24	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+24V34A	

1.Values   Load 100%

Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 100V	Input Volt. 200V	Input Volt. 230V
-20	24.142	24.142	24.142
25	24.291	24.291	24.291
50	24.333	24.333	24.334

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+24V34A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	72	72
25	73	73
50	73	73

Item	Overvoltage Protection	Testing Circuitry Figure A
Object	+24V34A	

1.Values   Load 0%

Ambient Temperature[°C]	Operating Point [V]	
	Input Volt. 100V	Input Volt. 200V
-20	30.75	30.70
25	31.74	31.74
50	32.27	32.27

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Figure A

$$\text{Leakage Current Value} \; [A] \; = \; \frac{\text{Effective Value of Voltmeter[V]}}{1k \; [\Omega]}$$

Figure B-1（DEN-AN）

$$\text{Leakage Current Value} \; [A] \; = \; \frac{\text{Effective Value of Voltmeter[V]}}{500 \; [\Omega]}$$
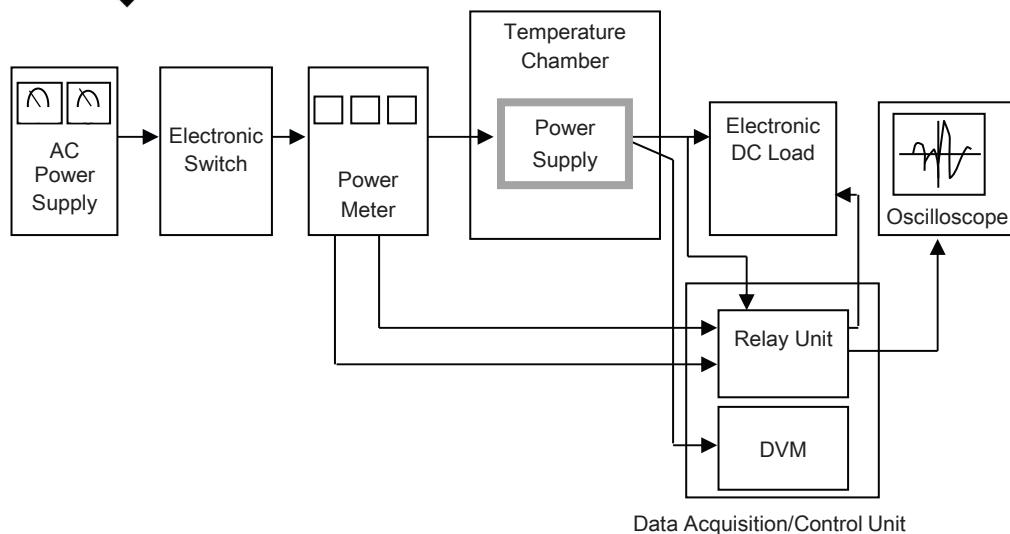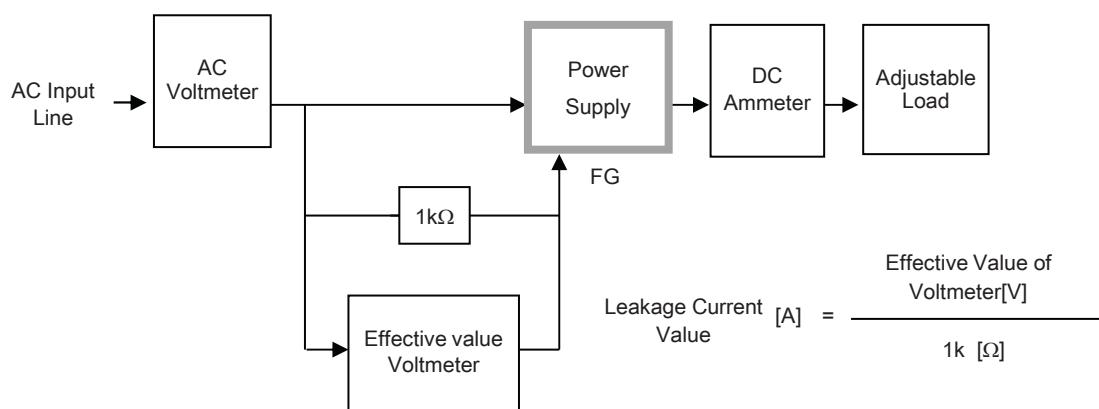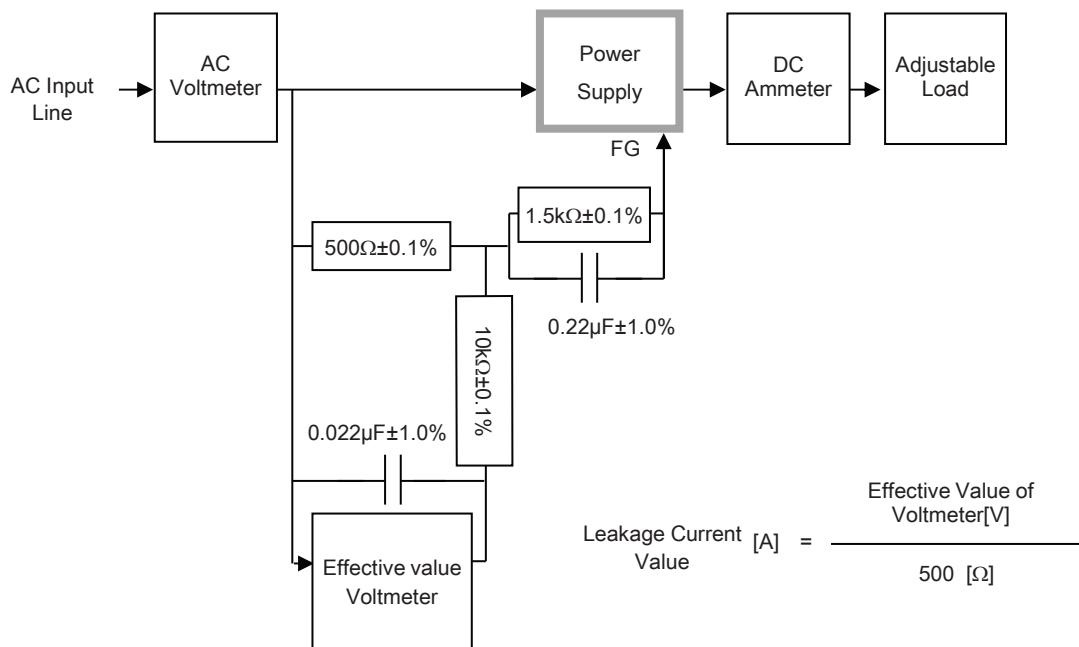
Figure B-2（IEC62368-1 refer to IEC60990 Fig.4）

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AC Input Line → AC Voltmeter → Power Supply → DC Ammeter → Adjustable Load

FG

500Ω±0.1%

1.5kΩ±0.1%

0.22μF±1.0%

10kΩ±0.1%

9100pF±1.0%

20kΩ±0.1%   6200pF±1.0%

Effective value Voltmeter

$$\text{Leakage Current Value} \; [A] \; = \; \frac{\text{Effective Value of Voltmeter}[V]}{500 \; [\Omega]}$$
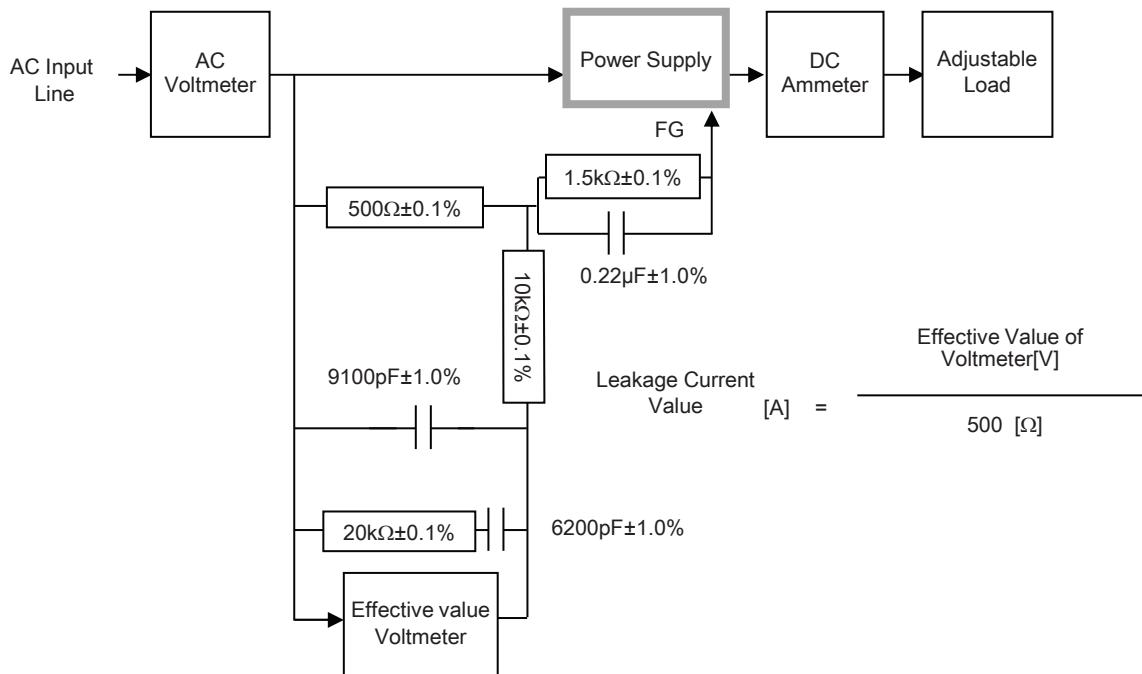
Figure B-3 (IEC62368-1 refer to IEC60990 Fig.5)

AC Input Line → AC Voltmeter → Power Supply → DC Ammeter → Adjustable Load

FG

1kΩ±1.0%

10kΩ±1.0%

0.015μF±2.0%

Effective value Voltmeter

$$\text{Leakage Current Value} \; [A] \; = \; \frac{\text{Effective Value of Voltmeter}[V]}{1k \; [\Omega]}$$

Figure B-4 (IEC60601-1)

Temperature Chamber   Measuring board

C1 = 22 μF (Electrolytic capacitor)

AC Power Supply → Power Meter → Power Supply → C1 → Electronic DC Load

Oscilloscope
BW:20MHz

150mm

Figure C

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