



Size: 7.15in x 4.00in x 2.92in

FEATURES

- 92% Efficient at Full Load
- 270 Watts Output Power
- No Internal Fan
- IEC-320-C14 AC Inlet
- Single Outputs from 12V to 48VDC Quasi Regulated (See Note 1)
- Active Power Factor Correction
- Short Circuit, Over Current, and Over Temp. Protection
- Universal Input Voltage Range: 100~240VAC
- 100% Burn-in
- Low Total Harmonic Distortion (THD)
- 7.15" x 4.00" x 2.92" Aluminum/Plastic Case
- Fixed Switching Frequency
- ISO9001 Compliant
- EN60950 pending
- EN55022 Class B Emissions
- EN61000-4-5 Surge Immunity
- EN61000-3-2 Harmonic Currents
- Patent Pending

DESCRIPTION

The FLEX series of AC/DC power supplies provides 270 Watts of output power in a 7.15" x 4.00" x 2.92" desktop style package with no internal fan. This series consists of single output models ranging from 12VDC to 48VDC with a universal input voltage range of 100-240VAC and an IEC-320-C14 AC inlet. Some features include active PFC, fixed switching frequency, and low THD. These supplies are protected against over current, short circuit, and over temperature conditions. All models have been 100% burn-in tested.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current	Ripple & Noise	Output Power
FLEX12S-270	115/230VAC (100~240VAC)	12VDC	22.5A	1000mVp-p Max.	270W
FLEX15S-270		15VDC	18A		270W
FLEX18S-270		18VDC	15A		270W
FLEX24S-270		24VDC	11.25A		270W
FLEX28S-270		28VDC	9.64A		270W
FLEX48S-270		48VDC	5.625A		270W

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Operating Voltage Range		100	115/220	240	VAC
Frequency			60		Hz
No Load Input Power (Graph 2)	V _{in} =115VAC		5	7	W
Power Factor	V _{in} =115VAC; I _o =11A	0.96	0.98		
Inrush Current	V _{in} =135VAC; Cold Start		47		A
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Line Regulation (Graph 4)	$= \frac{V_o(\text{Low Line}) - V_o(\text{High Line})}{V_o(\text{Low Line})} _{I_o = 100\% \text{ Load}}$		0.05	0.2	%
Load Regulation (Graph 3) (Dependent on Cable Length)	$= \frac{V_o(\text{Full Load}) - V_o(\text{Min. Load})}{V_o(\text{Min. Load})} _{V_{in} = \text{Nominal Line}}$			8.5	%
Temperature Drift (Graph 5)	$= \frac{V_o(25^\circ\text{C}) - V_o(-40^\circ\text{C or } +85^\circ\text{C})}{V_o(25^\circ\text{C})} _{I_o = 50\% \text{ Load}}$		0.01	0.02	%/°C
Ripple-60Hz & Switching	20MHz BW		700	1000	mV _{pk-pk}
Current	Average/Peak Current	0		I _{out}	A _{peak}
Current Limit	Total Power Limited	110		140	%
Over Voltage Limit		115		125	%

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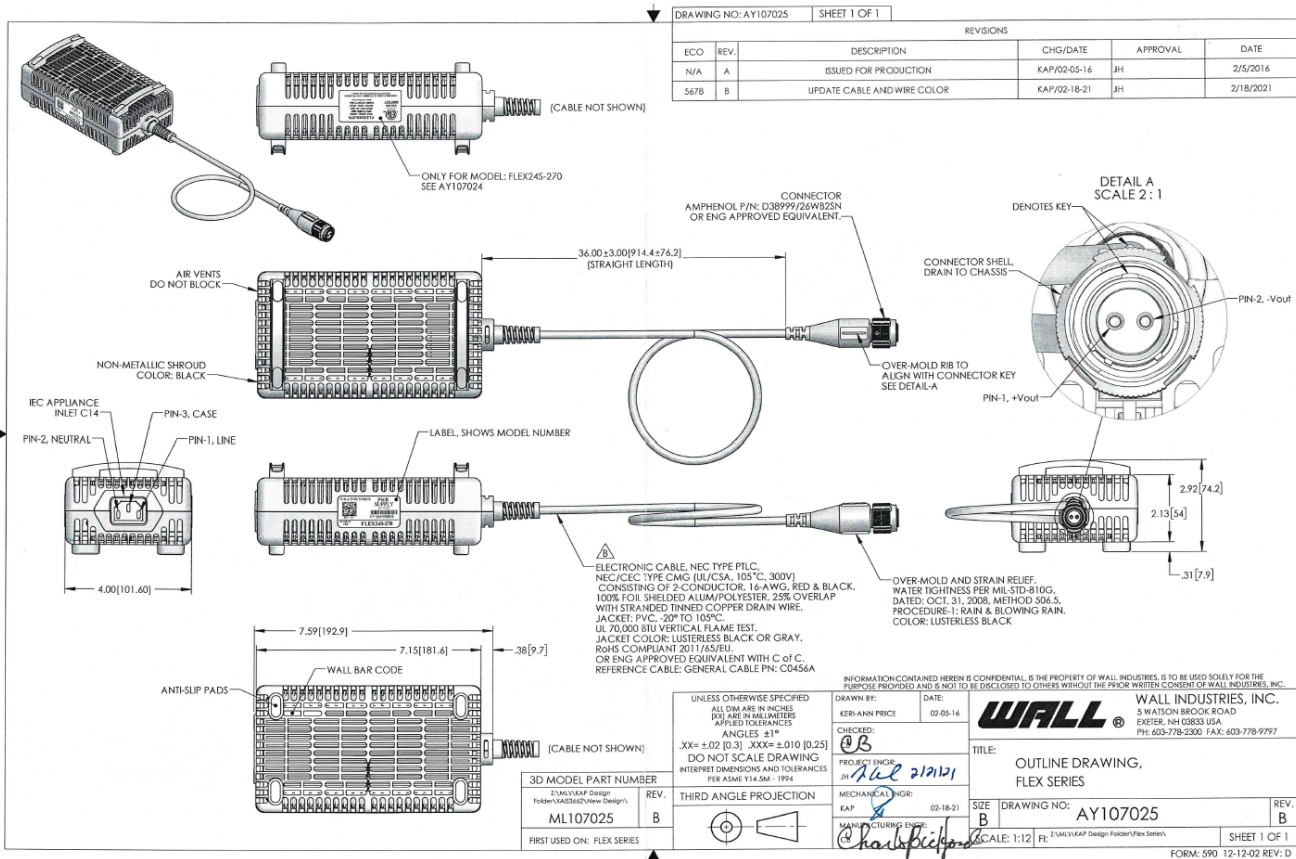
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
DYNAMIC RESPONSE					
Load Step ΔV (Photo 3) (Transient Absorbed by Cable Loss)	25% to 75% I_o , $di/dt=0.25A/\mu S$		0.6	1.0	V
Recovery Time (Photo 3)	Recovery to within 1% V_o		0.5	1	ms
Turn On Delay (Photo 5)			700	1000	ms
Turn On Overshoot (Photo 6)	$V_{in} = 110 V_{ac}; I_o = 11A$			0	V
Hold Up Time (Photo 4)	$V_{in} = 110 V_{ac}; I_o = 11A;$ $V_{o(0ms)} - V_{o(10ms)} = 4 V$	10			mS
PROTECTION					
Short Circuit Protection				Yes	
Over Current Protection				Yes	
Over Temperature Protection				Yes	
ENVIRONMENTAL SPECIFICATIONS					
Ambient Operating Temperature		-30	25	50	°C
Maximum Case Temperature		-30	25	80	°C
Storage Temperature		-40	-	85	°C
MTBF	MIL-HDBK-217F Notice 2; $T_{amb}=25^{\circ}C; I_o = 11 A$	162,059			
GENERAL SPECIFICATIONS					
Isolation	Input - Output	4242	-	-	VDC
	Input - Chassis	2121	-	-	VDC
	Output - Chassis	1000	-	-	VDC
Leakage Current	$V_{in} = 135 V_{ac}$	-	335	-	μA
MECHANICAL SPECIFICATIONS					
Shroud Material		ABS, ANC100FR, HI, UL94VO			
Weight		2.66 lbs (1.2kg)			
AC Inlet		IEC-320-C14			
SAFETY & EMC					
Safety Approvals		EN60950 for 24V output, all others pending			
EMI		EN55022 Class B			
Surge Immunity		EN61000-4-5			
Harmonic Currents		EN61000-3-2			

NOTES

(1) Add "R" suffix for fully regulated version. This will decrease efficiency by about 2%.
**Due to advances in technology, specifications subject to change without notice.*

MECHANICAL DRAWINGS

Connector Pins	Description	Wire Gauge (Min. Recommended)
IEC Pin-1	Line	18 AWG
IEC Pin-3	Case (Chassis)	18 AWG
IEC Pin-2	Neutral	18 AWG
(GND) Pins-7, 8, 10	-Vout	3x18 AWG
(+Vout) Pins-4, 5, 9	+Vout	3x18 AWG



DESIGN CONSIDERATIONS

Over Current Protection

The converter is protected from short circuit and over current conditions. Upon sensing a short circuit or an over current condition the converter output will begin to 'foldback'. Once the output has dropped to near zero volts, the output will shut off and after a short delay try to restart. This is called a 'hiccup' mode and this mode will persist until the short circuit or over current condition is removed.

Over Temperature Protection

The converter is protected from over temperature conditions

Fusing

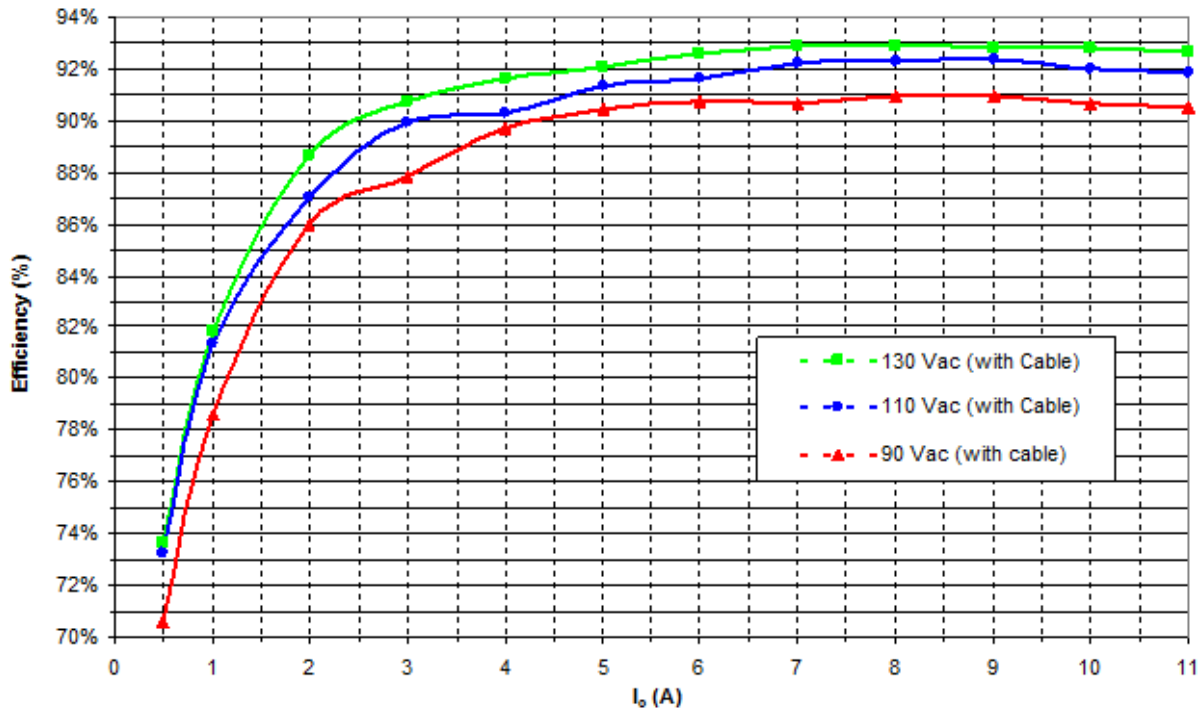
The input to the converter is protected with a UL R/C fuse. This fuse is NOT user replaceable.

Emissions Accordance (pending)

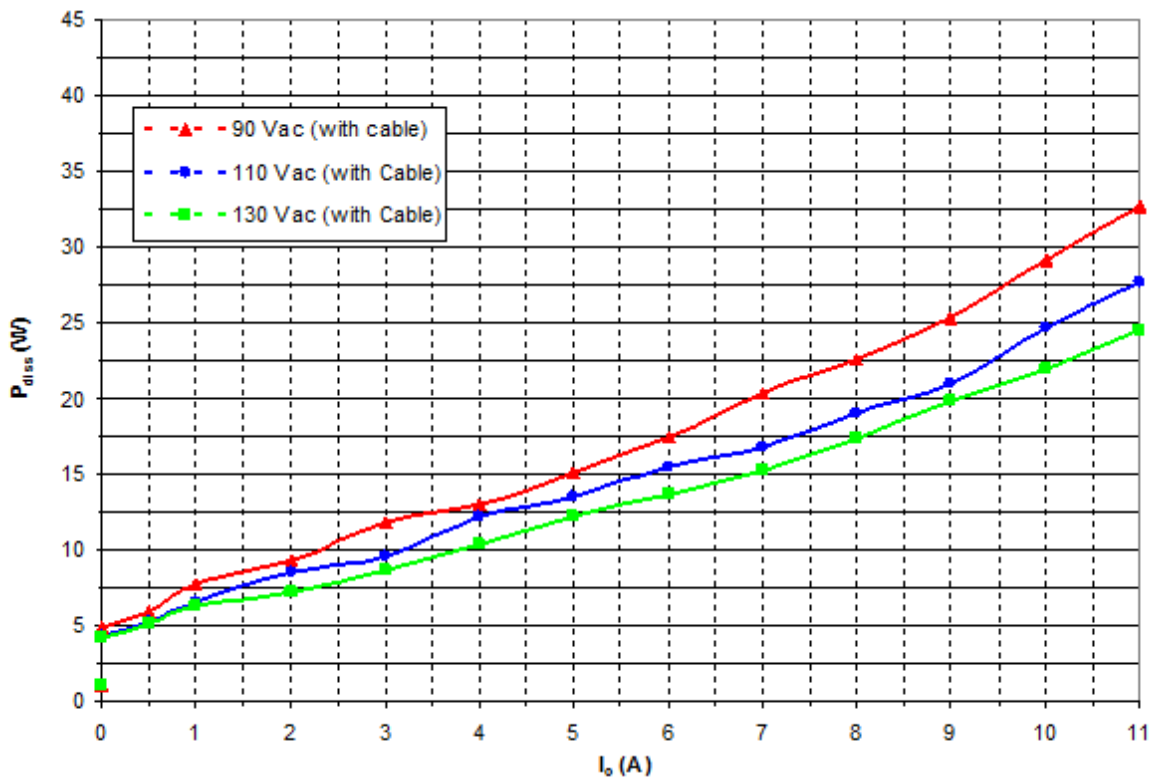
- CFR Title 47 FCC Part 15 Subpart B, Class A
- ICES-003, Issue 4, Class A

GRAPHS

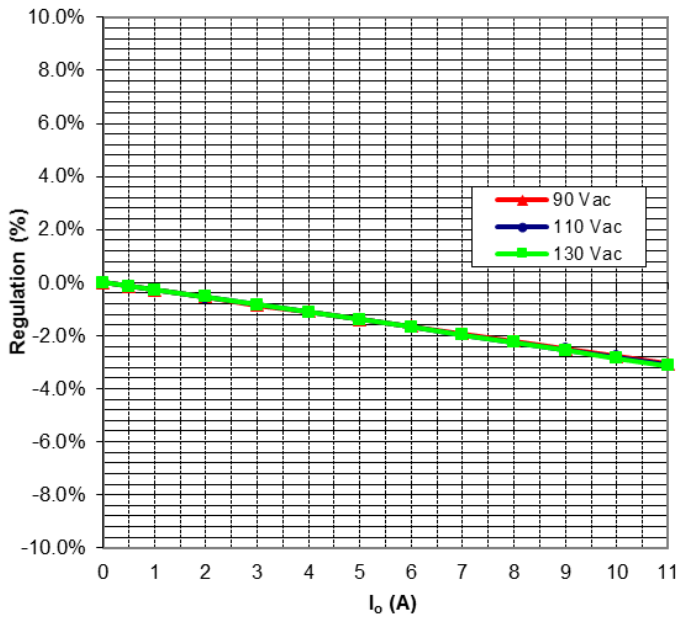
Graph 1: Efficiency vs. Output Current



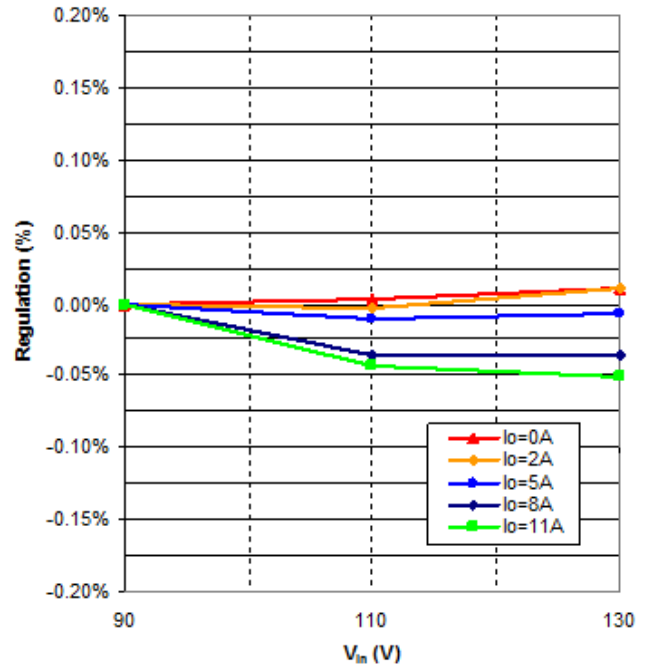
Graph 2: Power Dissipation vs. Output Current



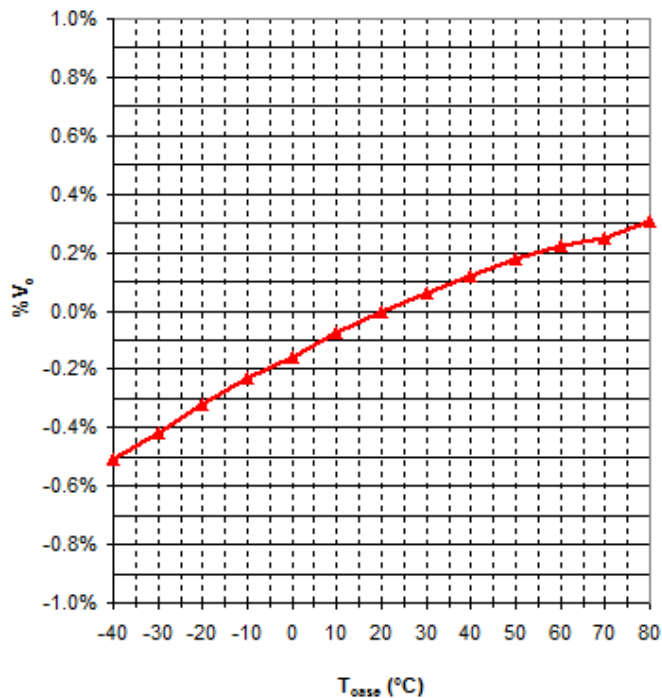
Graph 3: Load Regulation (Dependent on Cable Length)



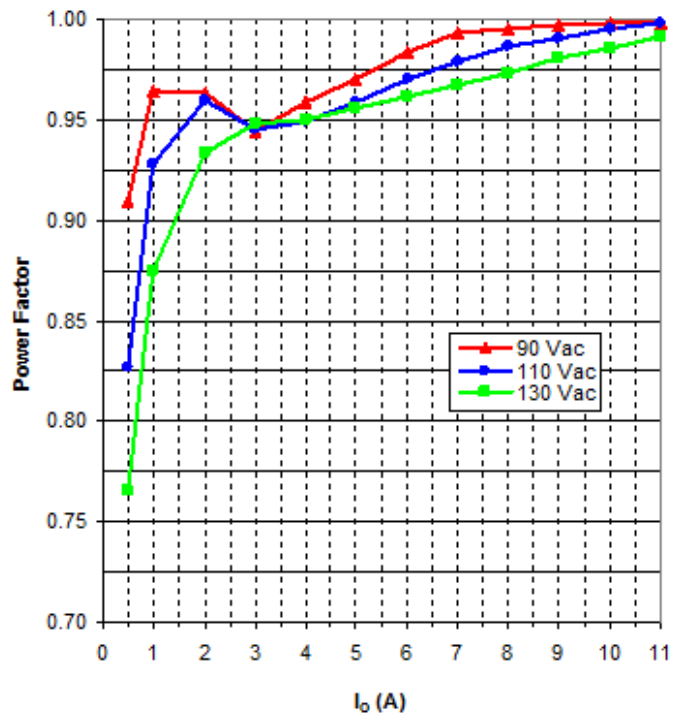
Graph 4: Line Regulation



Graph 5: Output Temperature Drift (Vin=115Vac; Io=11A)



Graph 6: Power Factor vs. Output Current



PHOTOS

Photo 1: 60 Hz Output Ripple
Vin=115VAC, Iout= 11.0A

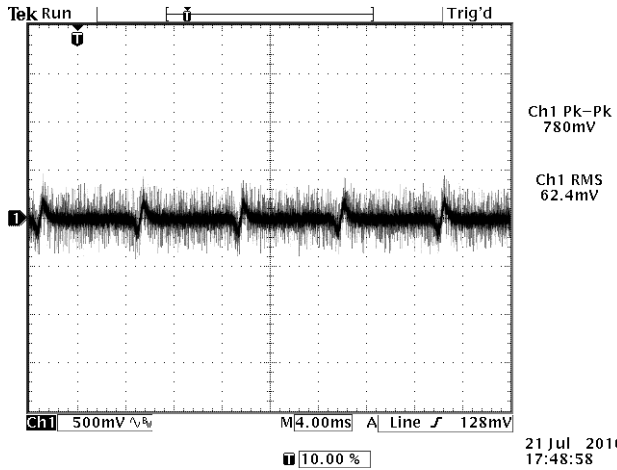


Photo 2: Switching Frequency Noise
Vin=115VAC, Iout=11.0A

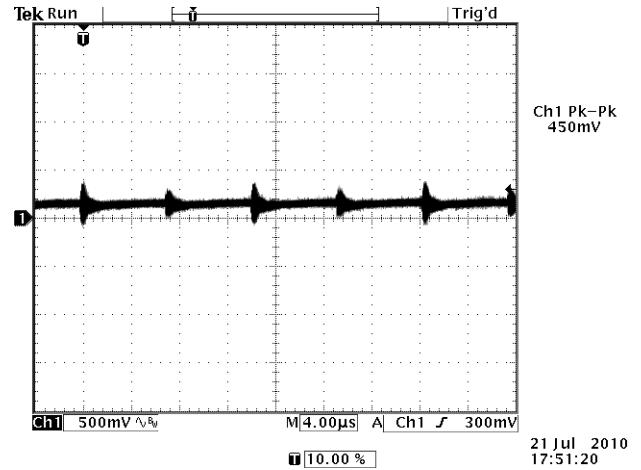


Photo 3: Transient Response-0.25A/µS
Vin=115VAC, Iout=3.75 to 8.25A (25% to 75%)

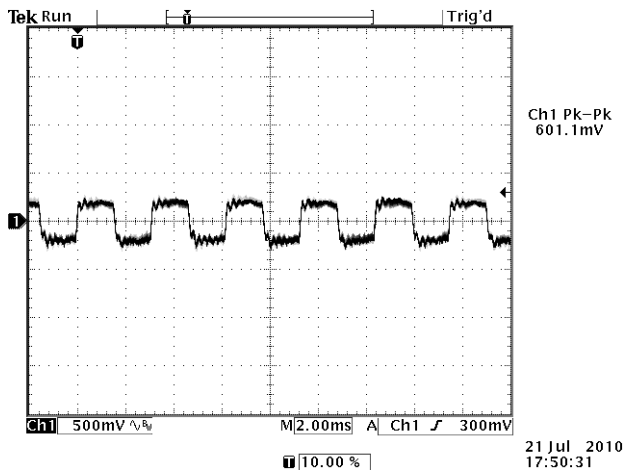


Photo 4: Holdup Time
Vin= 90VAC, Iout=11.0A

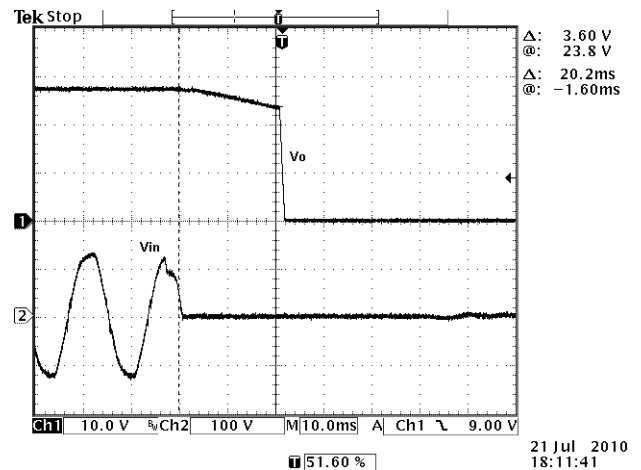


Photo 5: Turn On Delay
Vin=115VAC, Iout=11.0A

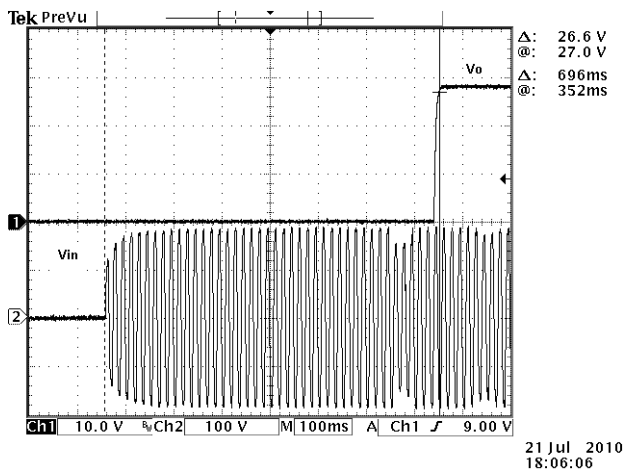
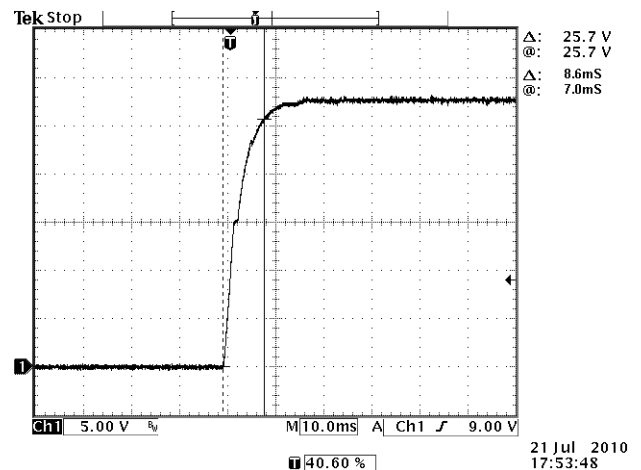


Photo 6: Turn On
Vin=115VAC, Iout=11.0A



COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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