GENESYS™ 5kW

EVALUATION DATA

DWG: IA761-53-01		
APPD	CHK	DWG
16/10/17	09/11/2017	9.10.17

TDK-LAMBDA

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TERMINOLOGY USED

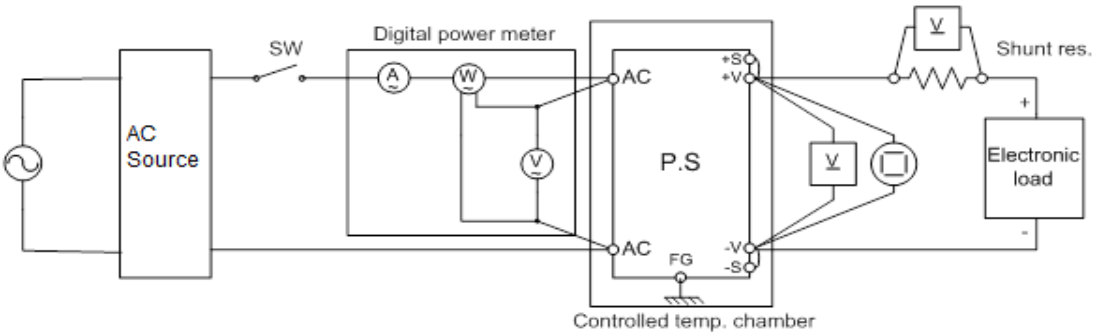
Definition

Vin	Input voltage
Vout	Output voltage
Iin	Input current
Iout	Output current
Ta	Ambient temperature
C.V	Constant voltage mode
C.C	Constant current mode

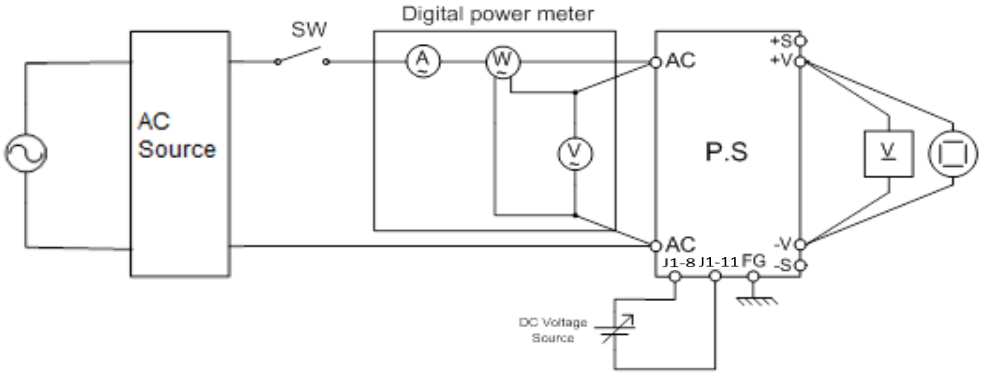
1. EVALUATION METHOD

1.1 Circuit used for determination

(1) Steady state data

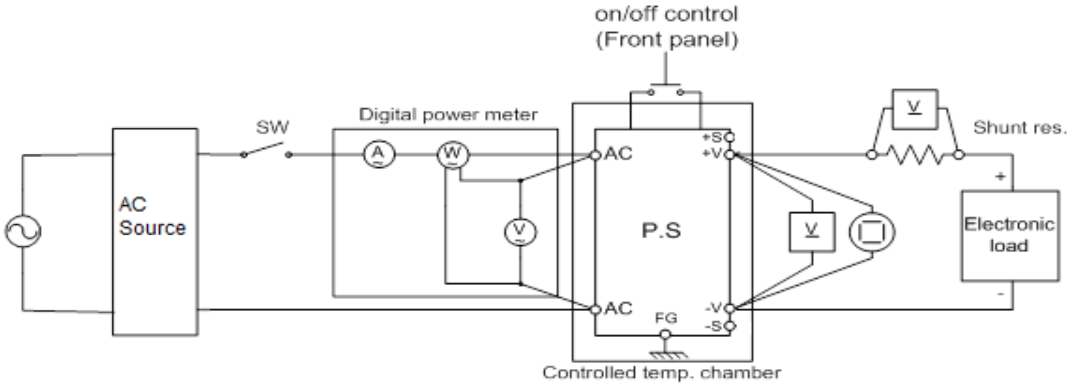


(2) Over voltage protection (OVP) characteristics

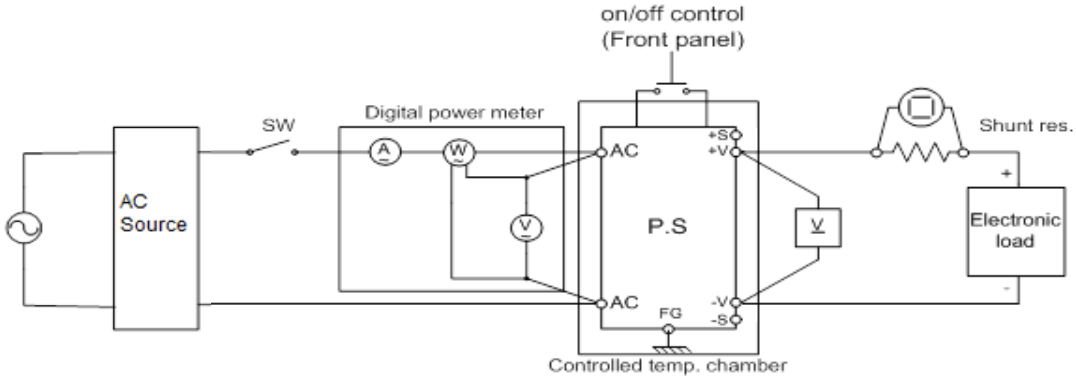


(3) Output rise/fall characteristics

Constant Voltage mode

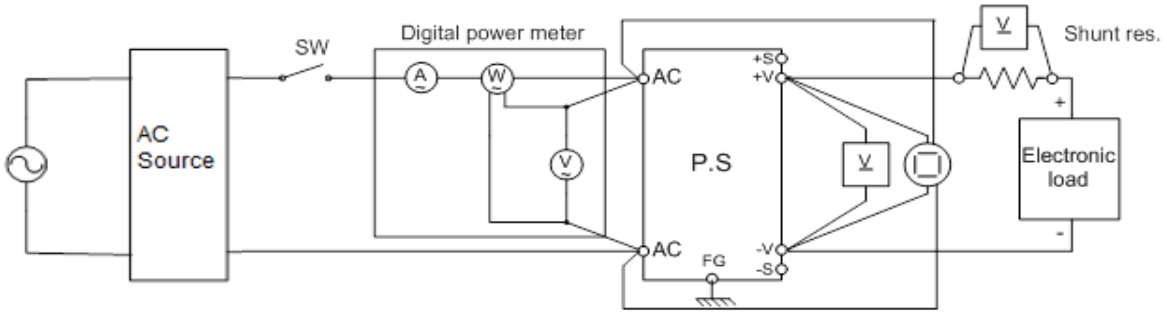


Constant Current mode

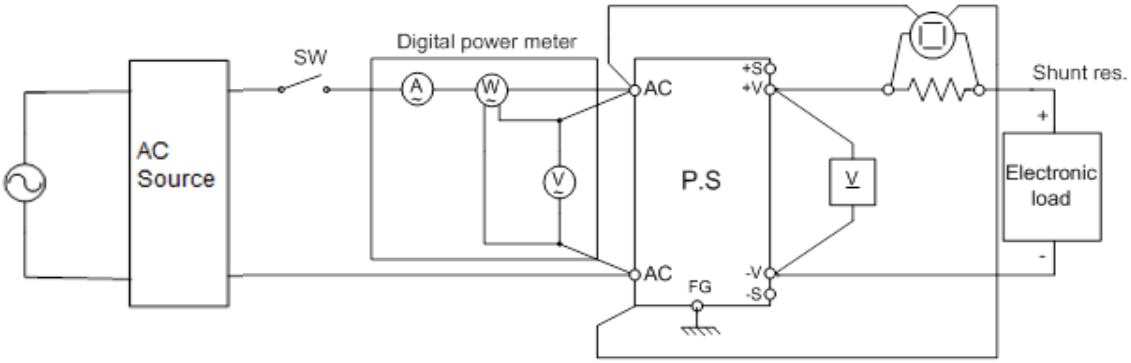


(4) Dynamic line response characteristics

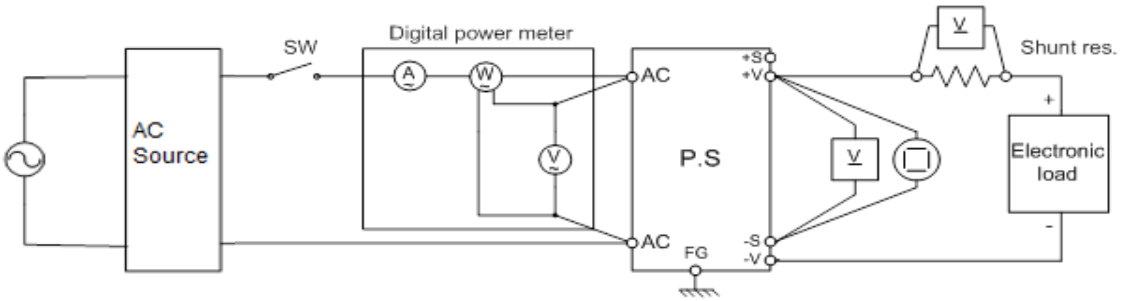
Constant Voltage mode



Constant Current mode

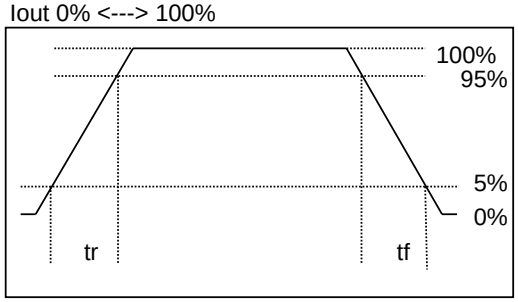


(5) Dynamic load response characteristics



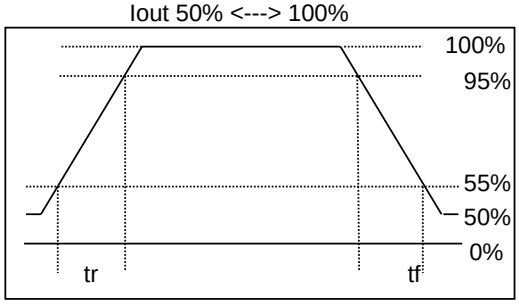
Output current waveform

Iout 0% <---> 100%



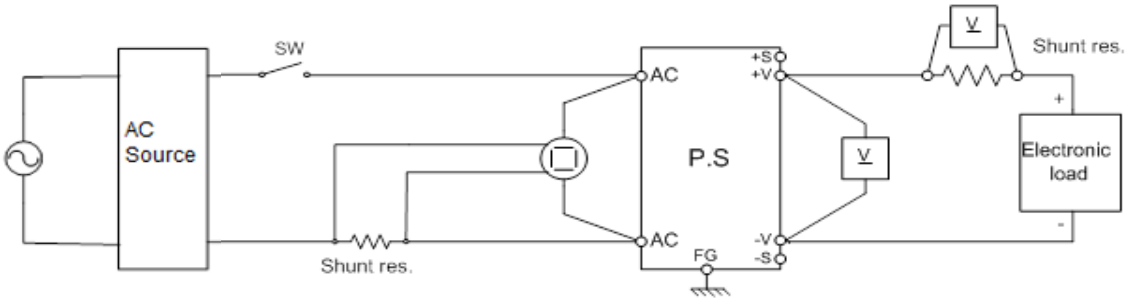
Output current waveform

Iout 50% <---> 100%

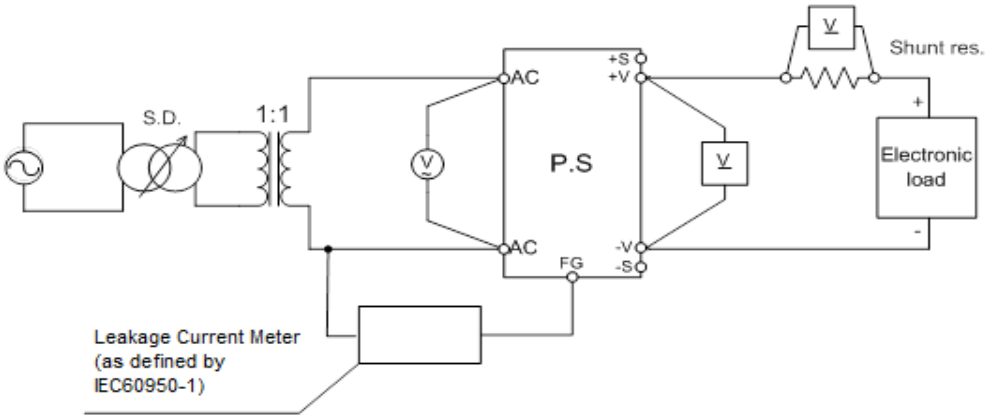


(6) Inrush current characteristics

Constant Voltage mode

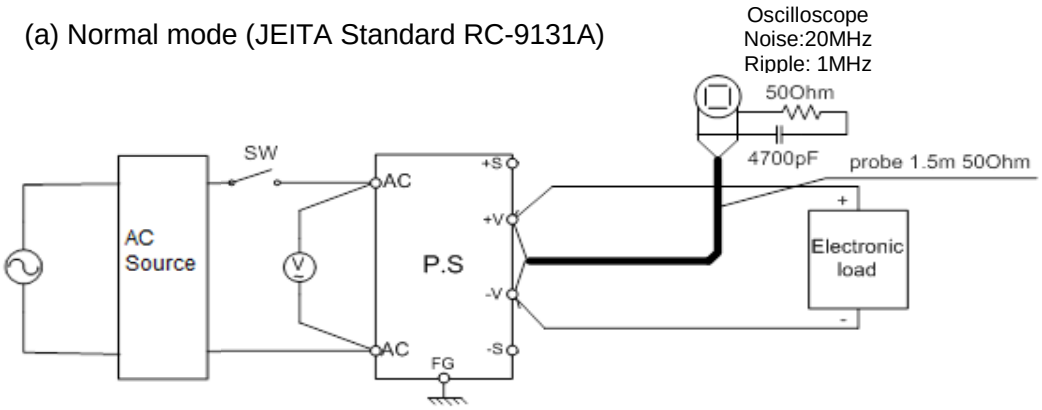


(7) Leakage current characteristics

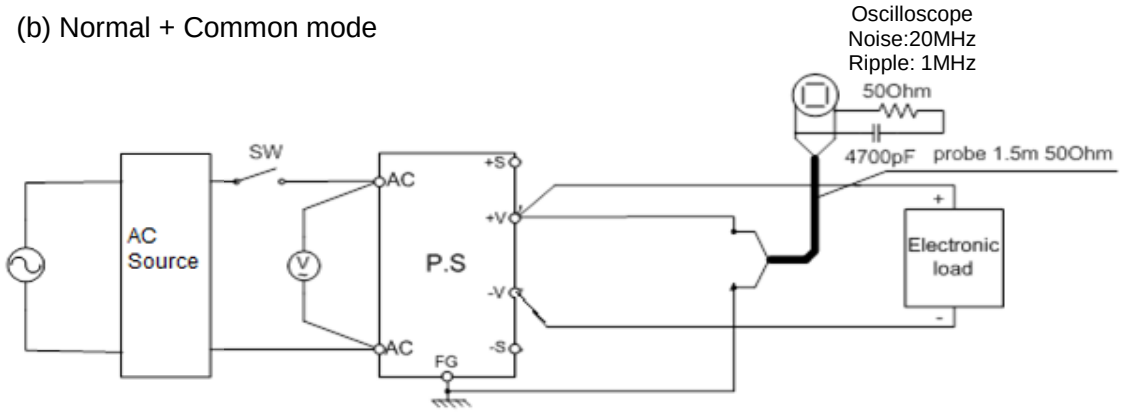


(8) Output ripple & noise waveform (10V to 300V models)

(a) Normal mode (JEITA Standard RC-9131A)

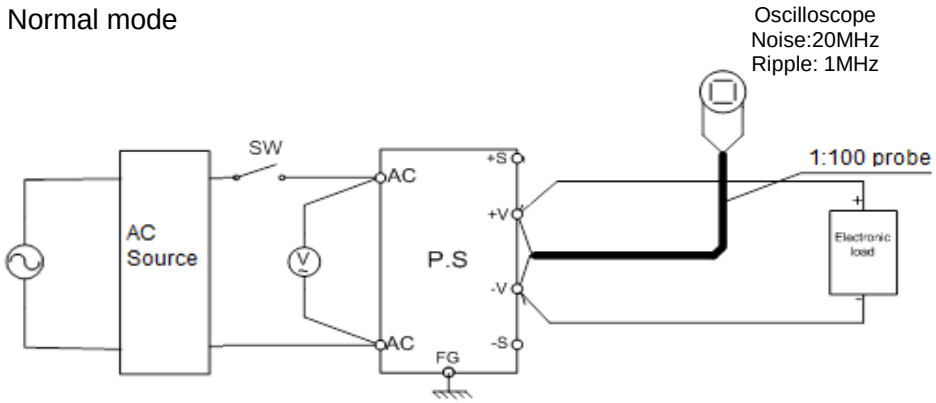


(b) Normal + Common mode

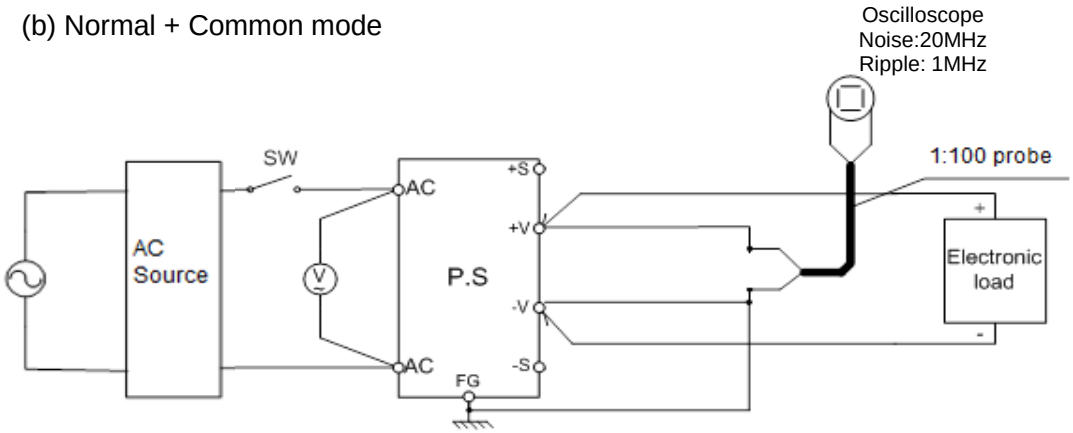


(9) Output ripple & noise waveform (400V to 600V models)

(a) Normal mode



(b) Normal + Common mode



1.2 List of equipment used

	EQUIPMENT USED	MANUFACTURER	MODEL No.
1	Storage oscilloscope	YOKOGAWA	DLM2034
2	Storage oscilloscope	YOKOGAWA	DL1740
3	Digital multimeter	AGILENT	34401A
4	Digital power meter	YOKOGAWA	WT230
5	Digital power meter	YOKOGAWA	WT330
6	Digital power meter	YOKOGAWA	WT333E
7	Digital power meter	CHROMA	66203
8	AC Source	CHROMA	6463
9	AC Source	CHROMA	6590
10	Electronic load	H&H	ZS6060
11	Electronic load	H&H	ZS7006
12	Electronic load	H&H	ZS7060
13	Electronic load	H&H	ZS8006
14	Electronic load	CHROMA	63203
15	Electronic load	CHROMA	63204
16	Electronic load	CHROMA	63206A
17	Controlled temp. chamber	THERMOTRON	SM-16-3800
18	Controlled temp. chamber	THERMOTRON	SE-600-5-5
19	Controlled temp. chamber	THERMOTRON	SE-600-6-6
20	Leakage current tester	KIKUSUI	TOS3200
21	Current probe	YOKOGAWA	701931
22	Transducer	LEM	IT700-SB
23	Transducer	LEM	IT60-S

(1). Regulation - Line & Load, Temperature drift

G10-500

Conditions: Ta = 25°C

1. Regulation - Line & Load, C.V mode 3Φ200

	Vin					
Io	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	10.0001	10.0001	10.0001	10.0001	0.0	0.000%
25%	10.0001	10.0001	10.0001	10.0001	0.0	0.000%
50%	9.9999	9.9999	10.0000	10.0000	0.0	0.000%
75%	9.9997	9.9997	9.9997	9.9997	0.0	0.000%
100%	9.9995	9.9995	9.9995	9.9995	0.0	0.000%
Load	0.6	0.6	0.6	0.6	ΔV(mV)	
Regulation	0.006%	0.006%	0.006%	0.006%		

2. Regulation - Line & Load, C.V mode 3Φ400/3Φ480

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	10.0002	10.0001	10.0001	10.0001	10.0001	10.0001	0.1	0.001%
25%	10.0003	10.0003	10.0003	10.0003	10.0003	10.0003	0.0	0.000%
50%	10.0004	10.0004	10.0004	10.0004	10.0004	10.0004	0.0	0.000%
75%	10.0004	10.0004	10.0004	10.0004	10.0004	10.0004	0.0	0.000%
100%	10.0004	10.0004	10.0004	10.0004	10.0004	10.0004	0.0	0.000%
Load	0.2	0.3	0.3	0.3	0.3	0.3	ΔV(mV)	
Regulation	0.002%	0.003%	0.003%	0.003%	0.003%	0.003%		

3. Temperature drift, C.V mode

Conditions: Vin:200V 3Φ
Iout:100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)			
Vout	9.9987	9.9995	9.9979	1.6	mV	3	ppm/˚C

(1). Regulation - Line & Load, Temperature drift

G600-8.5

Conditions: Ta = 25°C

1. Regulation - Line & Load, C.V mode 3Φ200

	Vin					
Io	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	599.9898	599.9882	599.9884	599.9861	3.8	0.001%
25%	599.9839	599.9830	599.9820	599.9806	3.3	0.001%
50%	599.9781	599.9786	599.9789	599.9769	2.0	0.000%
75%	599.9758	599.9758	599.9750	599.9739	1.9	0.000%
100%	599.9726	599.9733	599.9728	599.9712	2.1	0.000%
Load	17.3	14.9	15.6	14.9	ΔV(mV)	
Regulation	0.003%	0.002%	0.003%	0.002%		

2. Regulation - Line & Load, C.V mode 3Φ400/3Φ480

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	599.9952	599.9953	599.9938	599.9938	599.9931	599.9927	2.6	0.000%
25%	599.9897	599.9890	599.9885	599.9880	599.9895	599.9893	1.7	0.000%
50%	599.9836	599.9831	599.9833	599.9829	599.9867	599.9860	3.8	0.001%
75%	599.9782	599.9771	599.9775	599.9778	599.9806	599.9813	4.2	0.001%
100%	599.9727	599.9724	599.9728	599.9726	599.9756	599.9749	3.2	0.001%
Load	22.5	22.9	21.0	21.2	17.5	17.8	ΔV(mV)	
Regulation	0.004%	0.004%	0.003%	0.004%	0.003%	0.003%		

3. Temperature drift, C.V mode

Conditions: Vin:200V 3Φ
Iout:100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)			
Vout	600.160	600.166	600.138	28	mV	1	ppm/˚C

(1). Regulation - Line & Load, Temperature drift

G10-500

Conditions: Ta = 25°C

1. Regulation - Line & Load, C.C mode 3Φ200 (*)

	Vin					
Vo	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	500.553	500.550	500.548	500.552	5.3	0.001%
25%	500.547	500.545	500.544	500.549	5.2	0.001%
50%	500.540	500.542	500.540	500.543	3.1	0.001%
75%	500.548	500.550	500.549	500.551	2.8	0.000%
100%	500.532	500.534	500.534	500.533	2.2	0.000%
Load	20.6	15.9	14.8	18.5	ΔI(mA)	
Regulation	0.004%	0.003%	0.003%	0.004%		

2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	500.020	500.031	500.023	500.029	500.021	500.033	13.4	0.003%
25%	500.009	500.018	500.012	500.021	500.014	500.022	12.6	0.003%
50%	500.017	500.023	500.018	500.027	500.020	500.027	10.8	0.002%
75%	500.049	500.055	500.050	500.059	500.053	500.060	10.2	0.002%
100%	500.020	500.031	500.027	500.033	500.028	500.031	13.1	0.003%
Load	40.4	36.7	38.1	38.3	39.2	37.9	ΔI(mA)	
Regulation	0.008%	0.007%	0.008%	0.008%	0.008%	0.008%		

3. Temperature drift, C.C mode

Conditions: Vin:200V 3Φ
Iout:100%

Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)	
Iout	499.89	499.45	499.02	867 mA	35 ppm/˚C

Notes:
(*) Not including load regulation thermal drift effect.

(1). Regulation - Line & Load, Temperature drift

G600-8.5

Conditions: Ta = 25°C

1. Regulation - Line & Load, C.C mode 3Φ200 (*)

	Vin					
Vo	170VAC	200VAC	208VAC	265VAC	Line Regulation	
0%	8.5004	8.5004	8.5004	8.5003	0.1	0.001%
25%	8.5000	8.5001	8.5001	8.4999	0.1	0.002%
50%	8.5000	8.5002	8.5002	8.5000	0.2	0.002%
75%	8.4999	8.5001	8.5001	8.4998	0.3	0.003%
100%	8.4998	8.5001	8.5001	8.4998	0.3	0.004%
Load	0.5	0.3	0.3	0.5	ΔI(mA)	
Regulation	0.006%	0.004%	0.004%	0.006%		

2. Regulation - Line & Load, C.C mode 3Φ400/3Φ480 (*)

	Vin							
Io	342VAC	380VAC	400VAC	460VAC	480VAC	520VAC	Line Regulation	
0%	8.5016	8.5016	8.5014	8.5015	8.5015	8.5014	0.1	0.001%
25%	8.5012	8.5012	8.5011	8.5011	8.5010	8.5011	0.2	0.002%
50%	8.5016	8.5018	8.5016	8.5018	8.5017	8.5017	0.1	0.001%
75%	8.5019	8.5021	8.5019	8.5021	8.5019	8.5021	0.2	0.002%
100%	8.5013	8.5016	8.5013	8.5016	8.5013	8.5016	0.3	0.003%
Load	0.8	0.9	0.9	0.9	0.9	1.0	ΔI(mA)	
Regulation	0.009%	0.010%	0.010%	0.011%	0.010%	0.011%		

3. Temperature drift, C.C mode

Conditions: Vin:200V 3Φ
Iout:100%

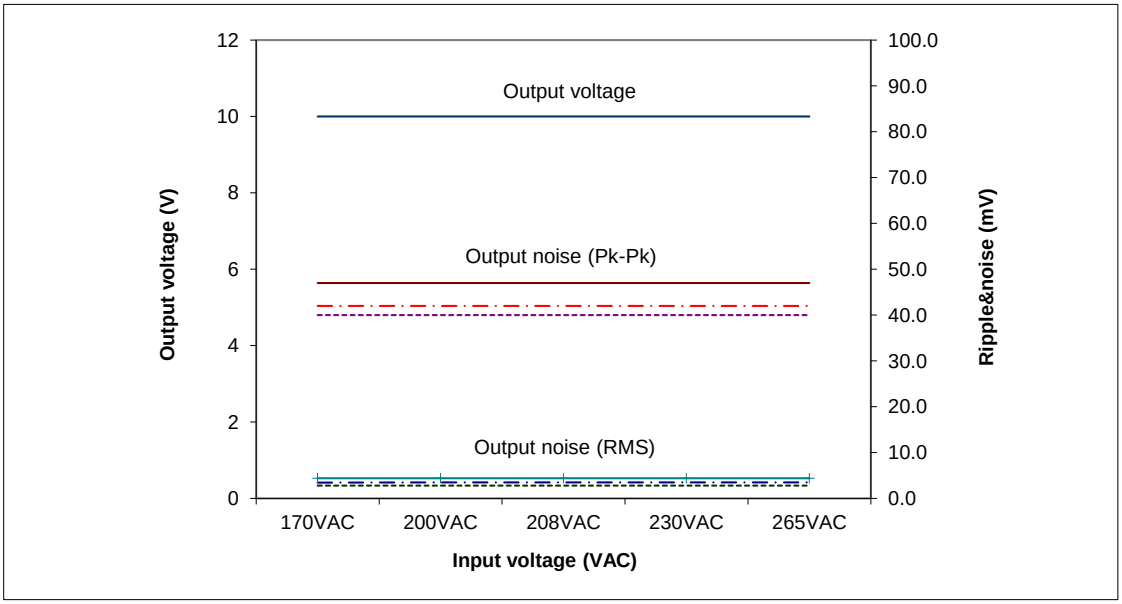
Ta	0°C	25°C	50°C	Temp. Coefficient (0˚C~50˚C)	
Iout	8.4998	8.4997	8.5013	1.65 mA	4 ppm/˚C

Notes:
(*) Not including load regulation thermal drift effect.

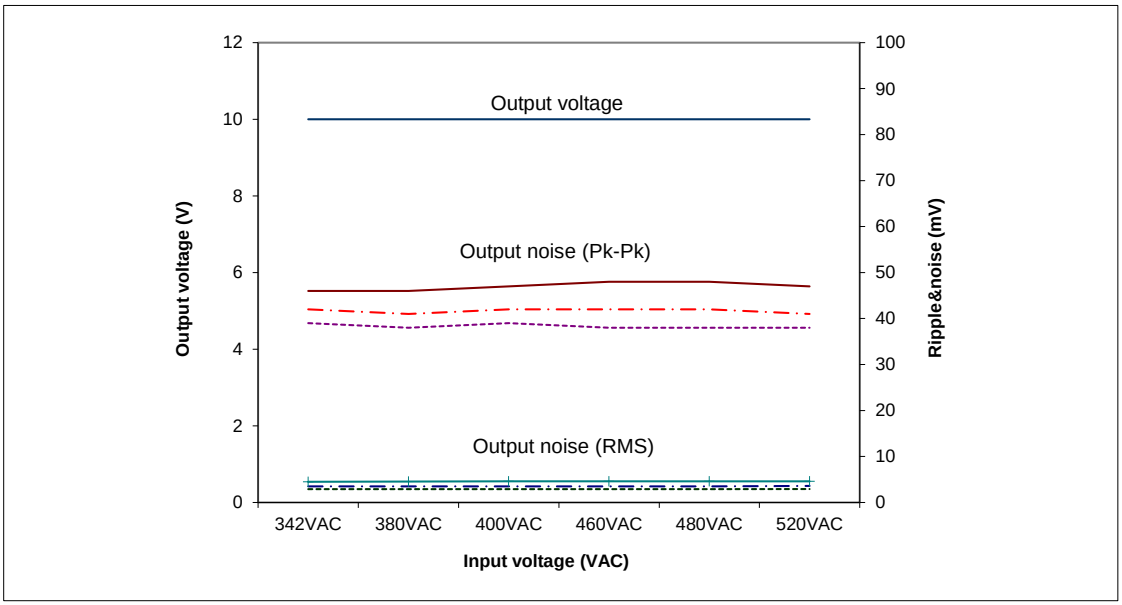
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout:100%
Ta: 0˚C
25˚C
50˚C

G10-500 3Φ200



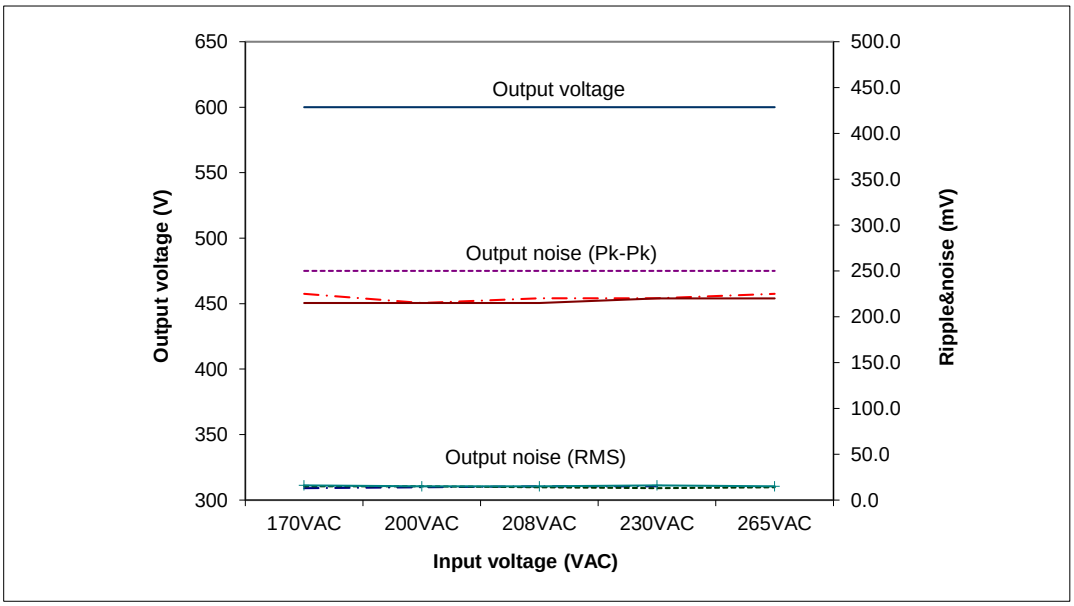
G10-500 3Φ400/3Φ480



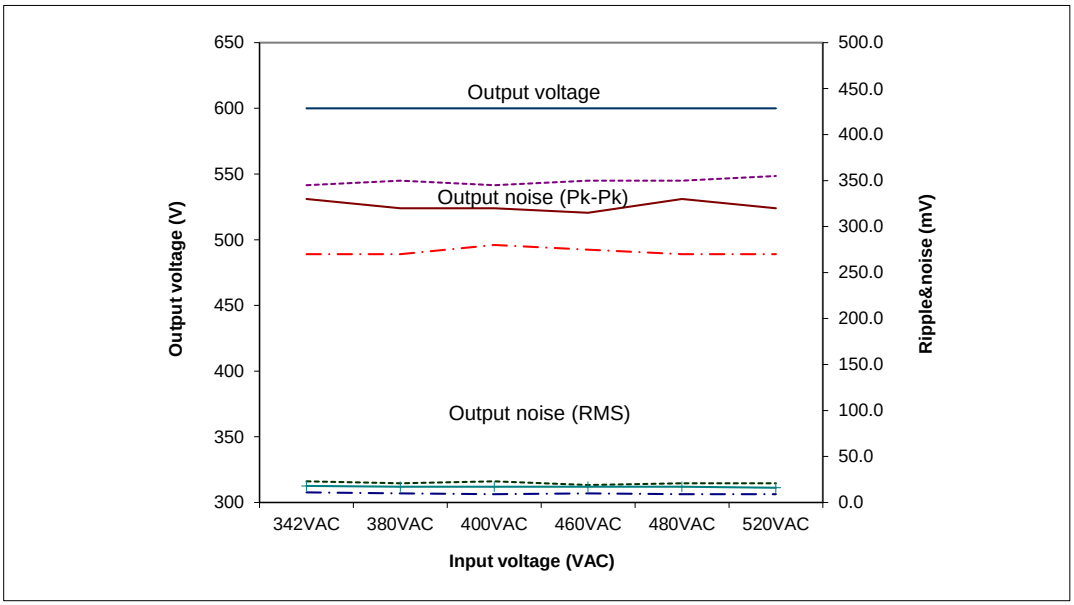
(2). Output voltage and ripple voltage vs. input voltage
C.V mode

Conditions: Iout:100%
Ta: 0˚C
25˚C
50˚C

G600-8.5 3Φ200

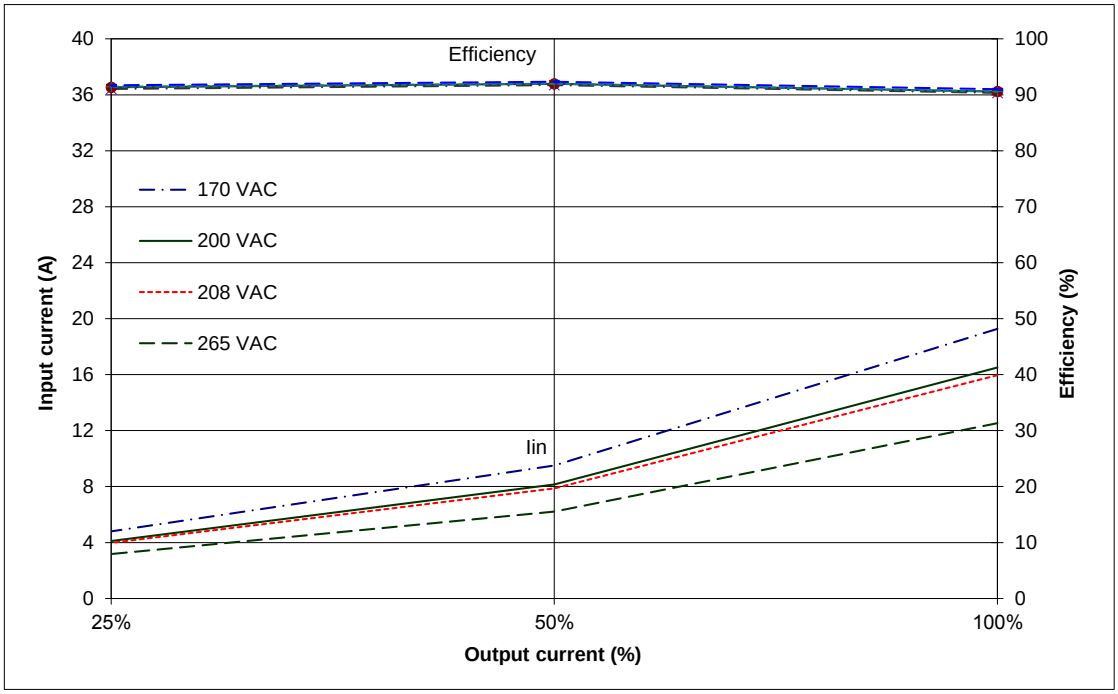


G600-8.5 3Φ400/3Φ480



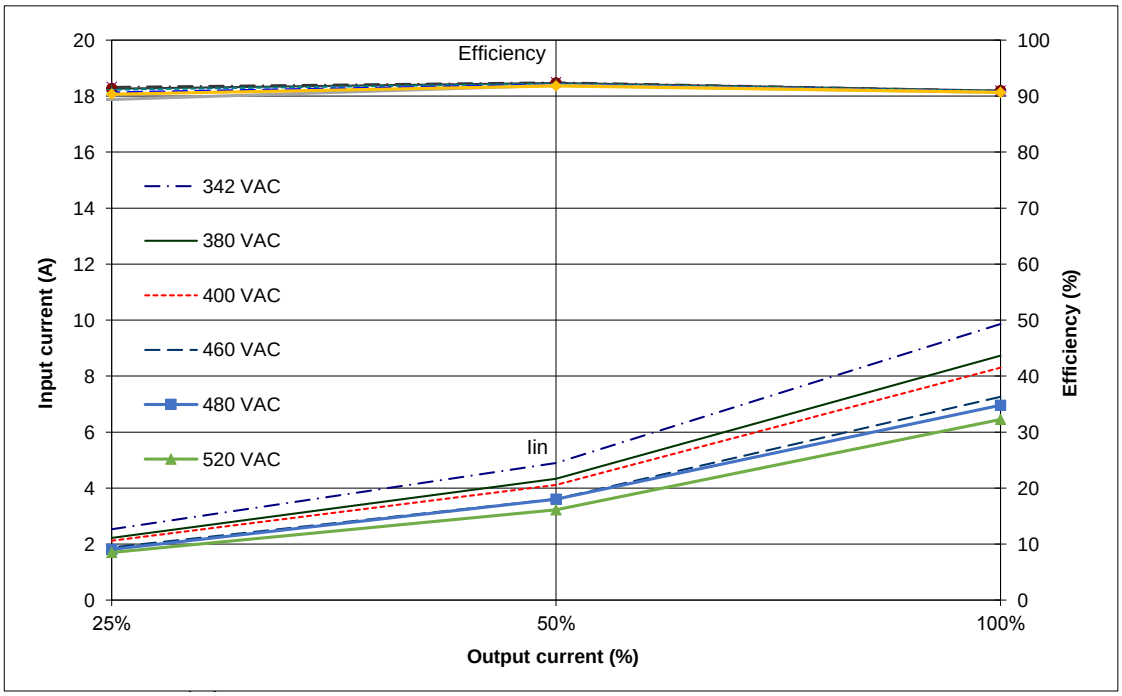
(3). Efficiency and Input current vs. Output current

G10-500 3Φ200



Conditions:
Vin: 170~265 VAC
Vout: 100%
Ta: 25˚C

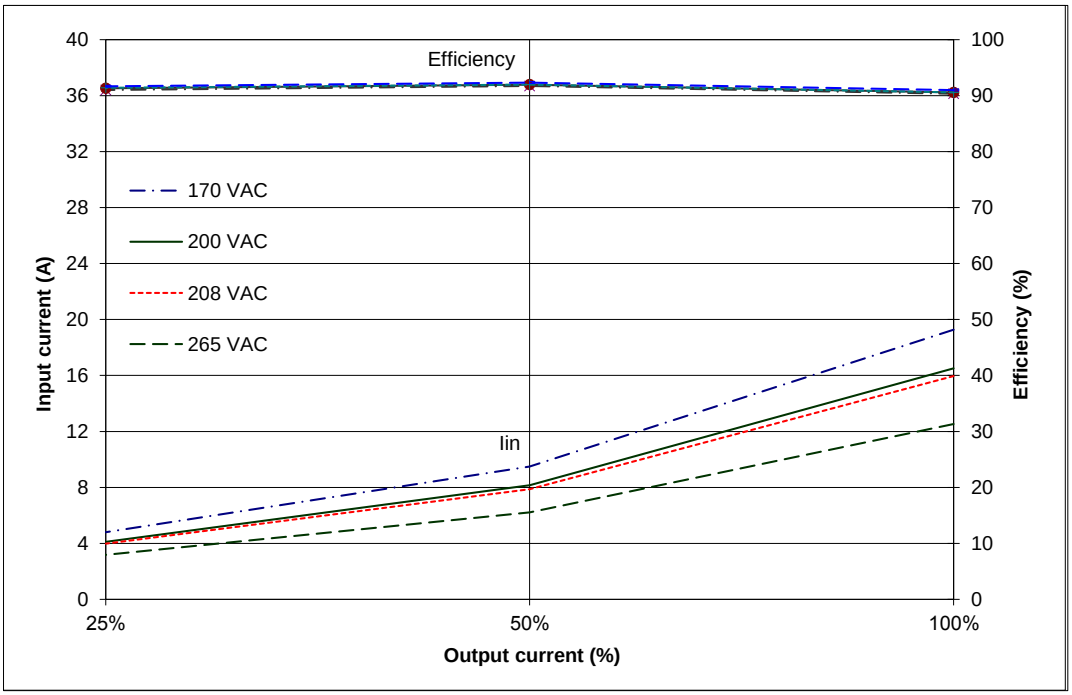
G10-500 3Φ400/3Φ480



Conditions:
Vin: 342~520 VAC
Vout: 100%
Ta: 25˚C

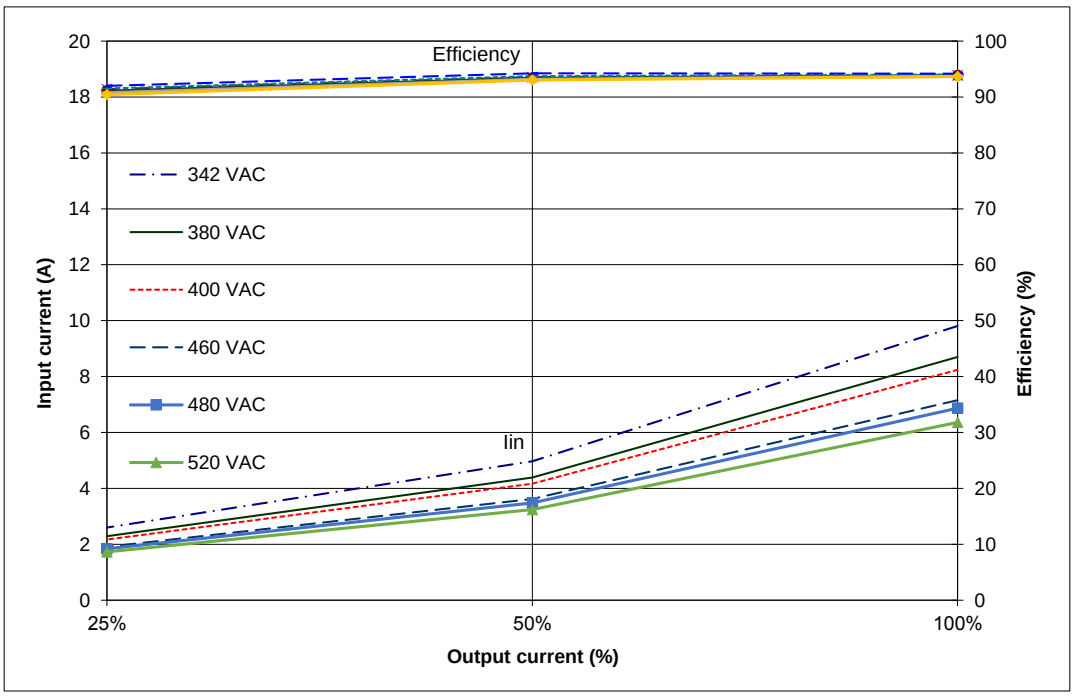
(3). Efficiency and Input current vs. Output current

G600-8.5 3Φ200



Conditions:
Vin: 170~265 VAC
Vout: 100%
Ta: 25˚C

G600-8.5 3Φ400/3Φ480

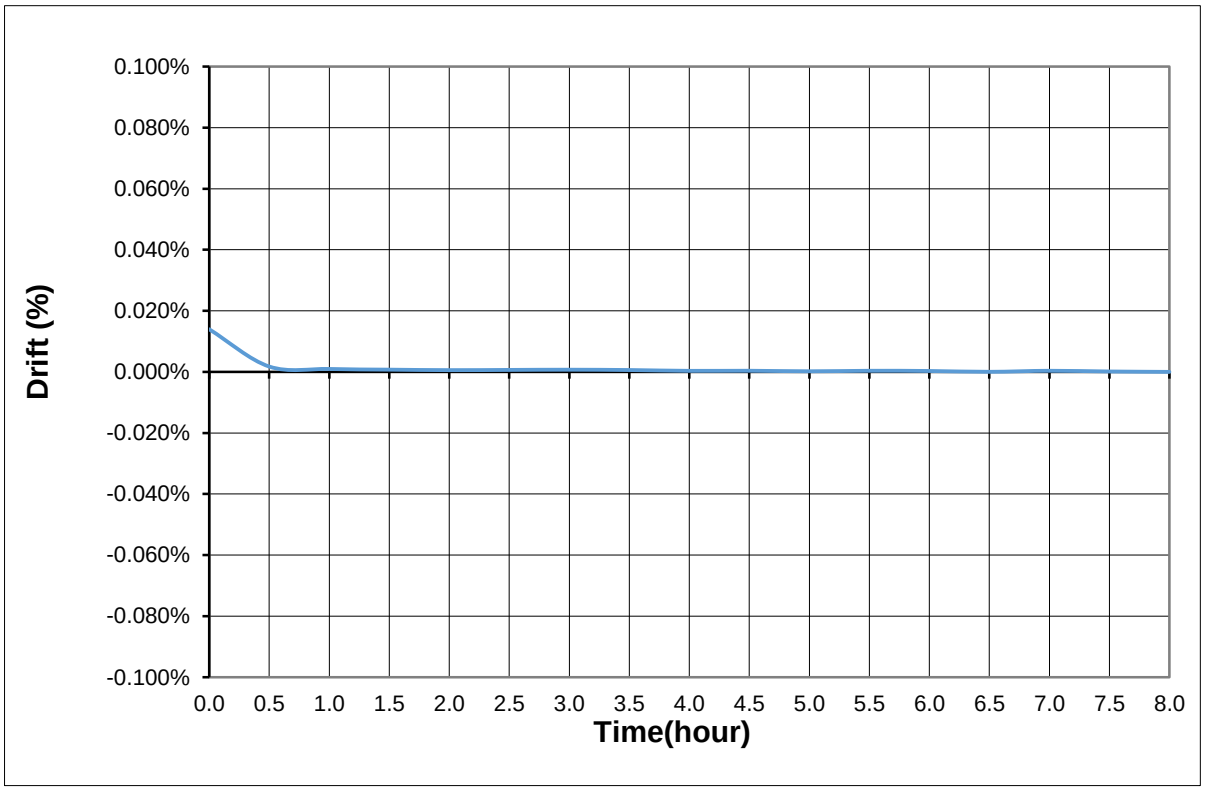


Conditions:
Vin: 342~520 VAC
Vout: 100%
Ta: 25˚C

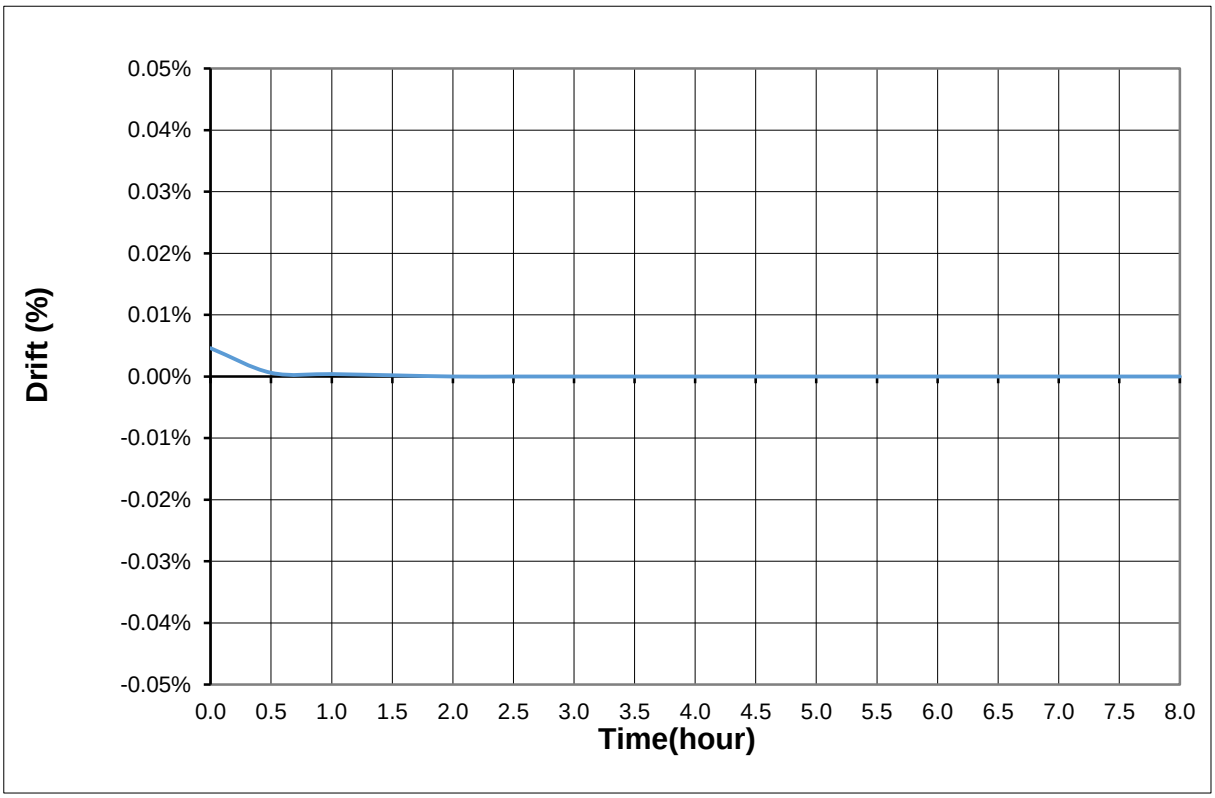
2.2 Warm up drift & stability

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 C.V mode



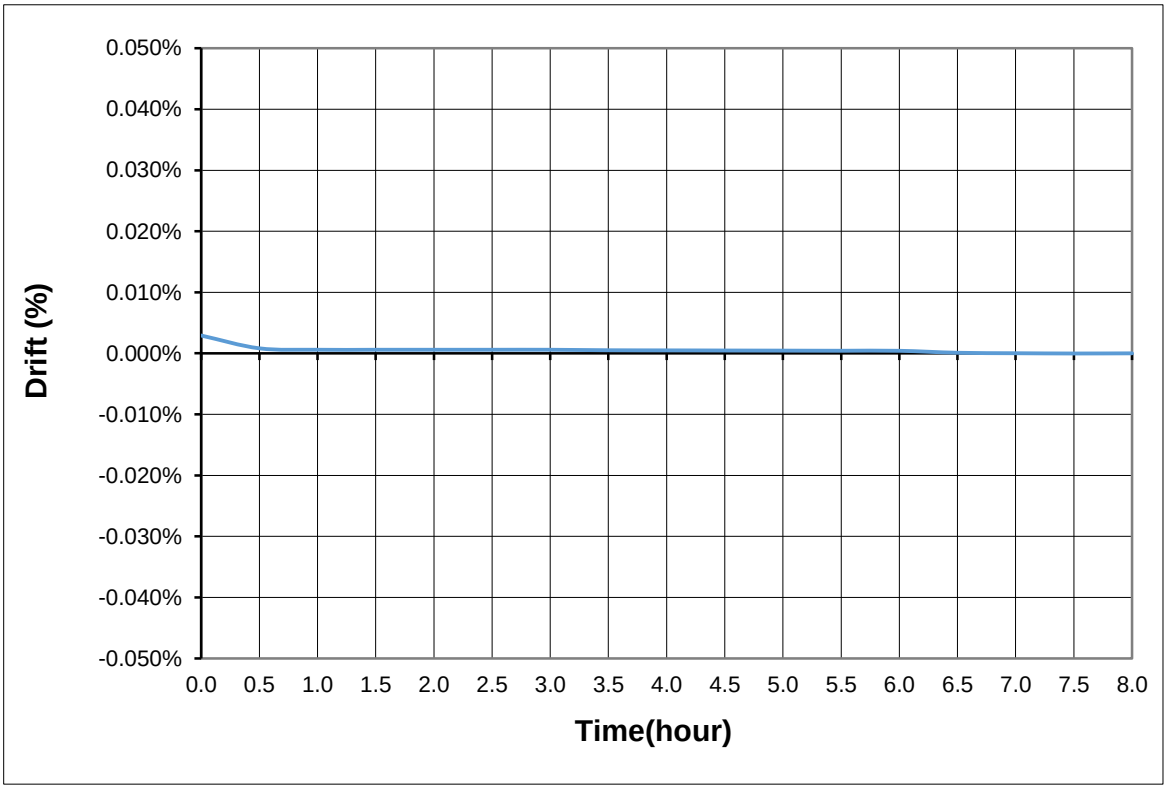
G10-500 C.C mode



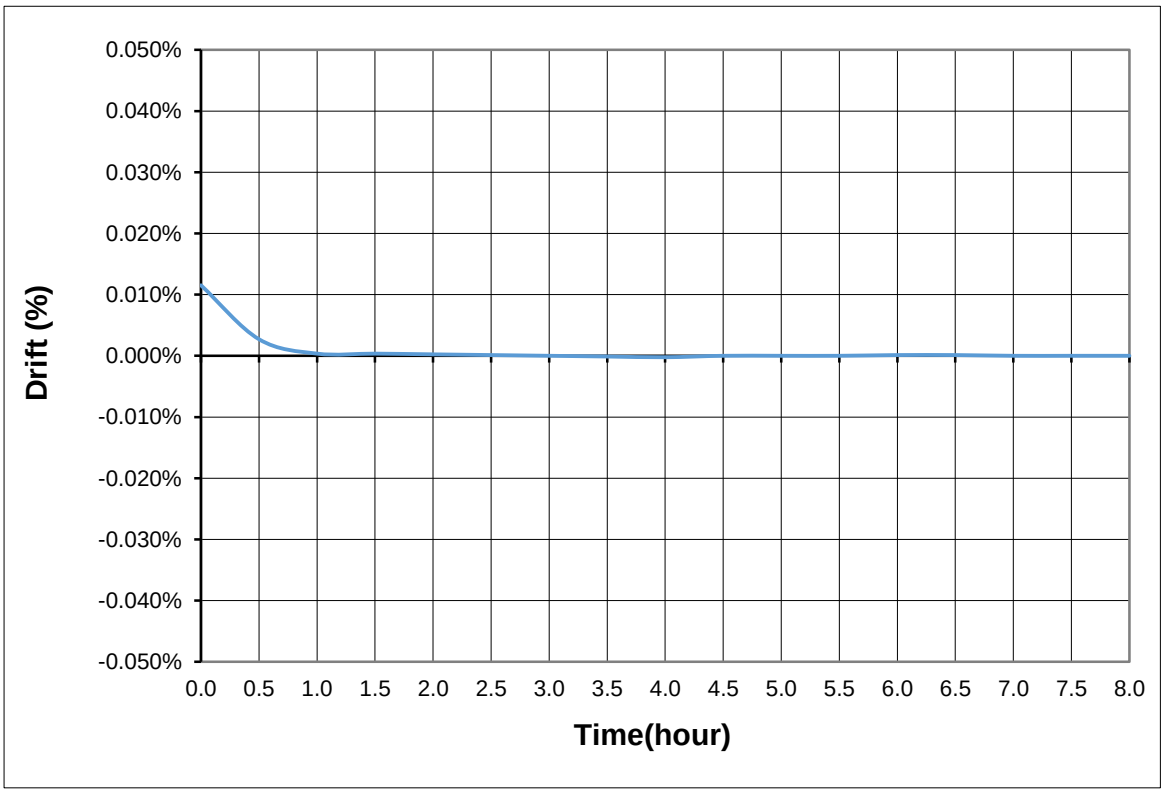
2.2 Warm up drift & stability

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G600-8.5 C.V mode



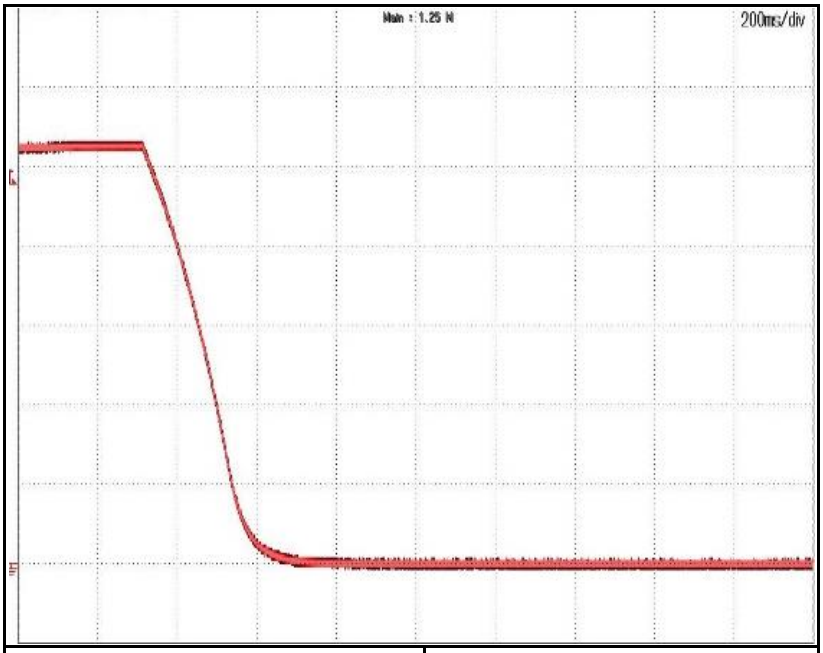
G600-8.5 C.C mode



2.3 Over voltage protection (OVP) characteristic

Conditions: Vset: 100%
Iout: 0%
Ta = 25°C

G10-500



OVP setting:10.5V

$2^{V}/_{DIV}$	$200^{ms}/_{DIV}$

G600-8.5

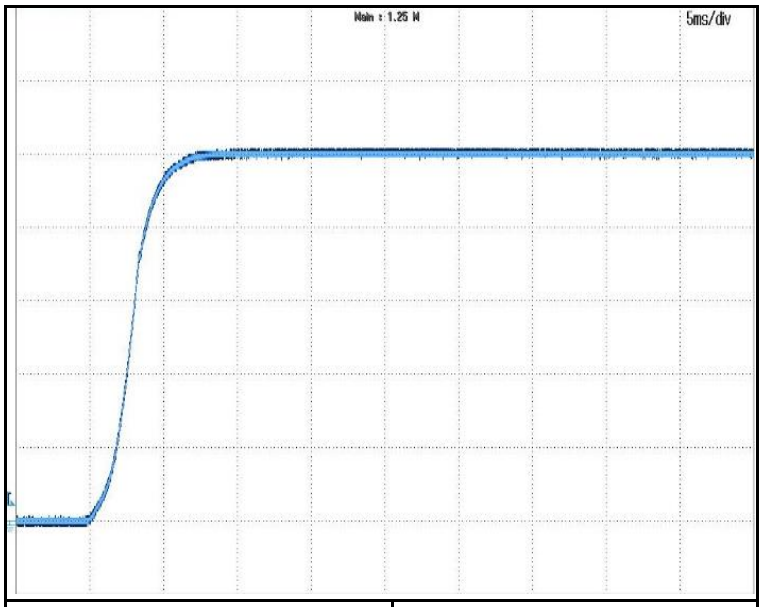
OVP setting:630V

$100^{V}/_{DIV}$	$1^{Sec}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.V mode

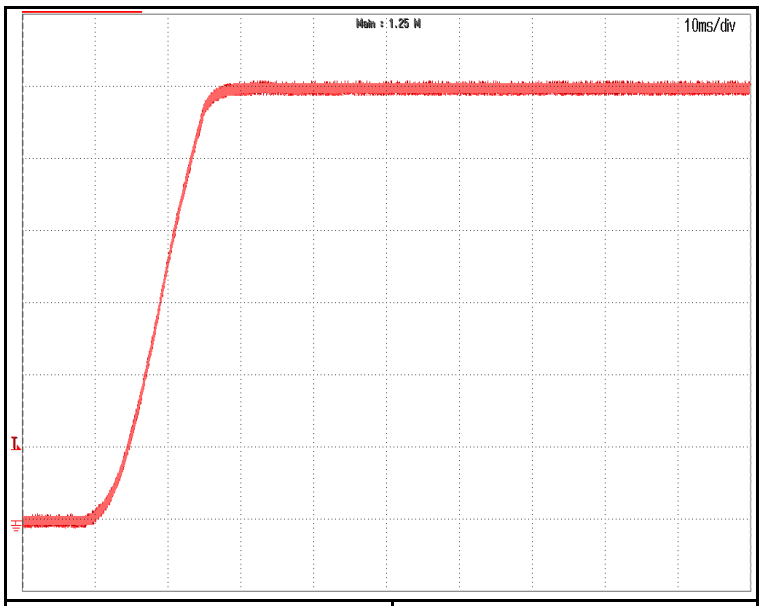
Conditions: Vin:Nominal
Vout: 100%
Iout: 0%
Iset=105%
Ta = 25°C

G10-500



$2^{V}/_{DIV}$	$5^{ms}/_{DIV}$

G600-8.5

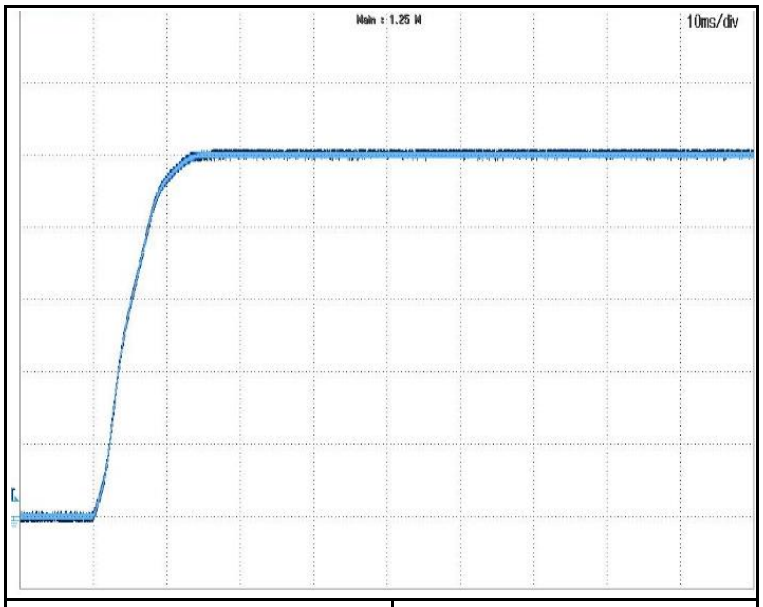


$100^{V}/_{DIV}$	$10^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.V mode

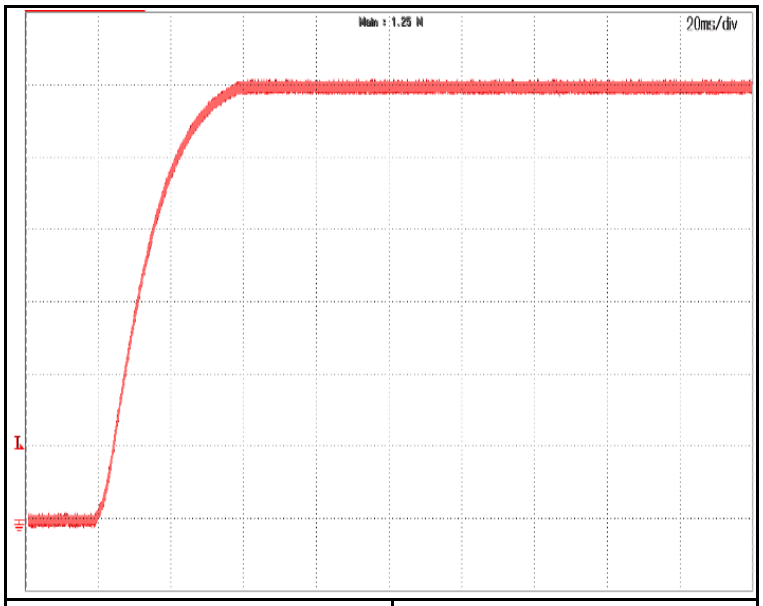
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Iset=105%
Load: CR
Ta = 25°C

G10-500



$2^{V}/_{DIV}$	$10^{ms}/_{DIV}$

G600-8.5

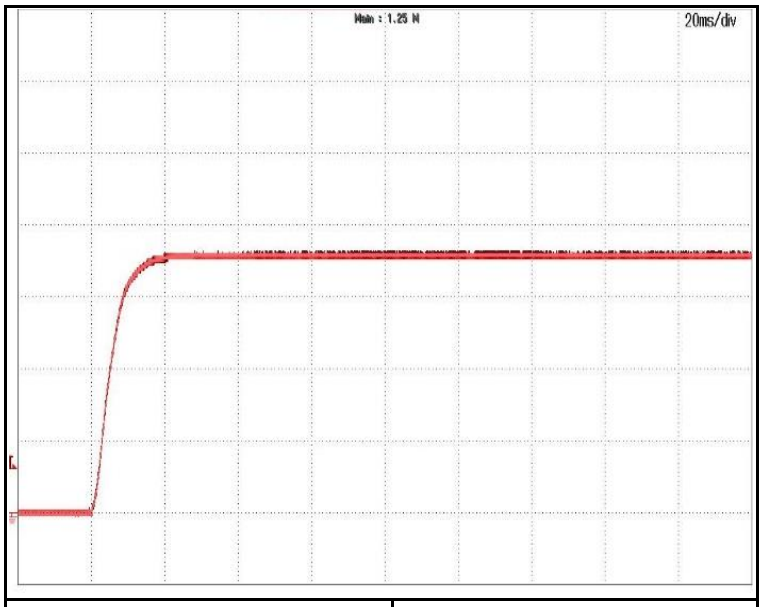


$100^{V}/_{DIV}$	$20^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.C mode

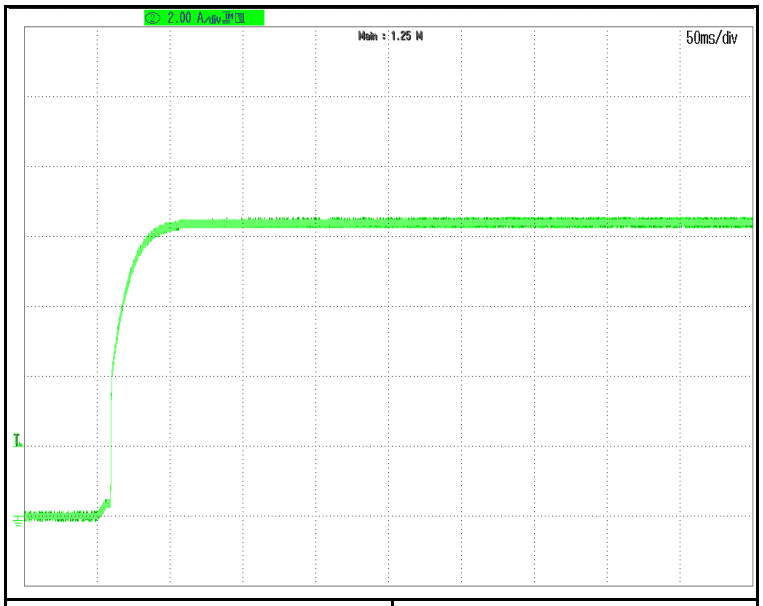
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Vset=105%
Load: CR
Ta = 25°C

G10-500



$140^{A}/_{DIV}$	$20^{ms}/_{DIV}$

G600-8.5

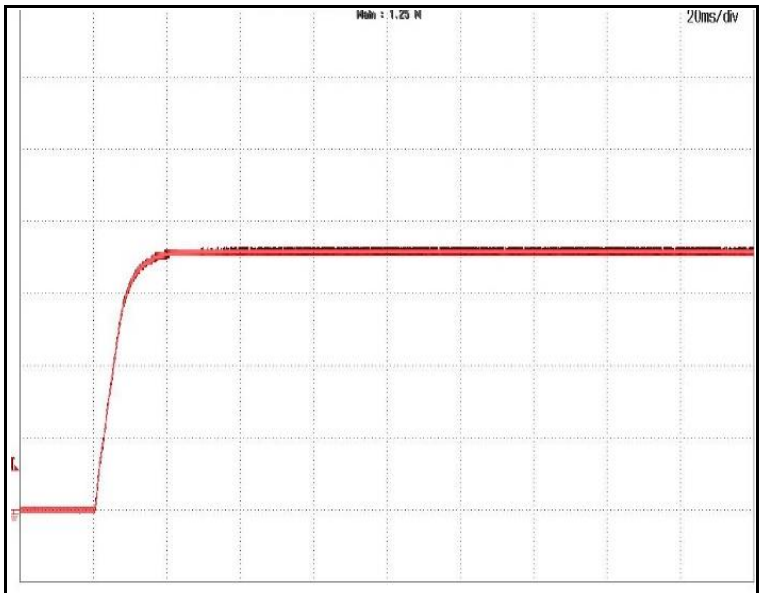


$2^{A}/_{DIV}$	$50^{ms}/_{DIV}$

2.4 ON/OFF Output rise characteristics
C.C mode

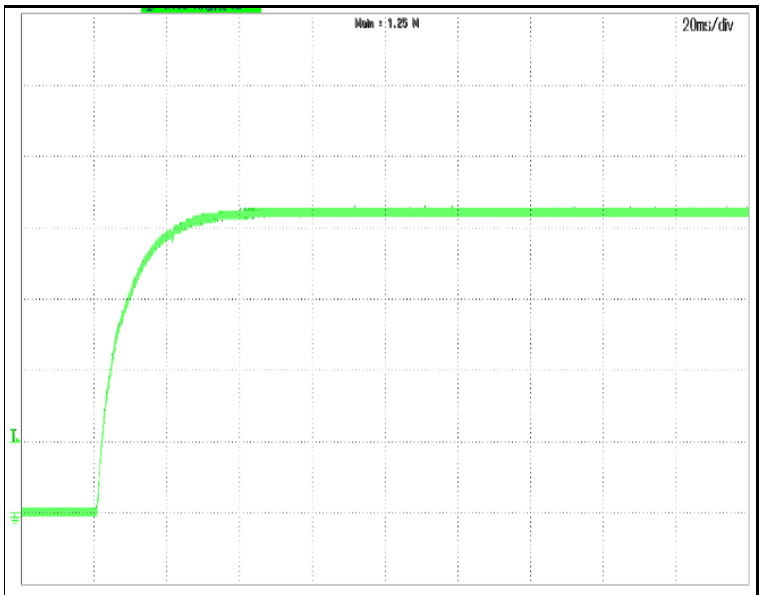
Conditions: Vin:Nominal
Iout: 100%
Vset=105%
shorted output
Ta = 25°C

G10-500



$140^{A}/_{DIV}$	$20^{ms}/_{DIV}$

G600-8.5

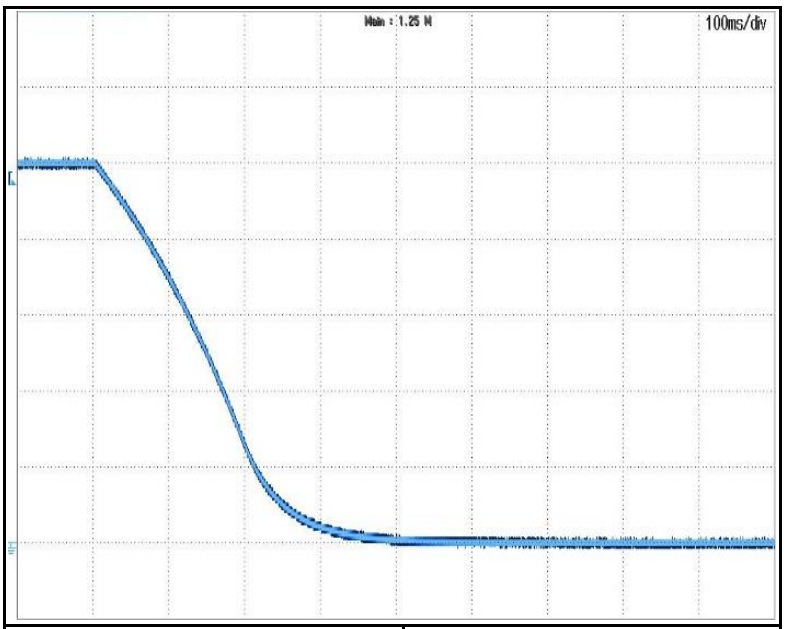


$2^{A}/_{DIV}$	$20^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.V mode

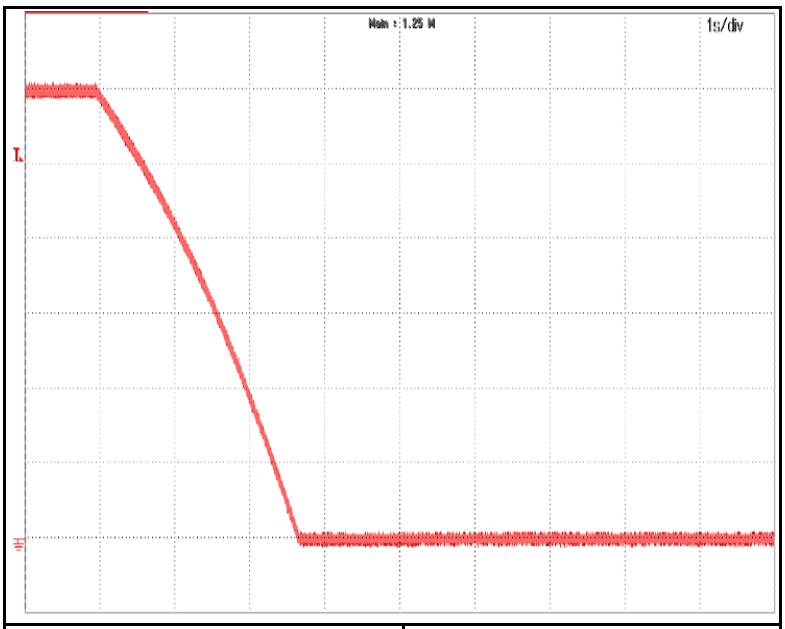
Conditions: Vin:Nominal
Vout: 100%
Iout: 0%
Ta = 25°C

G10-500



$2^{V}/_{DIV}$	$100^{ms}/_{DIV}$

G600-8.5



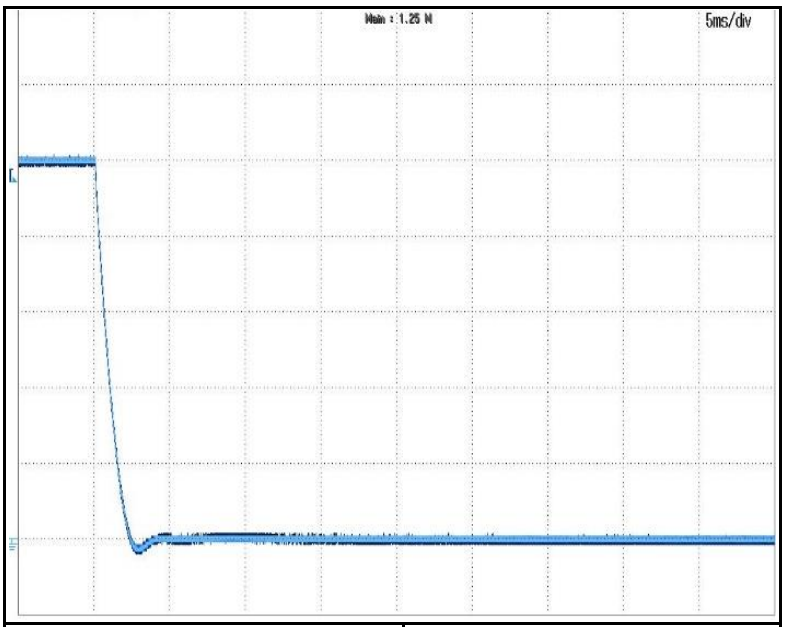
$100^{V}/_{DIV}$	$1^{Sec}/_{DIV}$

2.5 ON/OFF Output fall characteristics

C.V mode

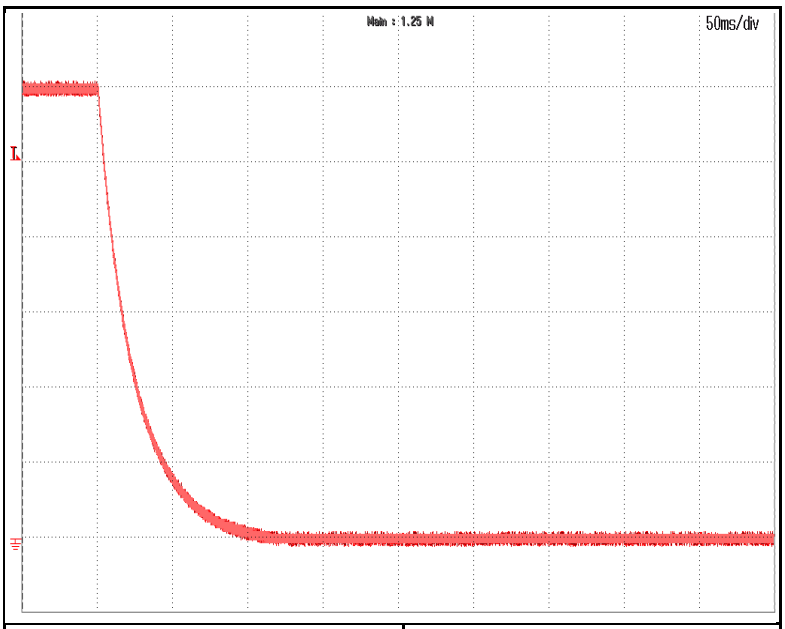
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta = 25°C

G10-500



$2^{V}/_{DIV}$	$5^{ms}/_{DIV}$

G600-8.5

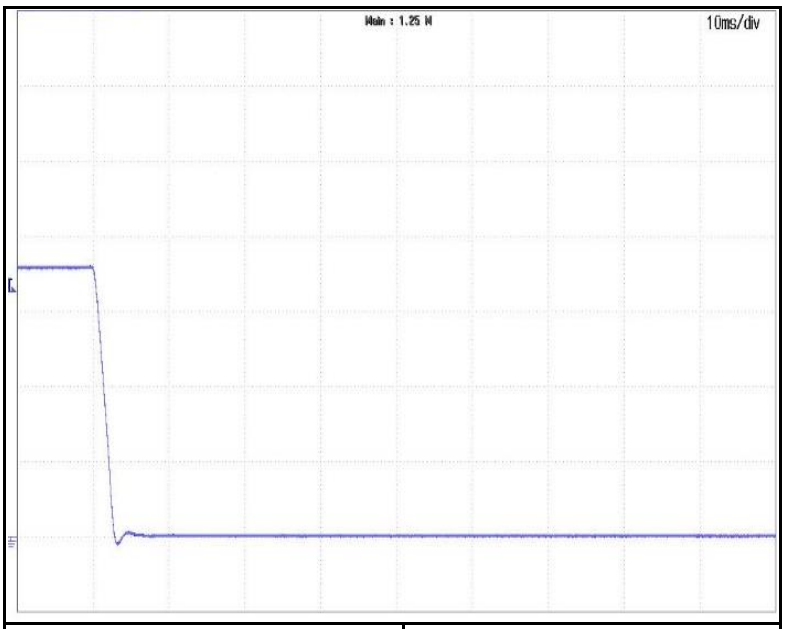


$100^{V}/_{DIV}$	$50^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.C mode

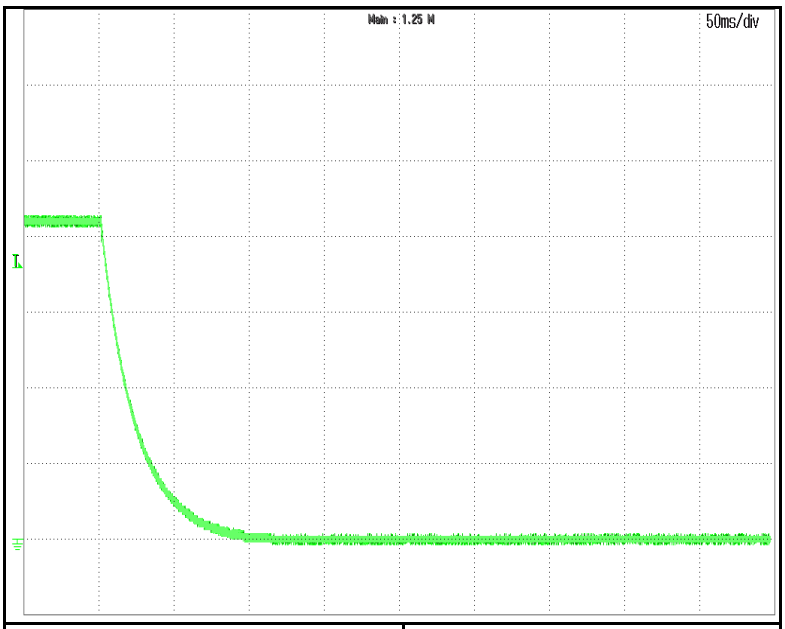
Conditions: Vin:Nominal
Vout: 100%
Iout: 100%
Load: CR
Ta = 25°C

G10-500



$140^{A}/_{DIV}$	$10^{ms}/_{DIV}$

G600-8.5

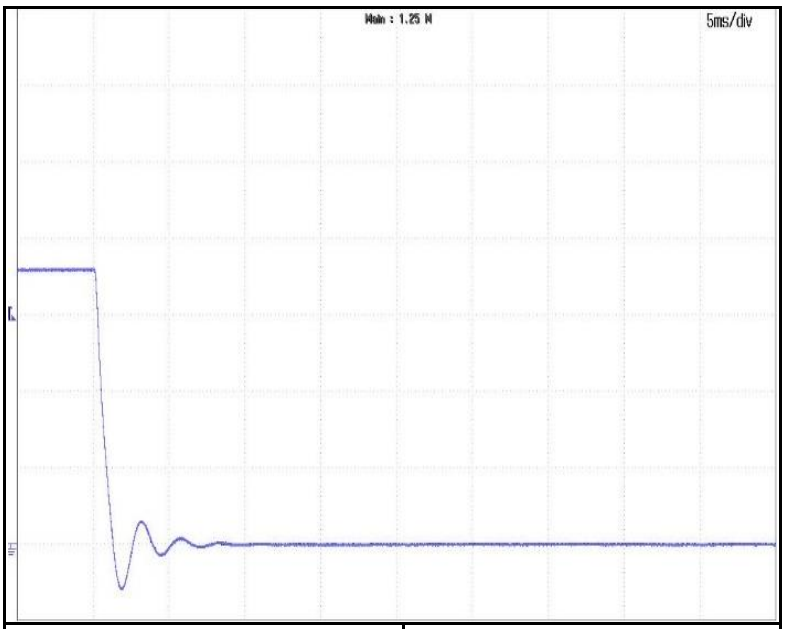


$2^{A}/_{DIV}$	$50^{ms}/_{DIV}$

2.5 ON/OFF Output fall characteristics
C.C mode

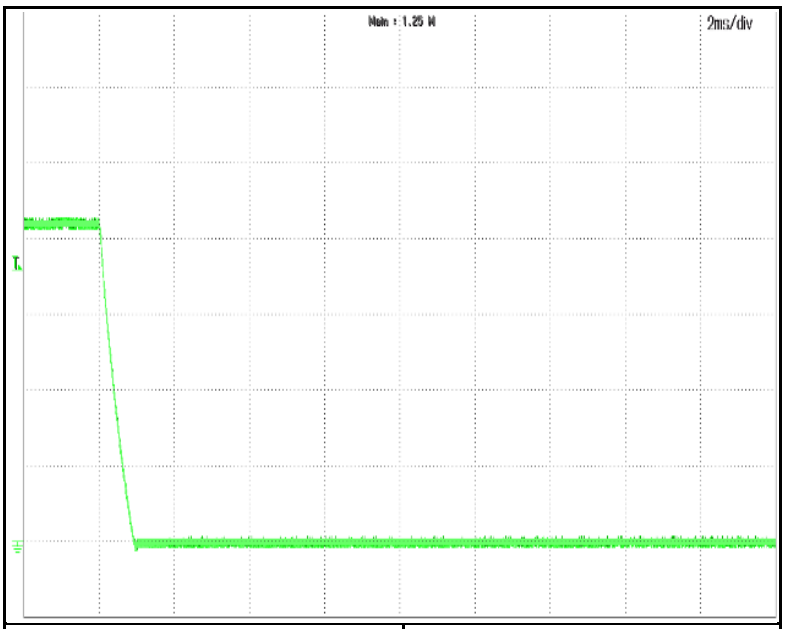
Conditions: Vin:Nominal
Iout: 100%
shorted output
Ta = 25°C

G10-500



$140^{A}/_{DIV}$	$5^{ms}/_{DIV}$

G600-8.5



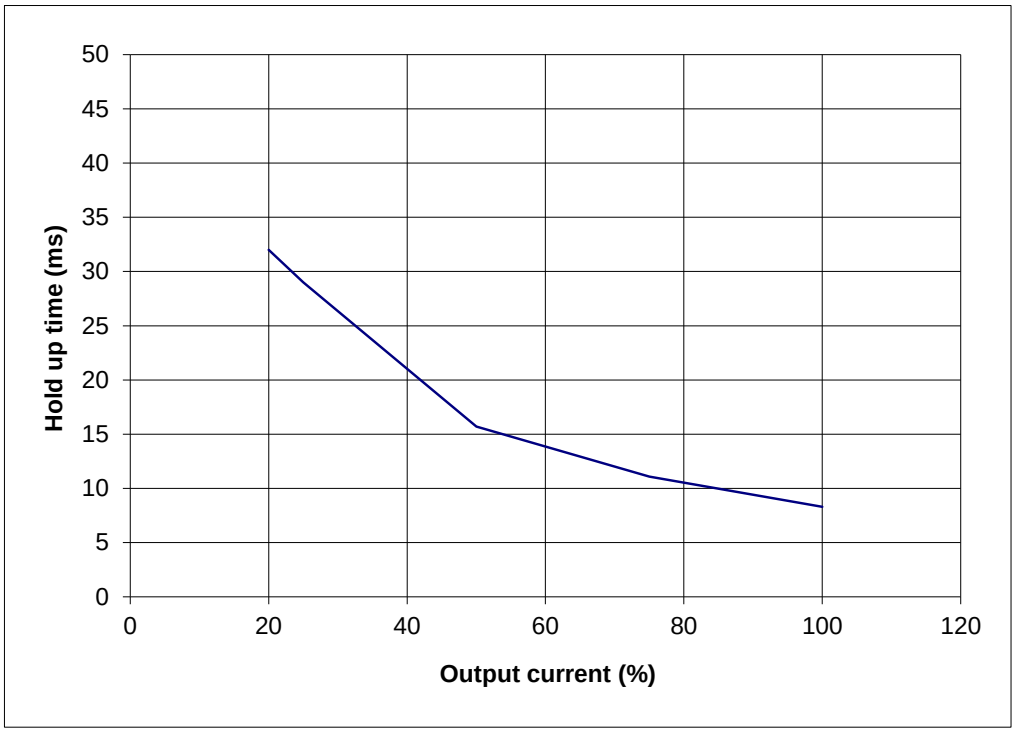
$2^{A}/_{DIV}$	$2^{ms}/_{DIV}$

2.6 Holdup time characteristics

Conditions: Ta = 25°C
Vout:100%

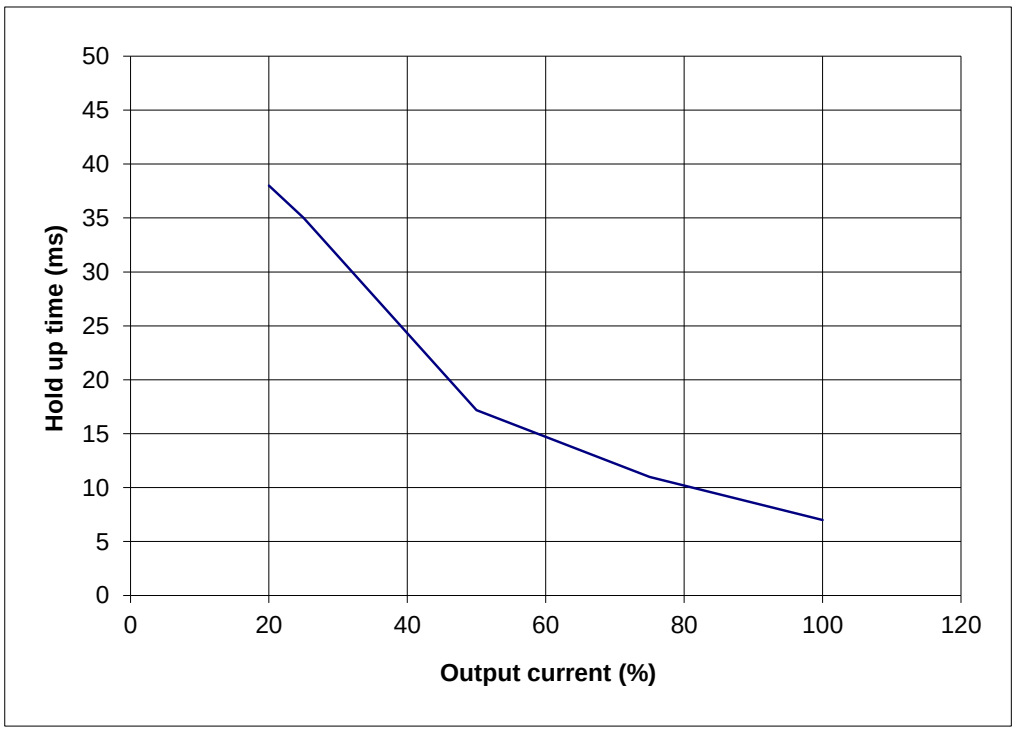
G10-500 3Φ200

Vin:200VAC



G10-500 3Φ400

Vin:400VAC

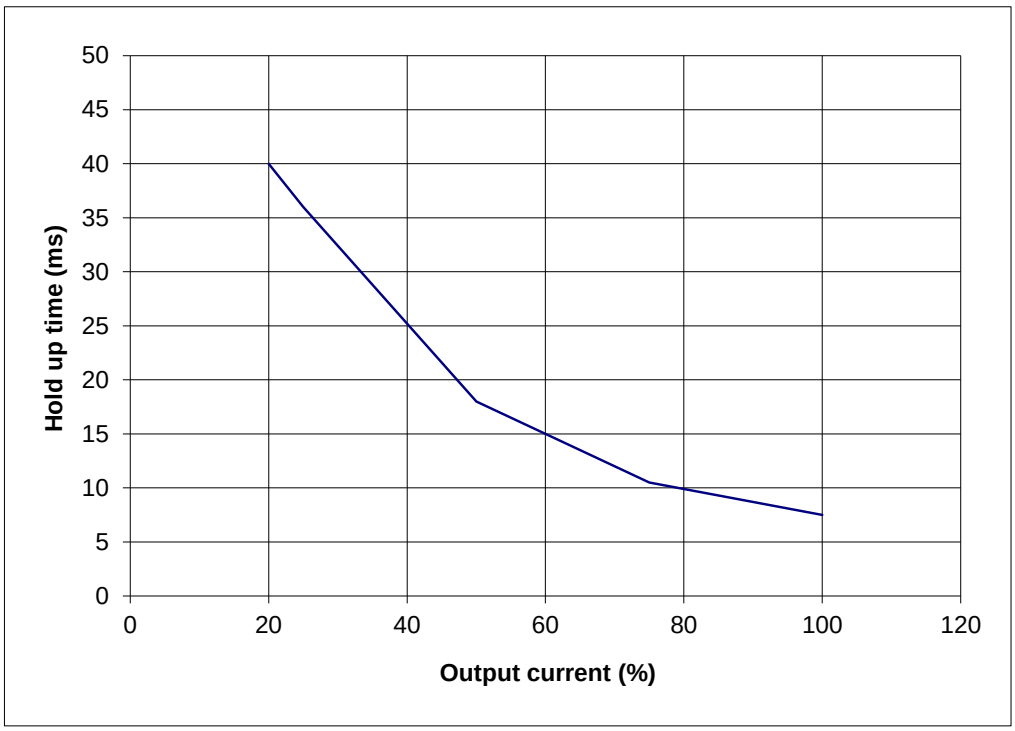


2.6 Holdup time characteristics

Conditions: Ta = 25°C
Vout:100%

G10-500 3Φ480

Vin:480VAC

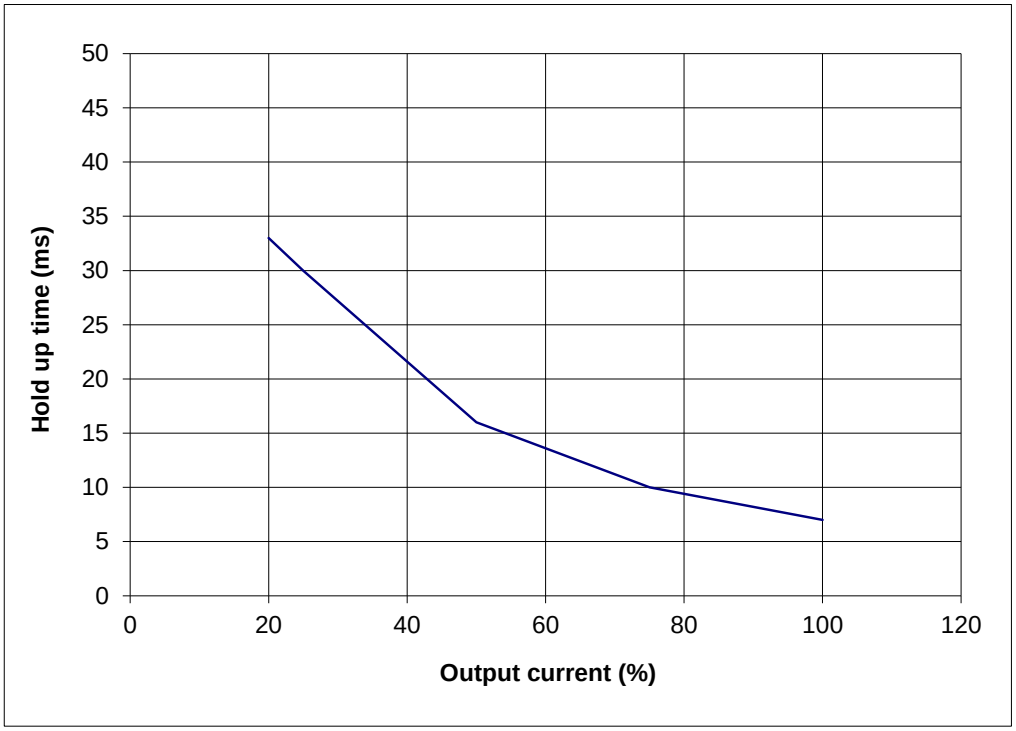


2.6 Holdup time characteristics

Conditions: Ta = 25°C
Vout:100%

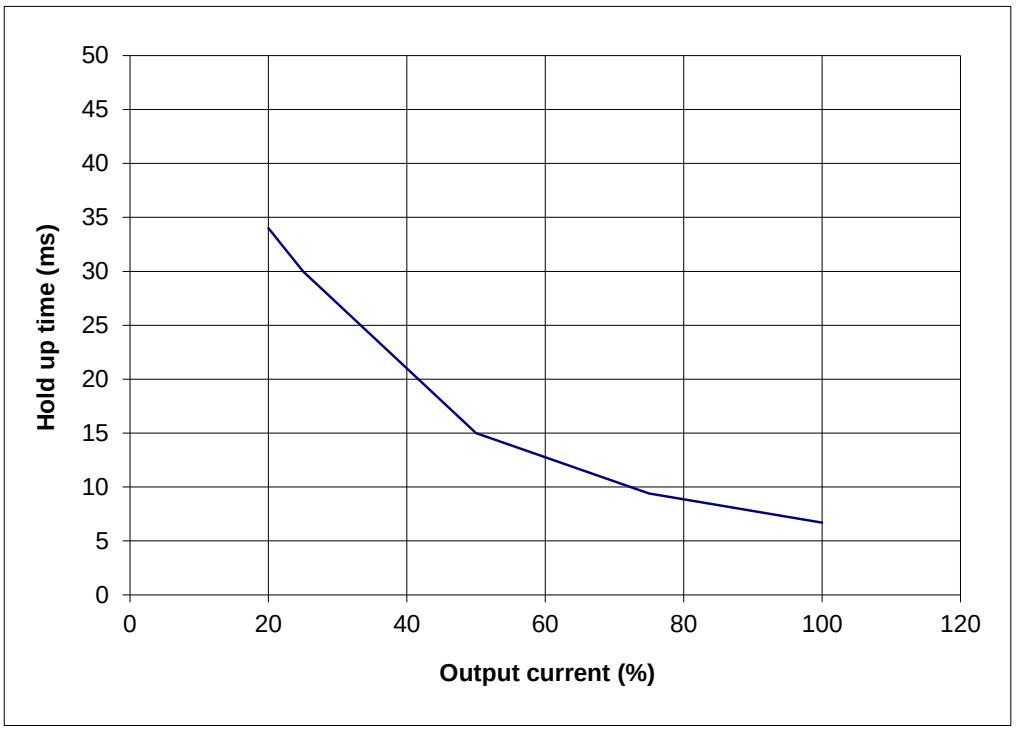
G600-8.5 3Φ200

Vin:200VAC



G600-8.5 3Φ400

Vin:400VAC

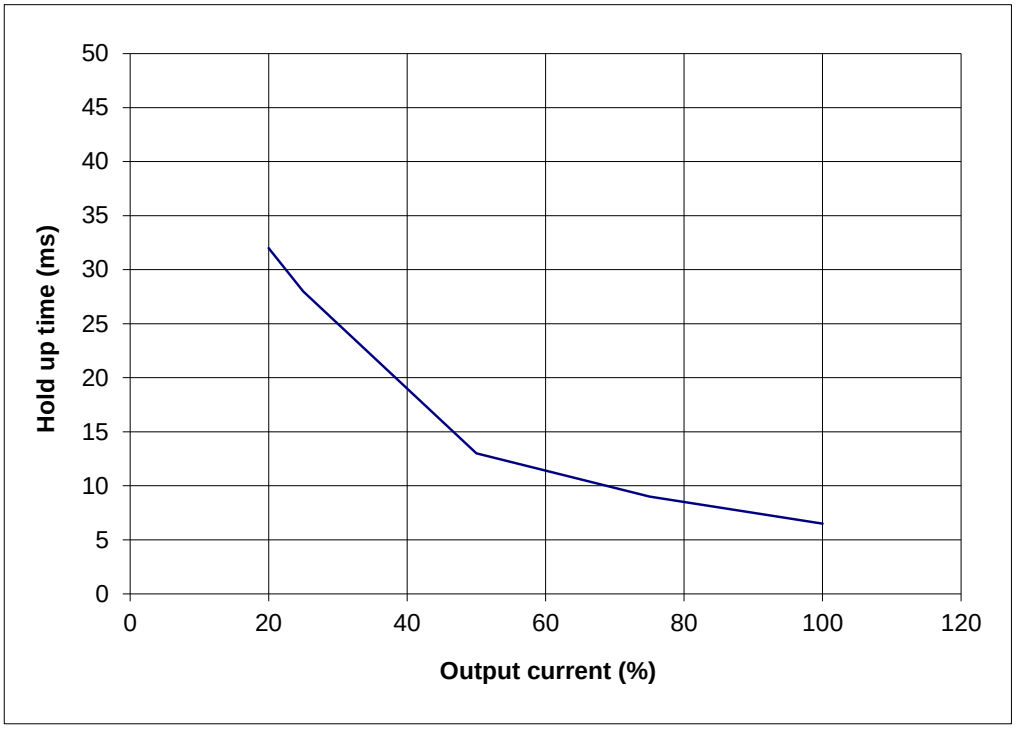


2.6 Holdup time characteristics

Conditions: Ta = 25°C
Vout:100%

G600-8.5 3Φ480

Vin:480VAC



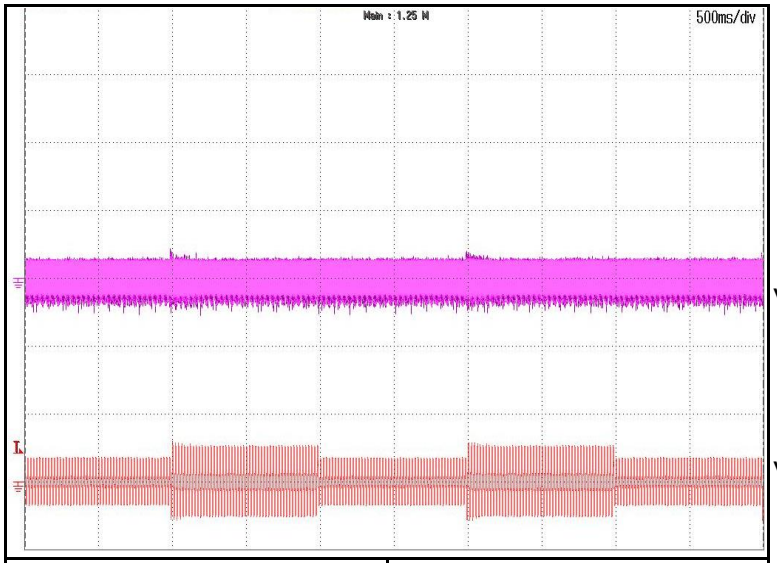
2.7 Dynamic line response characteristics

Ta = 25°C

C.V mode

G10-500 3Φ200

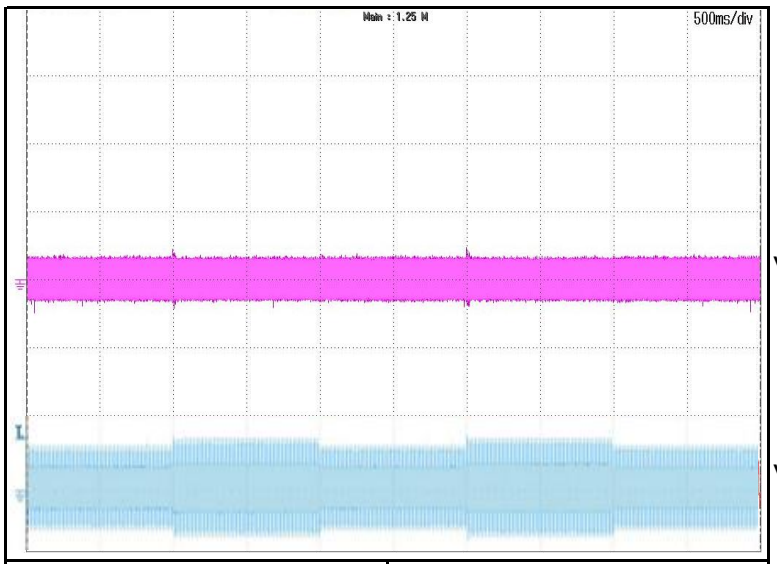
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Vout: 20$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

G10-500 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔460V



Vout: 20$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

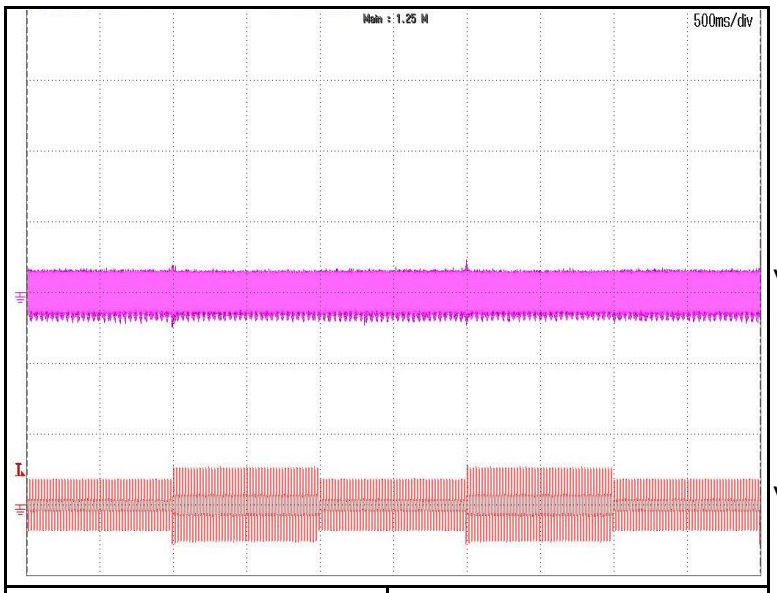
2.7 Dynamic line response characteristics

Ta = 25°C

C.V mode

G10-500 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout: $20^{mv}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{v}/_{DIV}$	

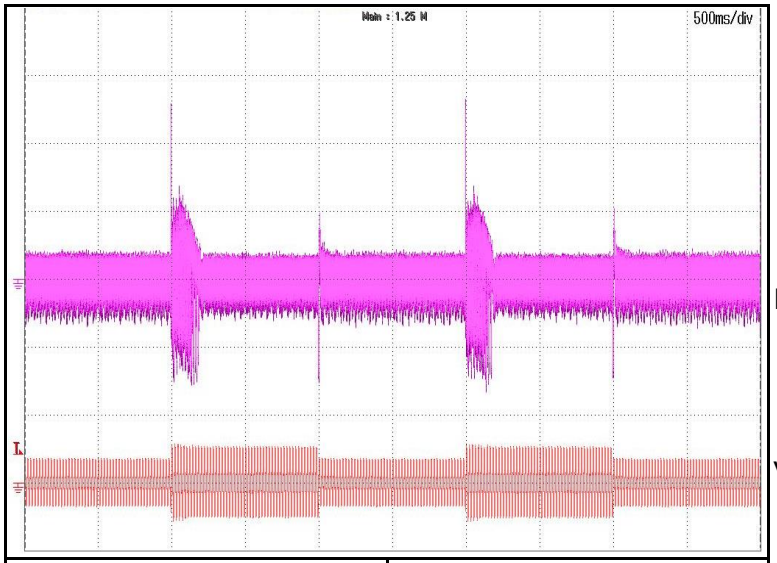
2.7 Dynamic line response characteristics

Ta = 25°C

C.C mode

G10-500 3Φ200

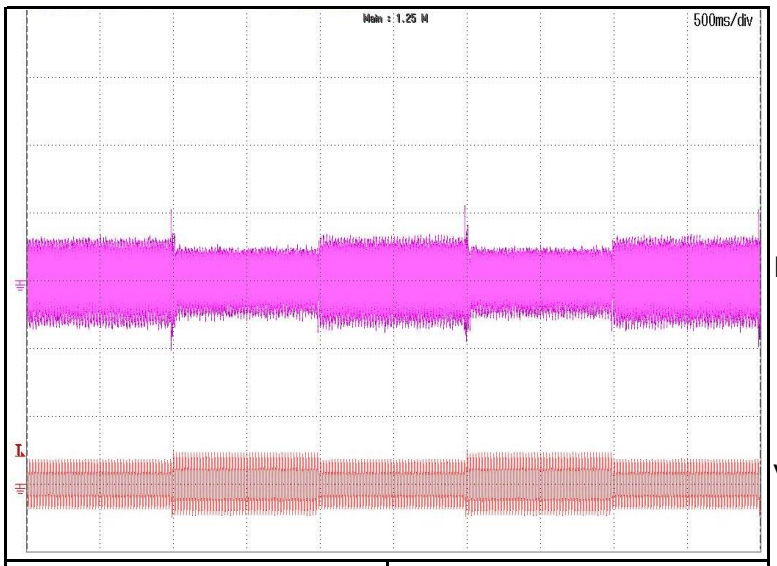
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Iout: $1^{A}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $50v/_{DIV}$	

G10-500 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔460V



Iout: $1^{A}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $100^{v}/_{DIV}$	

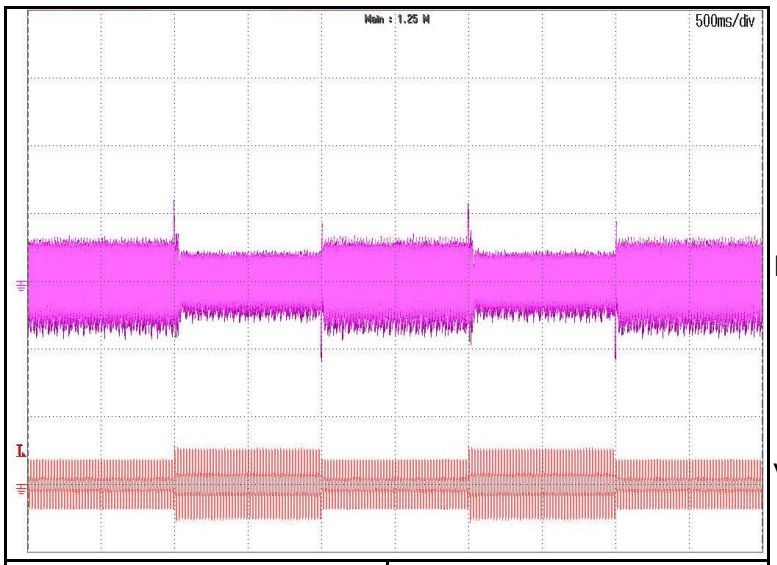
2.7 Dynamic line response characteristics

Ta = 25°C

C.C mode

G10-5003Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Iout: $1^{A}/_{DIV}$	$500^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

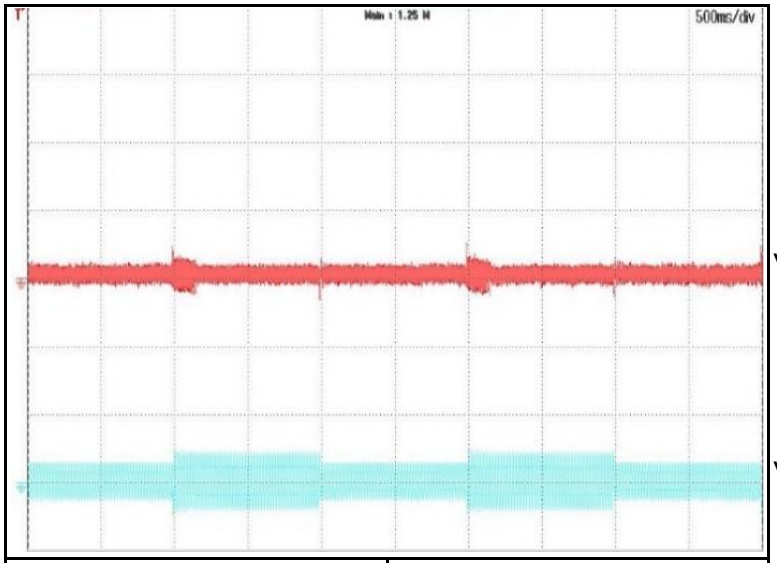
2.7 Dynamic line response characteristics

Ta = 25°C

C.V mode

G600-8.5 3Φ200

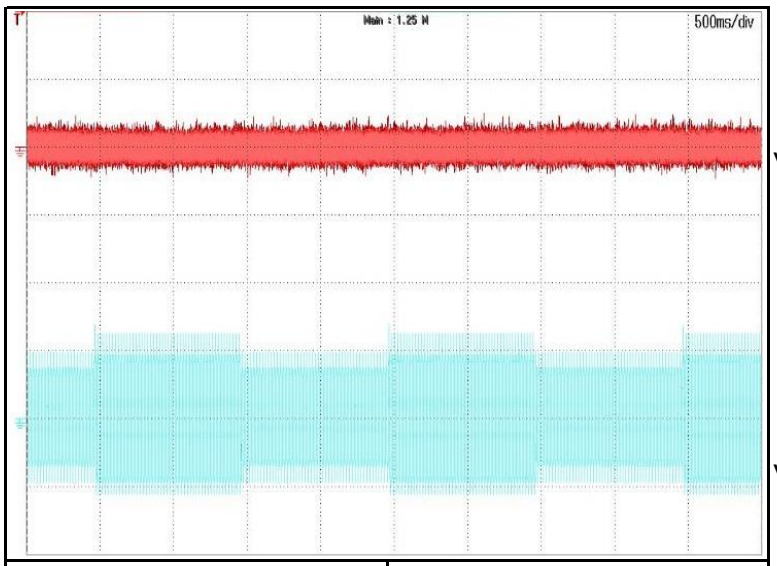
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

G600-8.5 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔460V



Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

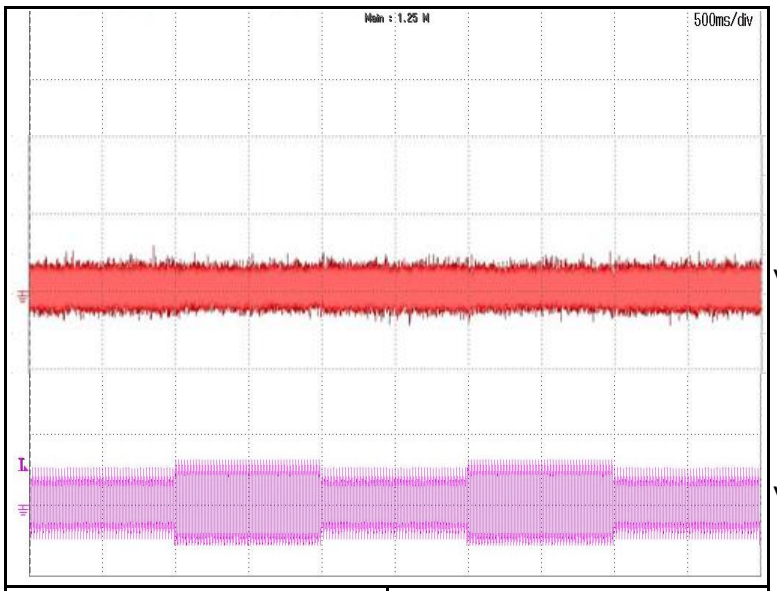
2.7 Dynamic line response characteristics

Ta = 25°C

C.V mode

G600-8.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



Vout: 200$^{mv}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{v}/_{DIV}$	

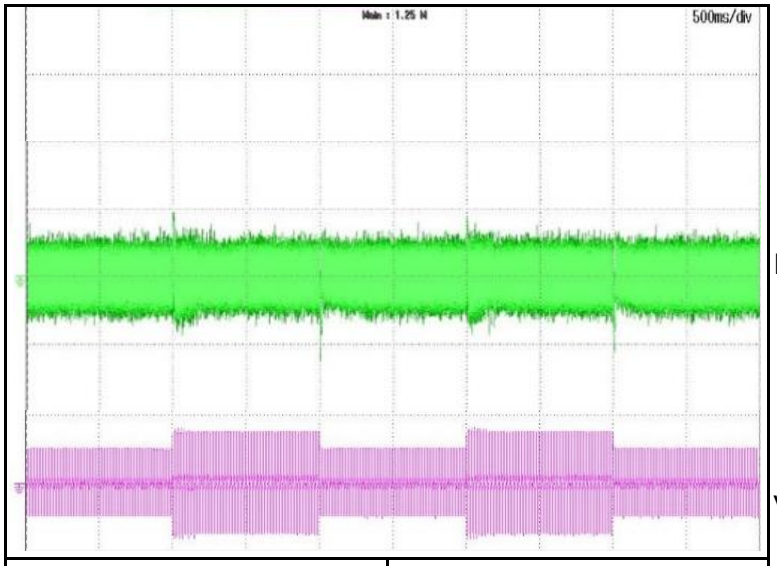
2.7 Dynamic line response characteristics

Ta = 25°C

C.C mode

G600-8.5 3Φ200

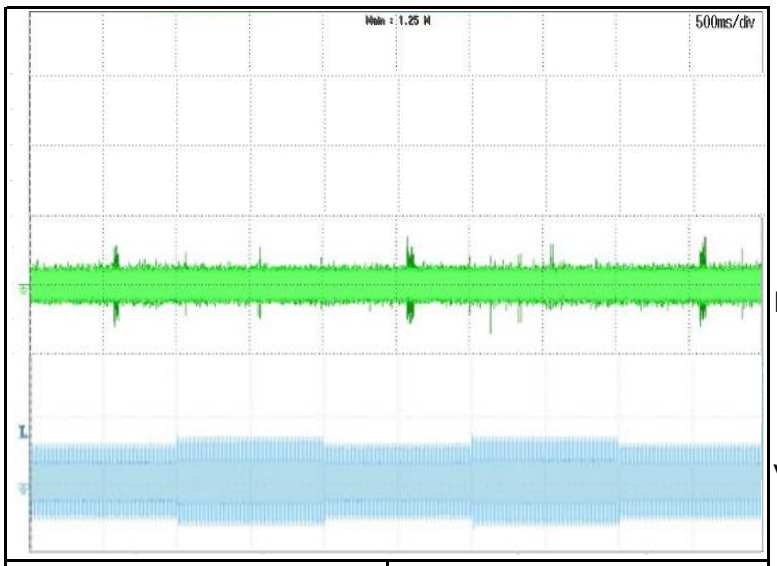
Conditions: Vout: 100%
Iout: 100%
Vin:170↔265V



Iout: 20$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500v/$_{DIV}$	

G600-8.5 3Φ400

Conditions: Vout: 100%
Iout: 100%
Vin:342↔460V



Iout: 20$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 500$^{v}/_{DIV}$	

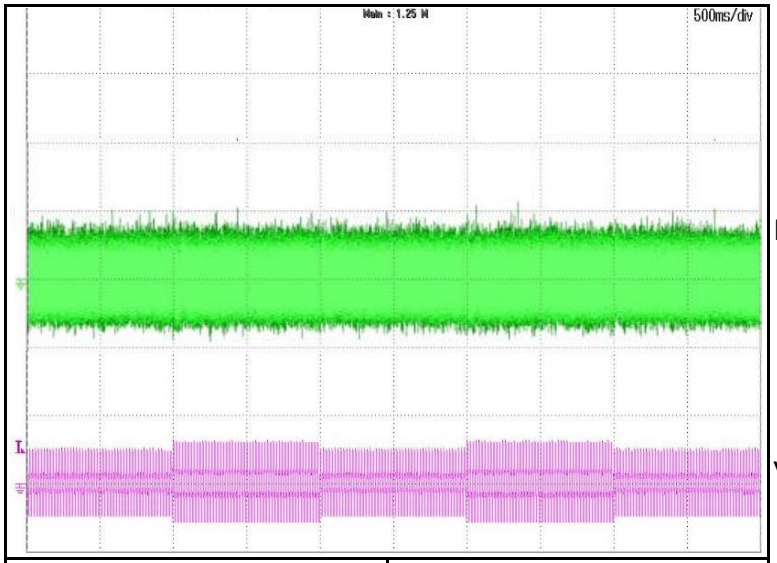
2.7 Dynamic line response characteristics

Ta = 25°C

C.C mode

G600-8.5 3Φ480

Conditions: Vout: 100%
Iout: 100%
Vin:342↔520V



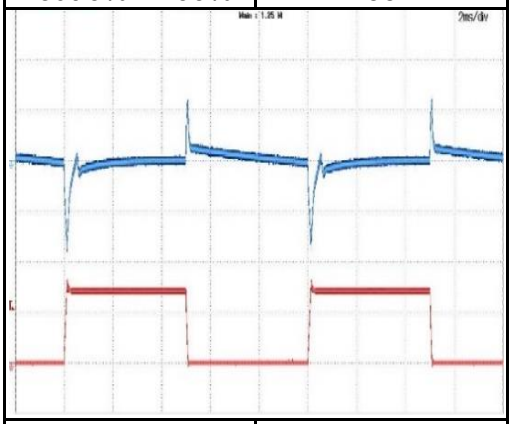
Iout: 20$^{mA}/_{DIV}$	500$^{ms}/_{DIV}$
Vin: 1000$^{V}/_{DIV}$	

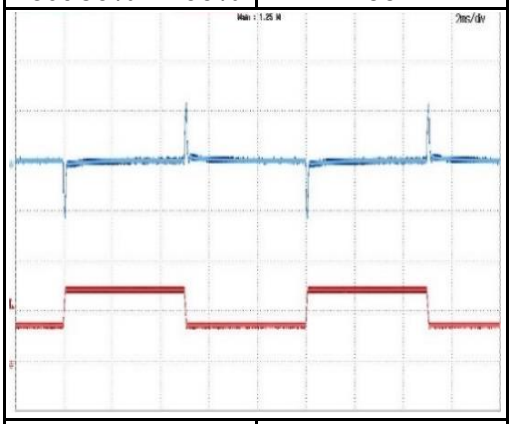
2.8 Dynamic load response characteristics
C.V mode

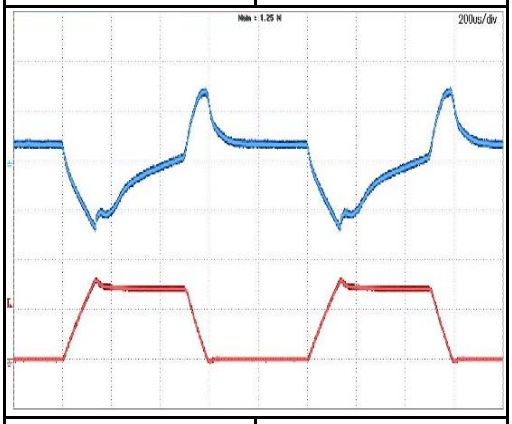
Conditions: Vin: Nominal
Vout: 100%
Ta = 25°C

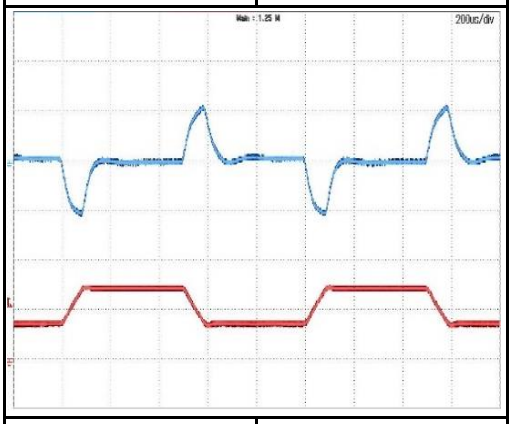
Load current: tr=tf=100us

G10-500

Iout:0%↔100%	f:100Hz
	
$1^{V}/_{DIV}$	$2^{ms}/_{DIV}$
12.30%	-18.00%

Iout:50%↔100%	f:100Hz
	
$0.5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
5.80%	5.80%

Iout:0%↔100%	f:1KHz
	
$1^{V}/_{DIV}$	$200^{us}/_{DIV}$
14.80%	-14.40%

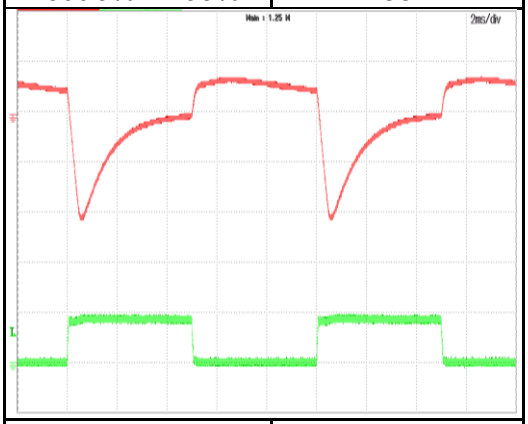
Iout:50%↔100%	f:1KHz
	
$0.5^{V}/_{DIV}$	$200^{us}/_{DIV}$
5.60%	-5.60%

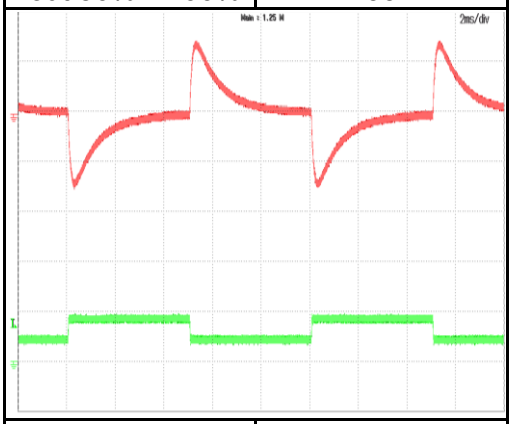
2.8 Dynamic load response characteristics
C.V mode

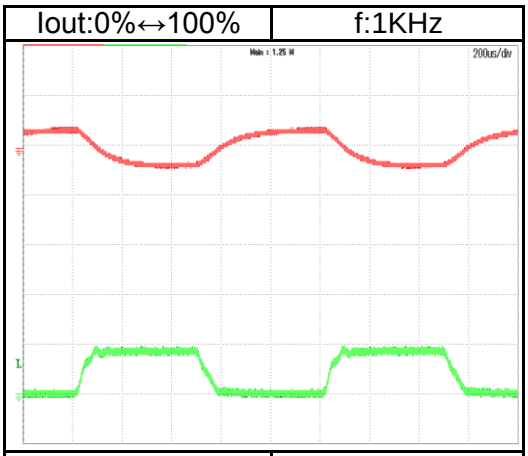
Conditions: Vin: Nominal
Vout: 100%
Ta = 25°C

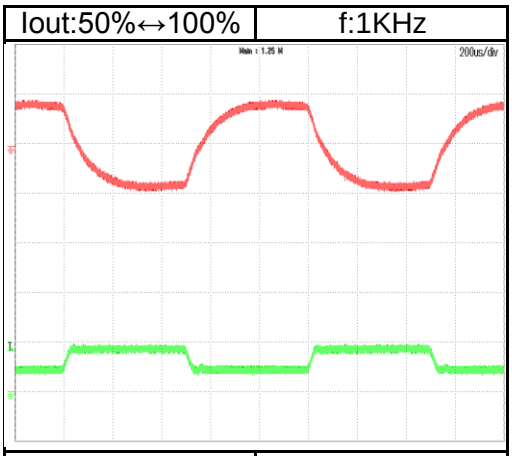
Load current: tr=tf=100us

G600-8.5

Iout:0%↔100%	f:100Hz
	
$5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.63%	-1.75%

Iout:50%↔100%	f:100Hz
	
$0.5^{V}/_{DIV}$	$2^{ms}/_{DIV}$
0.24%	-0.25%

Iout:0%↔100%	f:1KHz
	
$1^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.35%	-0.35%

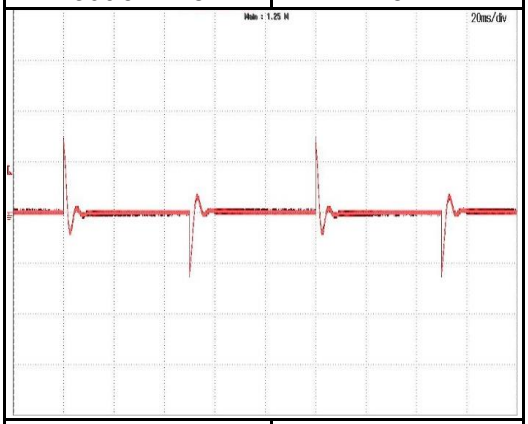
Iout:50%↔100%	f:1KHz
	
$0.5^{V}/_{DIV}$	$200^{us}/_{DIV}$
0.16%	-0.15%

2.8 Dynamic load response characteristics
C.C mode

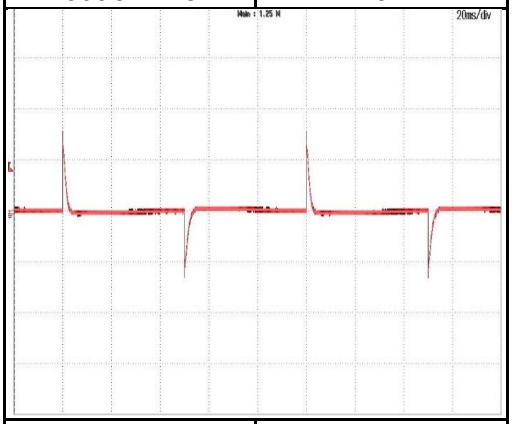
Conditions: Vin: Nominal
Ta = 25°C

G10-500

Io=500A

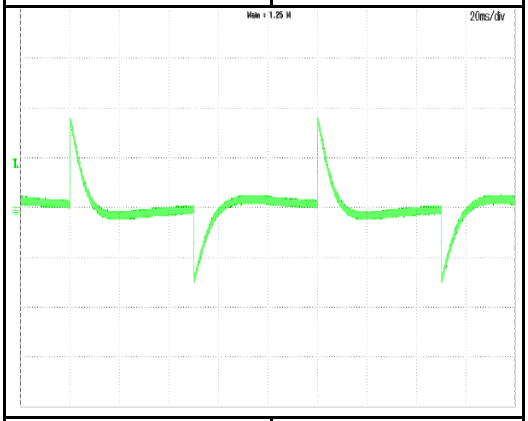
Vout:9↔7.5V	f:10Hz
	
70A/DIV	20ms/DIV
18.00%	-15.36%

Io=250A

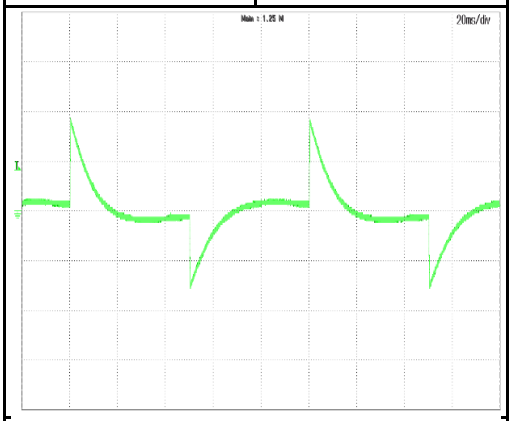
Vout:9↔7.5V	f:10Hz
	
35A/DIV	20ms/DIV
9.24%	-7.80%

G600-8.5

Io=8.5A

Vout:540↔450V	f:10Hz
	
1A/DIV	20ms/DIV
22.35%	-17.76%

Io=4.25A

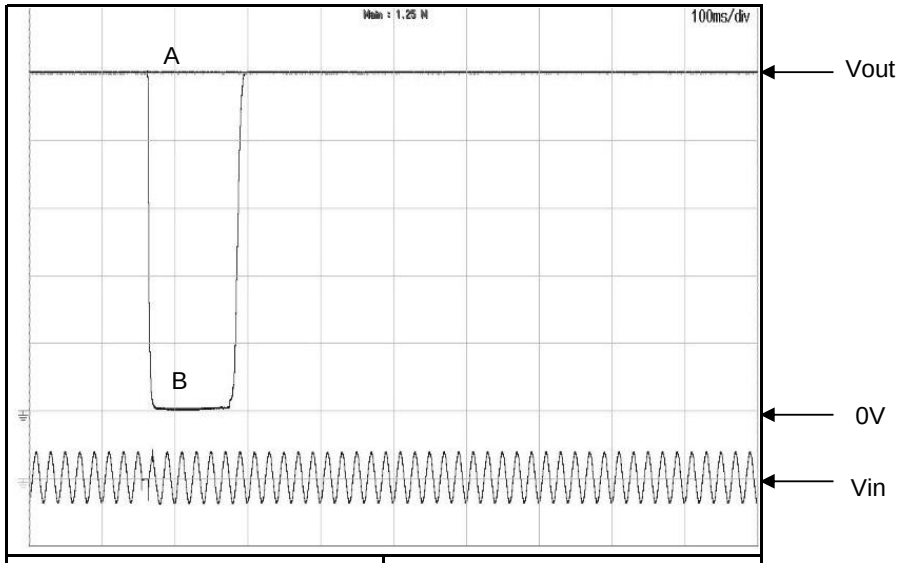
Vout:540↔450V	f:10Hz
	
1A/DIV	20ms/DIV
11.05%	-9.17%

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 3Φ200

Vin:200VAC

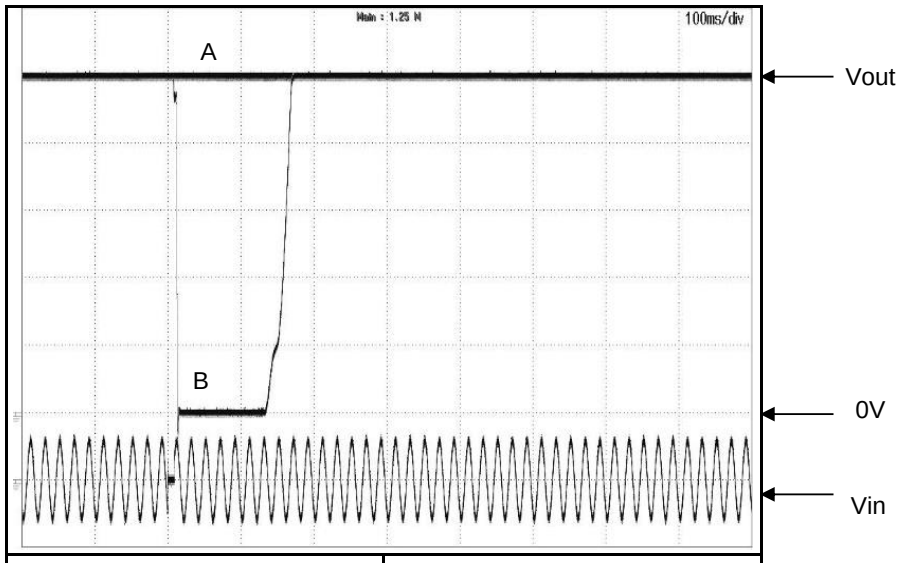


Vout: $2^{V}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $200^{V}/_{DIV}$	

Brown-out time
A - 8ms
B - 9ms

G10-500 3Φ400

Vin:400VAC



Vout: $2^{V}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

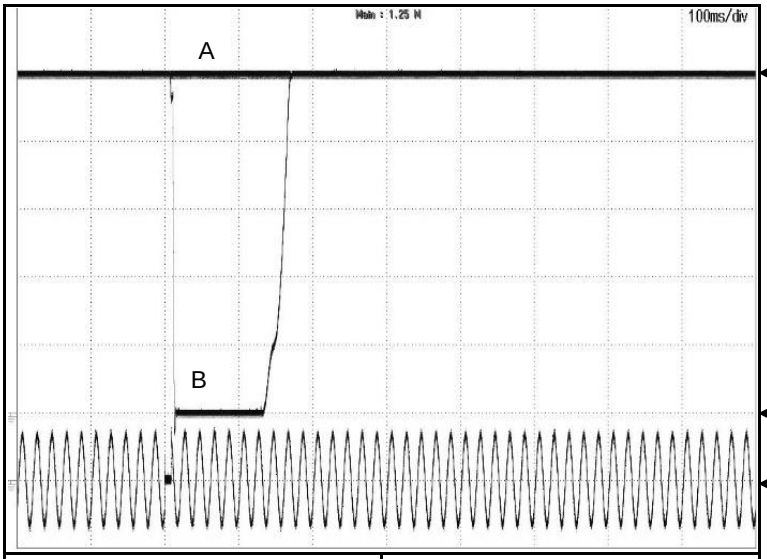
Brown-out time
A - 7ms
B - 9ms

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 3Φ480

Vin:480VAC



Vout: $2^{V}/_{DIV}$	$100^{ms}/_{DIV}$
Vin: $1000^{V}/_{DIV}$	

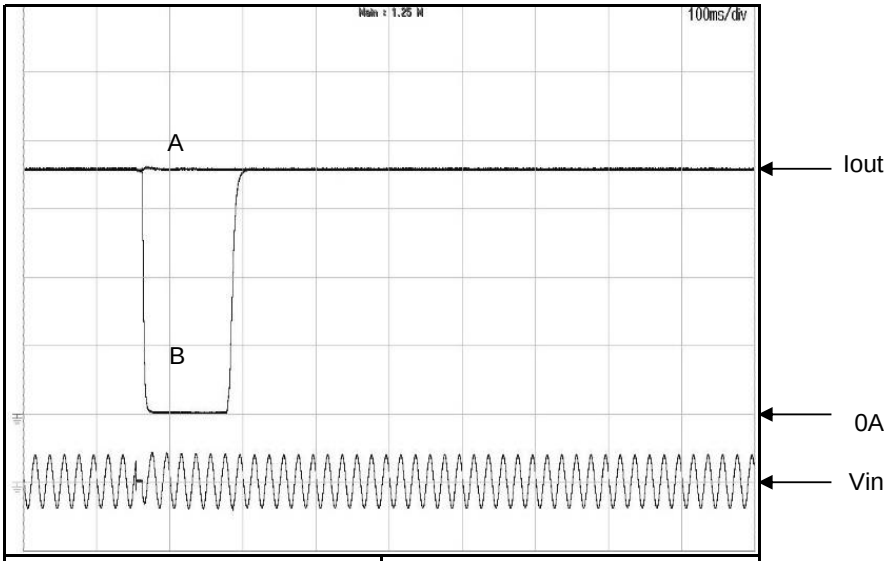
Brown-out time
A - 7ms
B - 10ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 3Φ200

Vin:200VAC

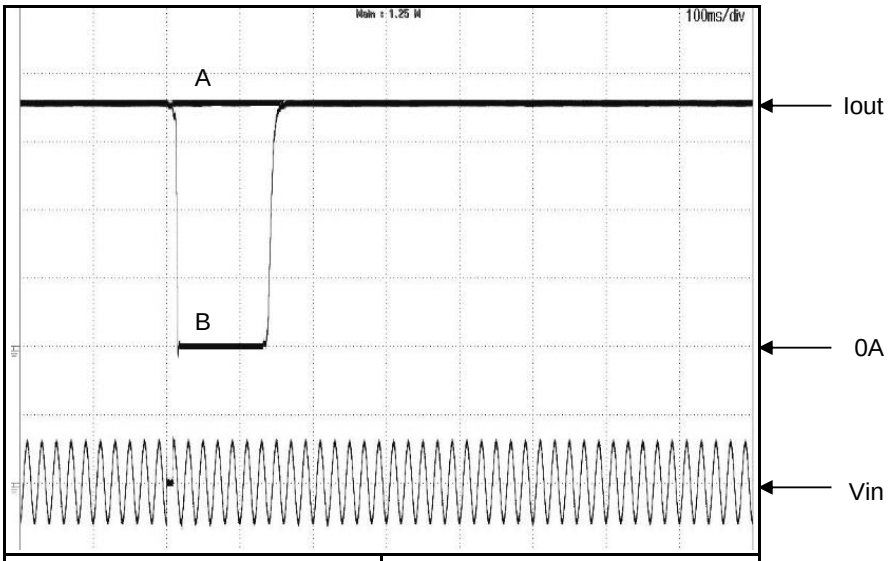


Iout: 140A/DIV	100ms/DIV
Vin: 200V/DIV	

Brown-out time
A - 8ms
B - 9ms

G10-500 3Φ400

Vin:400VAC



Iout: 140A/DIV	100ms/DIV
Vin: 1000V/DIV	

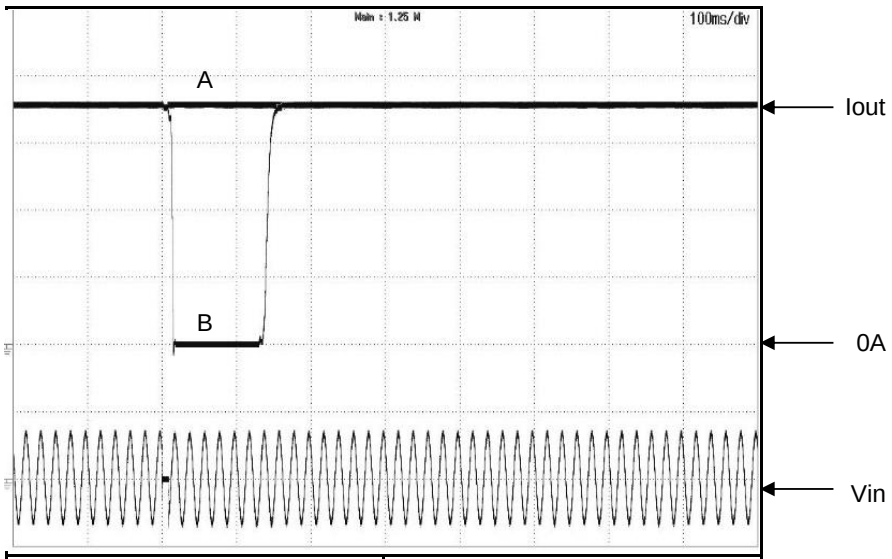
Brown-out time
A - 6ms
B - 9ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 3Φ480

Vin:480VAC



Iout: 140A/DIV	100ms/DIV
Vin: 1000V/DIV	

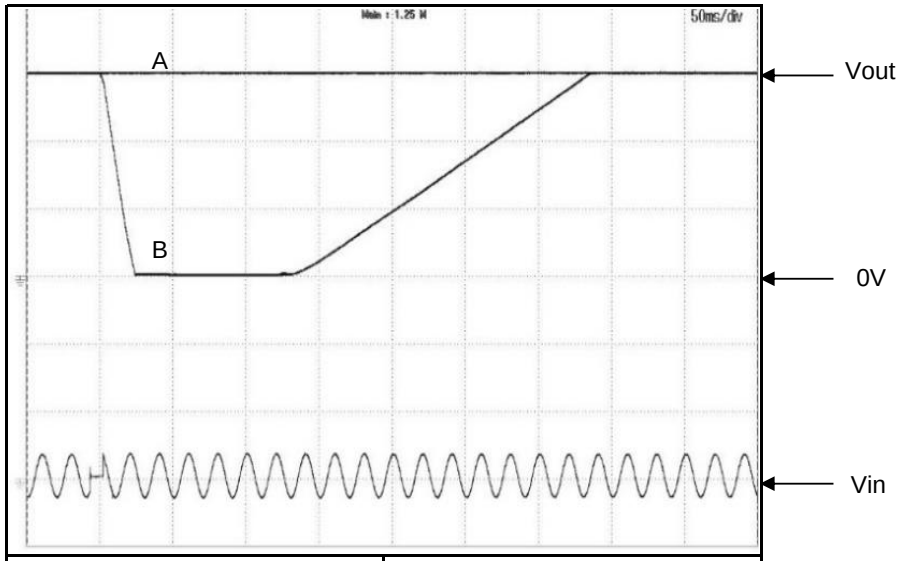
Brown-out time
A - 6ms
B - 9ms

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G600-8.5 3Φ200

Vin:200VAC

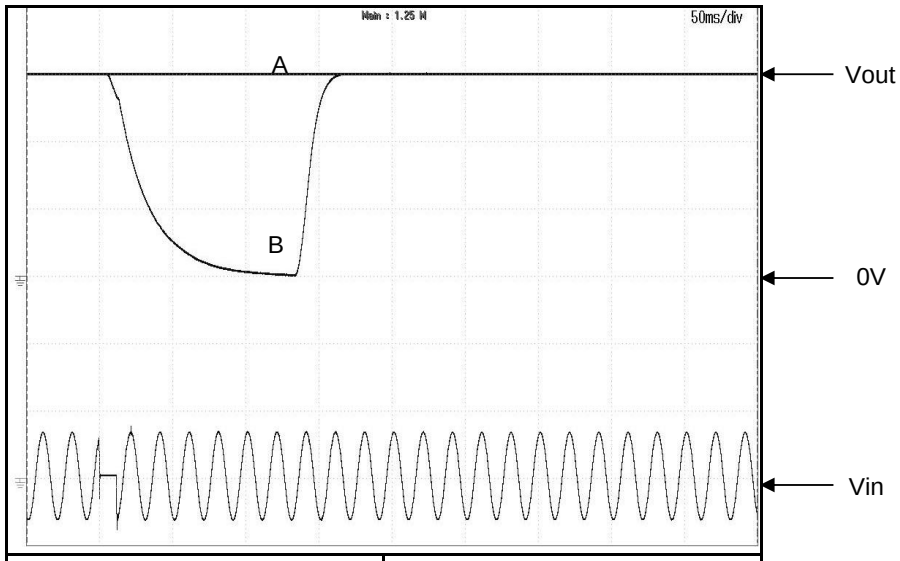


Vout: 200V/DIV	50ms/DIV
Vin: 500V/DIV	

Brown-out time
A - 6ms
B - 9ms

G600-8.5 3Φ400

Vin:400VAC



Vout: 200V/DIV	50ms/DIV
Vin: 500V/DIV	

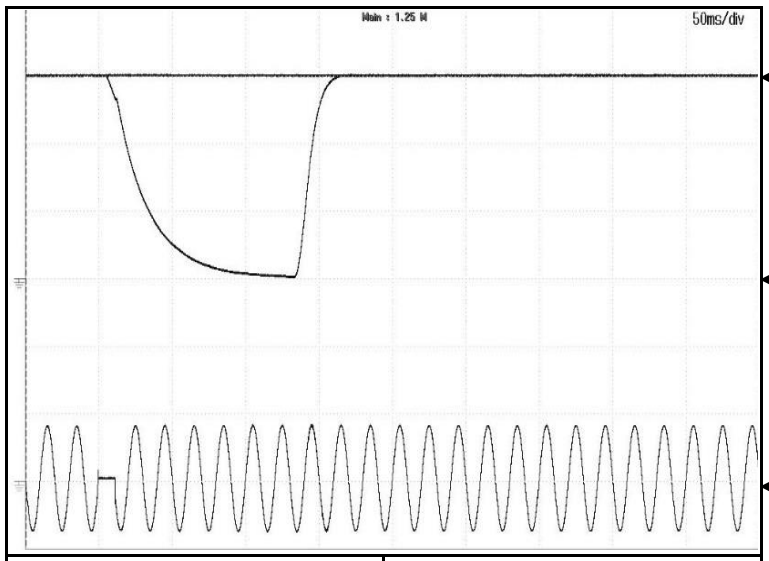
Brown-out time
A - 5.5ms
B - 12ms

2.9 Response to brown-out characteristics
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 3Φ480

Vin:480VAC



Vout: 200V/DIV	50ms/DIV
Vin: 500V/DIV	

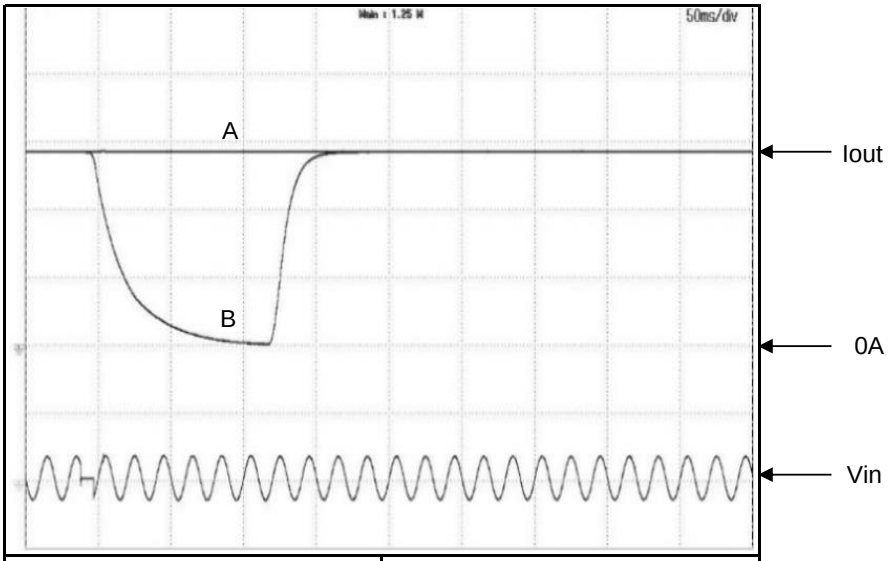
Brown-out time
A - 13ms
B - 27ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G600-8.5 3Φ200

Vin:200VAC

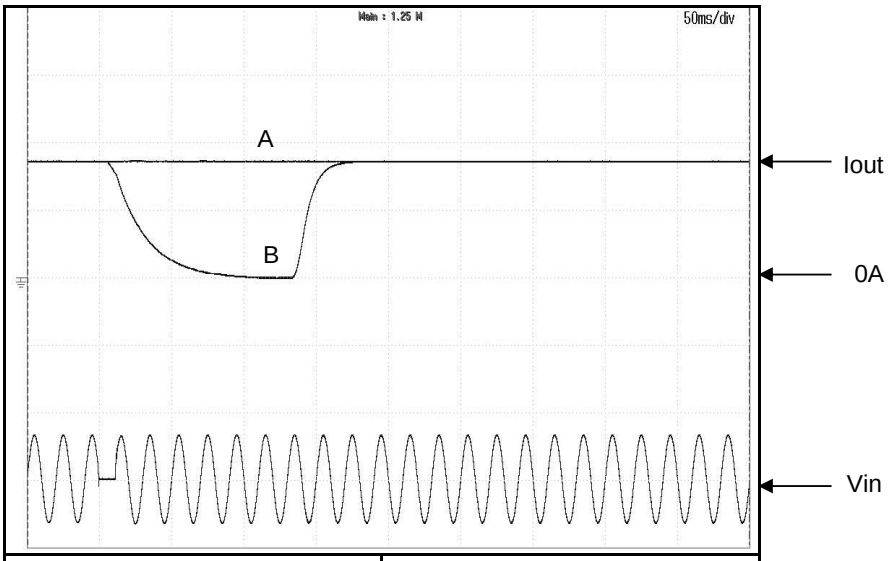


Iout: $3^{A}/_{DIV}$	$50^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

Brown-out time
A - 8ms
B - 9ms

G600-8.5 3Φ400

Vin:400VAC



Iout: $5^{A}/_{DIV}$	$50^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

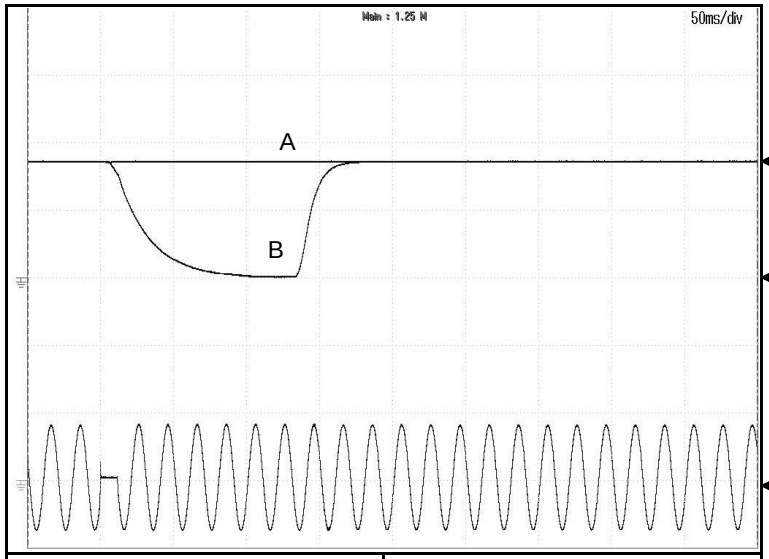
Brown-out time
A - 11ms
B - 12ms

2.9 Response to brown-out characteristics
C.C mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

G10-500 3Φ480

Vin:480VAC



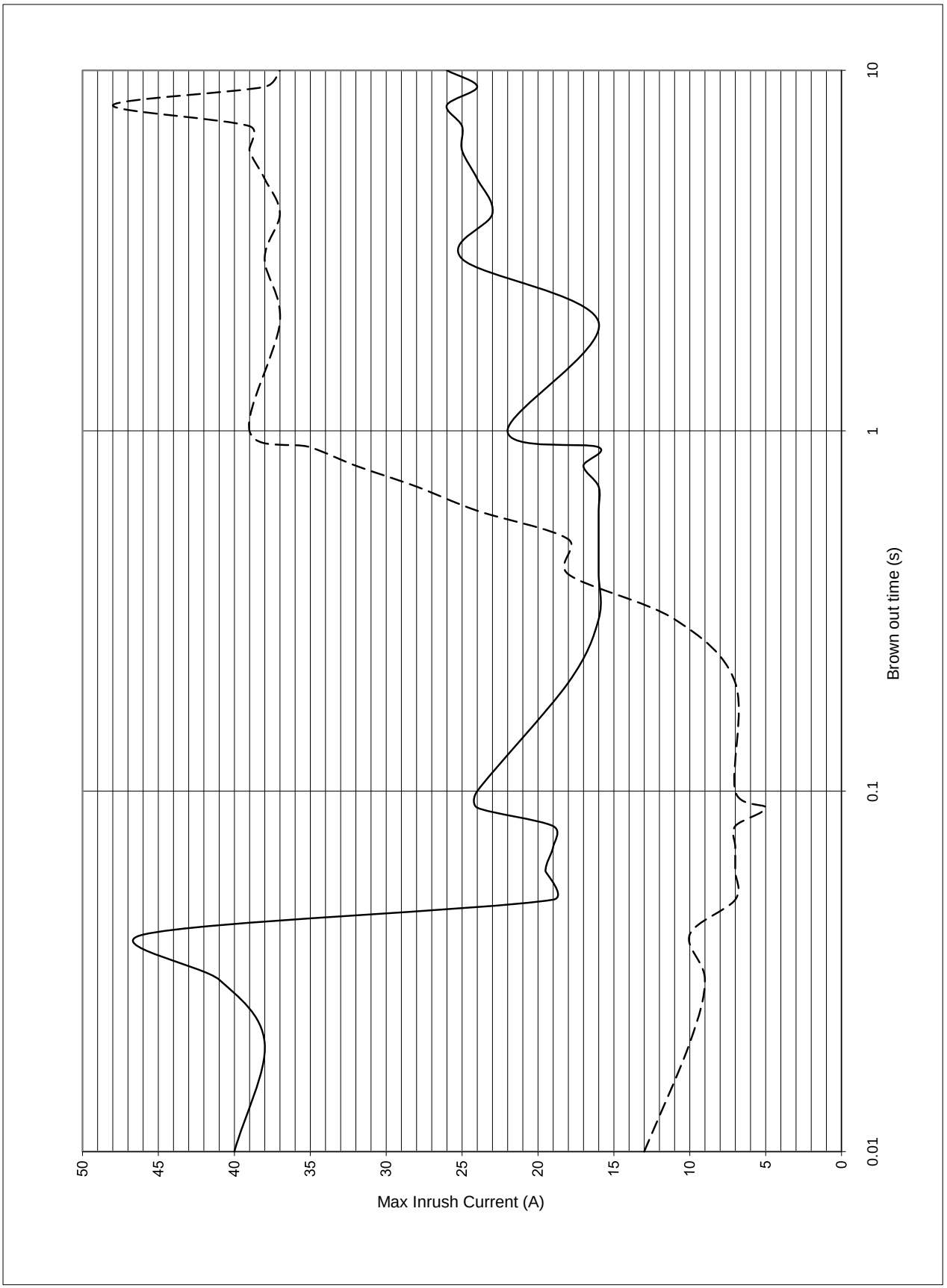
Iout: $5^{A}/_{DIV}$	$50^{ms}/_{DIV}$
Vin: $500^{V}/_{DIV}$	

Brown-out time
A - 6ms
B - 12ms

2.10 Inrush Current Characteristics

Conditions: Vout: 100%
Iout: 0% ----------
Iout: 100% ——————
Vin: 200VAC
Ta = 25°C

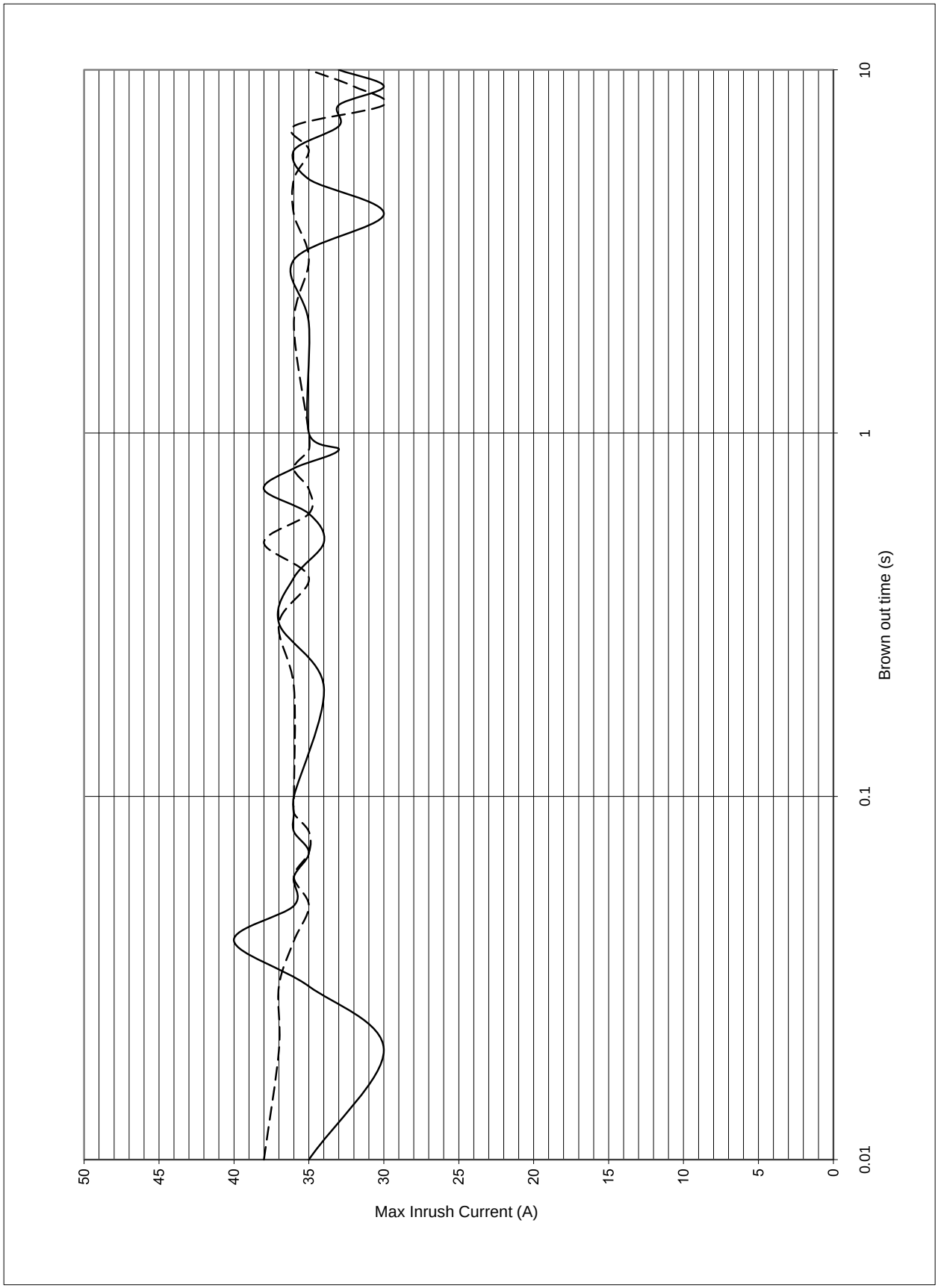
3Φ200 Input



2.10 Inrush Current Characteristics

Conditions: Vout: 100%
Iout: 0% ----------
Iout: 100% ——————
Vin: 400VAC
Ta = 25°C

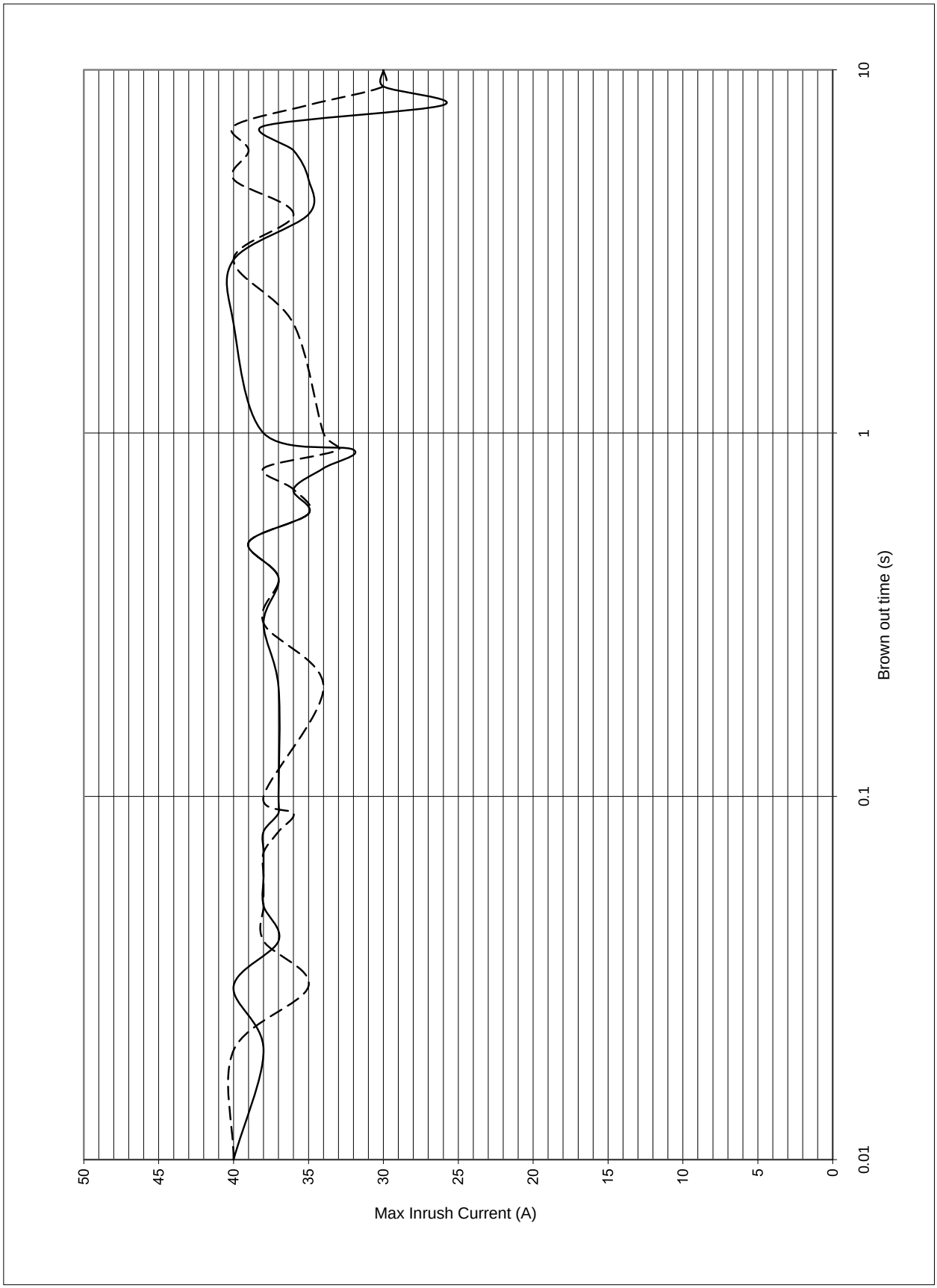
3Φ400 Input



2.10 Inrush Current Characteristics

Conditions: Vout: 100%
Iout: 0% ----------
Iout: 100% ——————
Vin: 480VAC
Ta = 25°C

3Φ480 Input



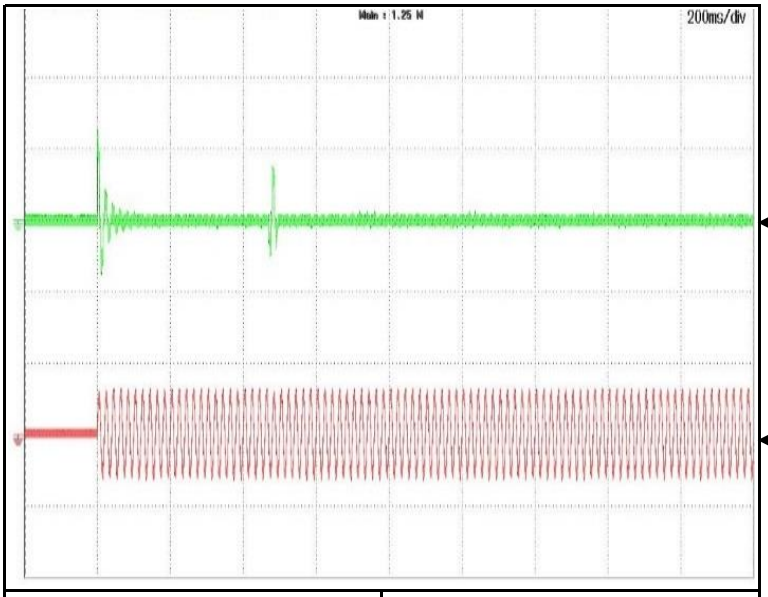
2.11 Inrush current waveform

Conditions: Vin: 200V
Vout: 100%
Iout: 100%
Ta = 25°C

3Φ200 Input

Switch on phase angle of input AC voltage

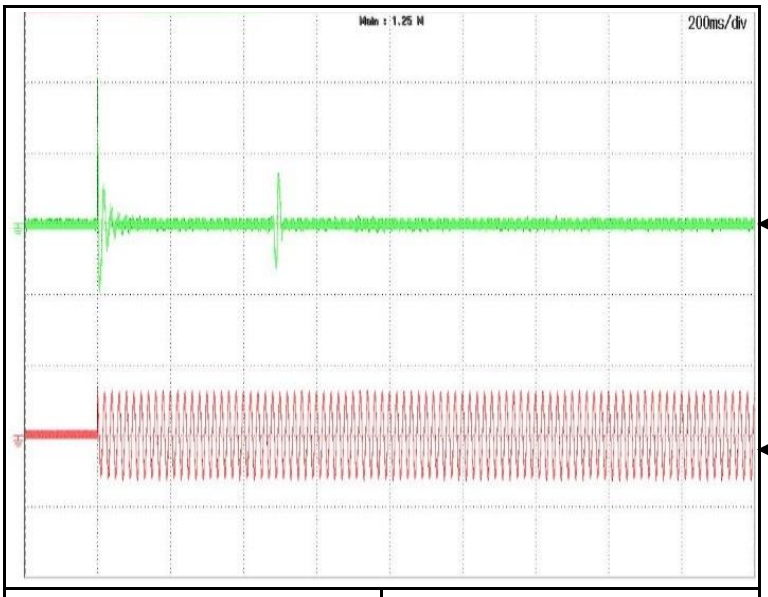
Φ=0°



$20^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:500v/_{DIV}$	

Switch on phase angle of input AC voltage

Φ=90°



$20^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:500v/_{DIV}$	

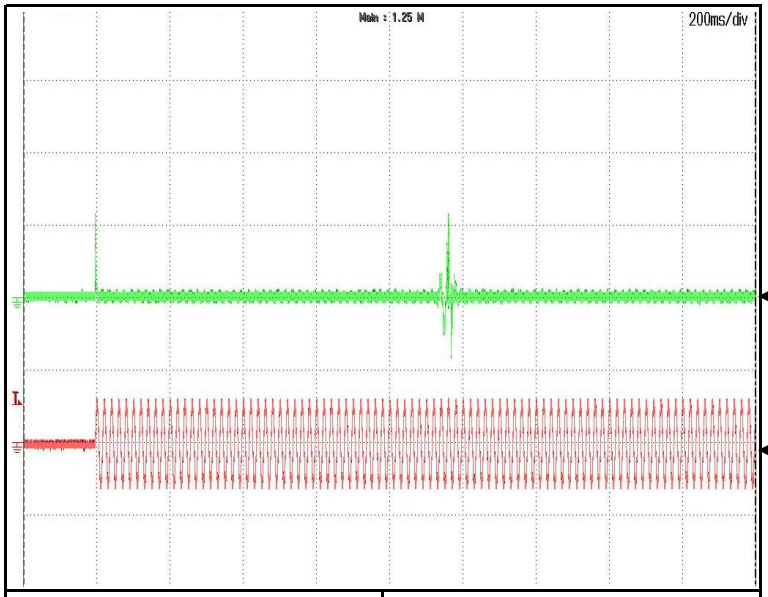
2.11 Inrush current waveform

Conditions: Vin: 400V
Vout: 100%
Iout: 100%
Ta = 25°C

3Φ400 Input

Switch on phase angle of input AC voltage

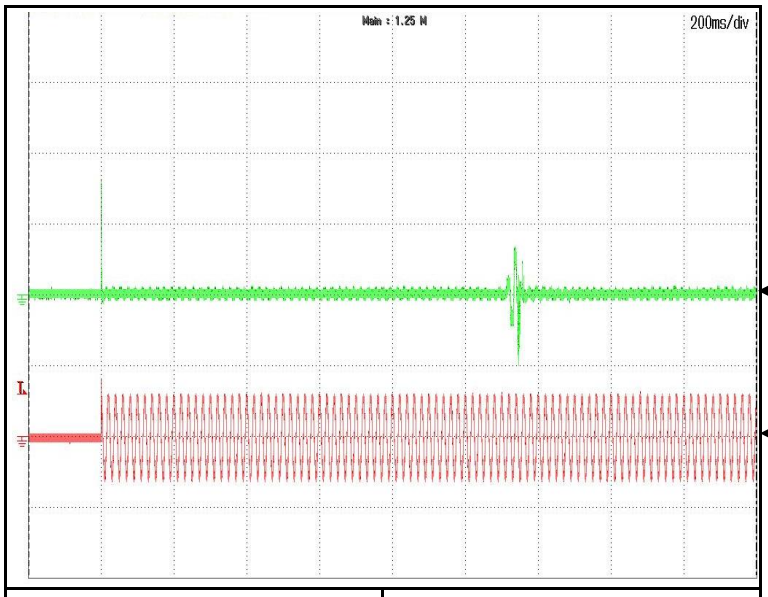
Φ=0°



$20^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:1000v/_{DIV}$	

Switch on phase angle of input AC voltage

Φ=90°



$20^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:1000v/_{DIV}$	

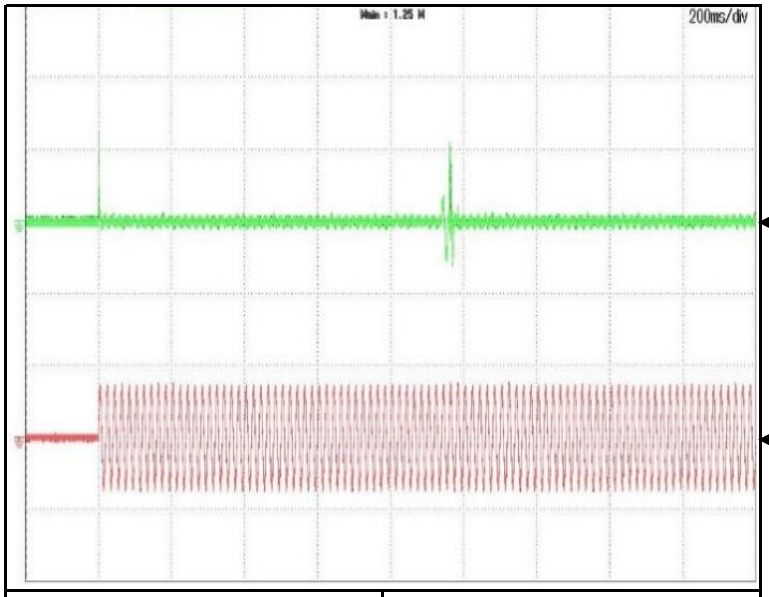
2.11 Inrush current waveform

Conditions: Vin: 480V
Vout: 100%
Iout: 100%
Ta = 25°C

3Φ480 Input

Switch on phase angle of input AC voltage

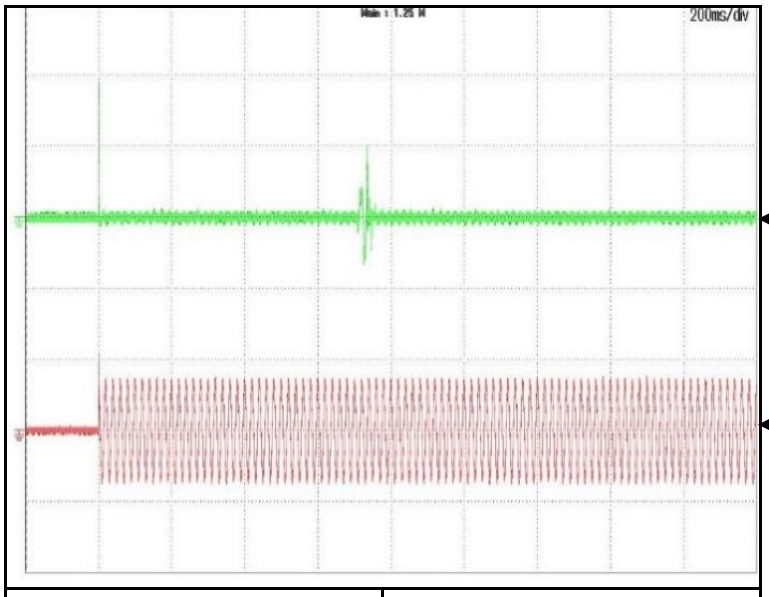
Φ=0°



$20^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:1000v/_{DIV}$	

Switch on phase angle of input AC voltage

Φ=90°

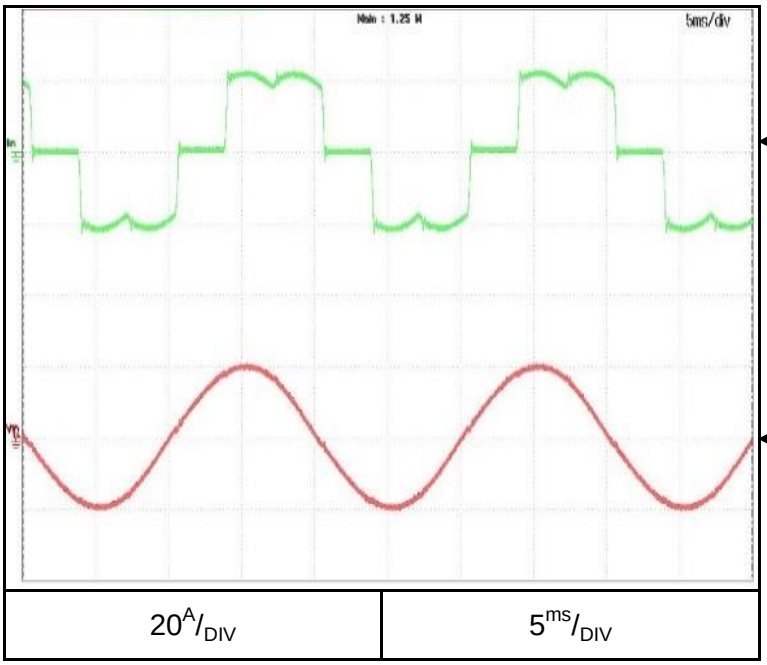


$20^{A}/_{DIV}$	$200^{ms}/_{DIV}$
$Vin:1000v/_{DIV}$	

2.12 Input current waveform

Conditions: Vin: 200VAC
Vout: 100%
Iout: 100%
Ta = 25°C

3Φ200 Input

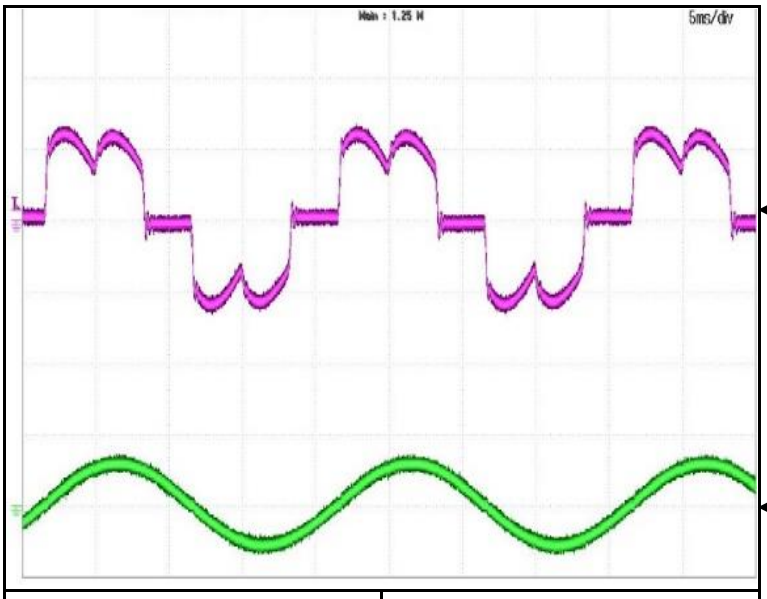


$20^{A}/_{DIV}$	$5^{ms}/_{DIV}$

2.12 Input current waveform

Conditions: Vin: 400VAC
Vout: 100%
Iout: 100%
Ta = 25°C

3Φ400 Input

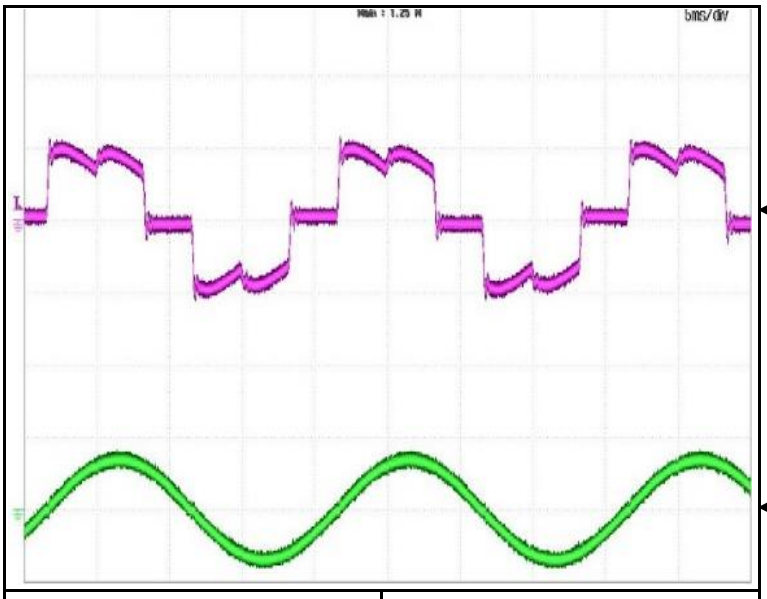


$10^{A}/_{DIV}$	$5^{ms}/_{DIV}$

2.12 Input current waveform

Conditions: Vin: 480VAC
Vout: 100%
Iout: 100%
Ta = 25°C

3Φ480 Input

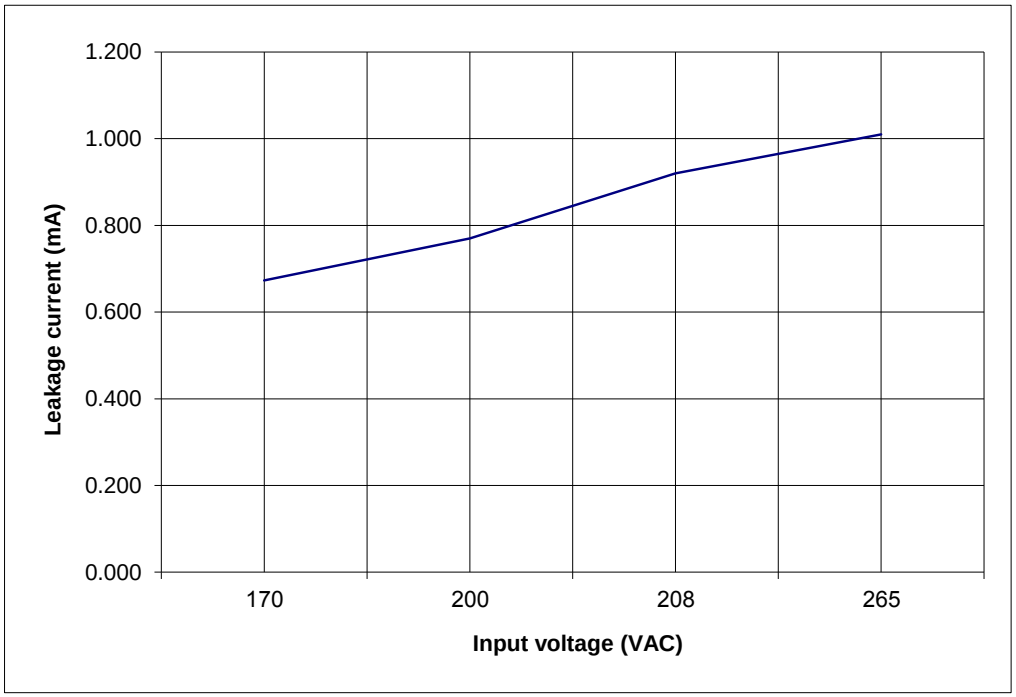


$10^{A}/_{DIV}$	$5^{ms}/_{DIV}$

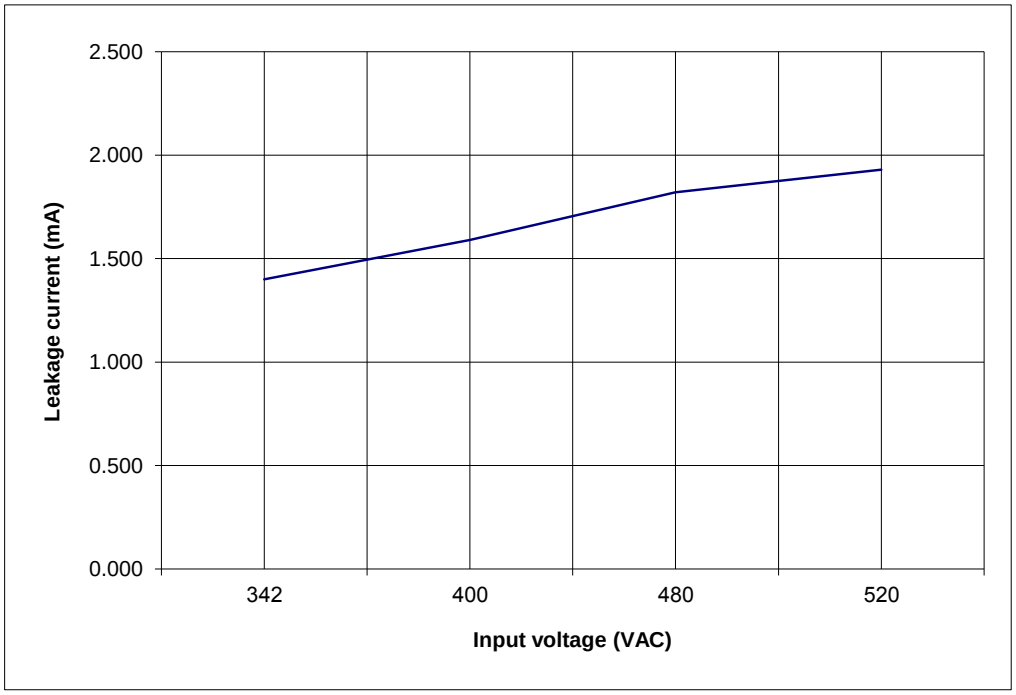
2.13 Leakage current characteristics

Conditions: Ta = 25°C
f=60Hz

3Φ 170-265V (*)



3Φ 342-520V (*)



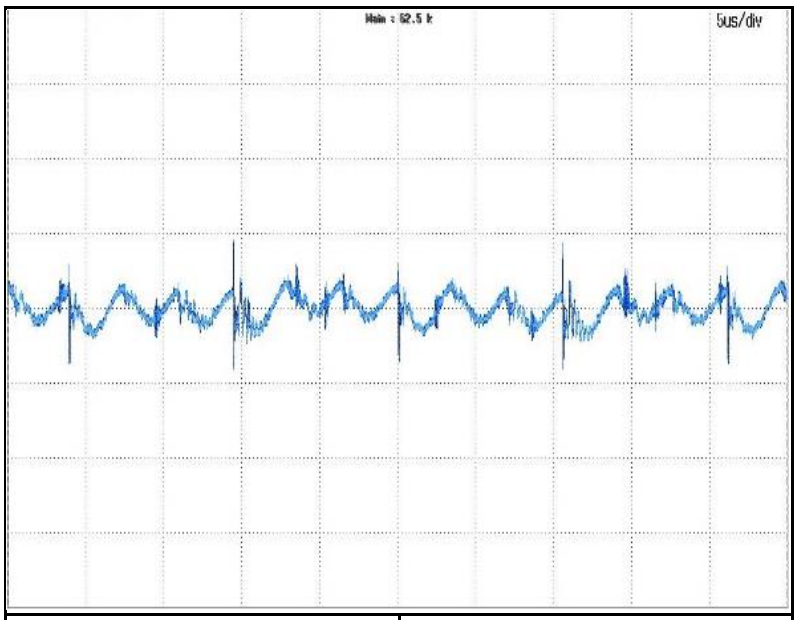
(*) TN & TT power system

2.14 Output ripple & noise waveform
C.V mode

Conditions: Vout: 100%
Iout: 100%
Ta = 25°C

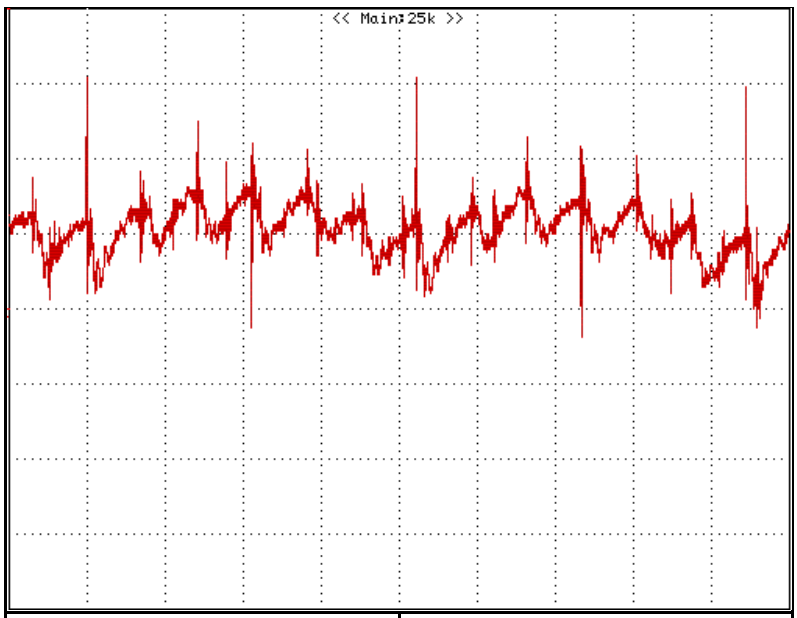
Normal Mode

G10-500



20mV/DIV	5us/DIV

G600-8.5



20mV/DIV	5us/DIV