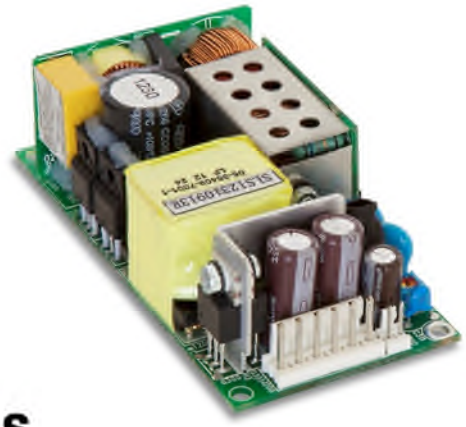
CINT1150

150W Single Output
Industrial Series



Features

- 2” x 4” x 1.3” Package
- For 1U Applications
- 150W w/air, 100W convection cooled
- Universal Input 90-264 VAC
- Power Fail/Output Good Signal
- Approved to CSA/EN/IEC/UL60950, 2nd Edition
- 3 Year Warranty
- RoHS Compliant

Description

The CINT1150 family is the latest offering in high density single output open-frame AC/DC power supplies. Approved to EN/IEC/UL60950-1, 2nd edition, the CINT1150 family is ideal for lighting, industrial printers, gaming equipment, and many other applications where power density and cost are critical. The CINT1150 operates at universal input range of 90 to 264Vac and wide temperature range -10°C to +70°C, delivering full rated output power up to +50°C. In addition, these models feature Power Fail and DC OK signals.

Model Selection

Model Number	Volts	Output Current w/200LFM air	Output Current Convection*	Ripple & Noise**	Total Regulation	OVP Threshold***
CINT1150A1206K01	12V	12.5A	8.33A	0.5%RMS, 1.2% pk-pk	±5%	14.0 ± 1.1V
CINT1150A2406K01	24V	6.25A	4.17A	0.5%RMS, 1.0% pk-pk	±5%	28.0 ± 2.5V
CINT1150A4806K01	48V	3.13A	2.08A	0.5%RMS, 1.0% pk-pk	±5%	55.0 ± 4.0V
CINT1150A5606K01	56V	2.68A	1.79A	0.5%RMS, 1.0% pk-pk	±5%	<59.9V

Notes: * Maximum output power is 95 Watts for input voltage of 90-105VAC at 50°C convection. For input voltage of 105Vac or more, the total power is 100 Watts at 50°C convection.
** Measured with noise probe directly across output terminals, and load terminated with 0.1µF ceramic and 10µF low ESR capacitors.

General Specifications

AC Input	100-240Vac, ±10%, 47-63Hz, 1∅ 120–370Vdc	**Turn On Time**	Less than 2 sec. @115Vac (inversely proportional to input voltage and thermistor temperature)
Input Current	115Vac: 2A, 230Vac: 1A	**Hold-up Time**	>12mS at full load, 120Vac
Inrush Current	264Vac, cold start: will not exceed 50A	**Signals**	AC Power Fail, DC OK
Input Fuses	F1, F2: 4A, 250Vac fuses provided on all models	**Overload Protection**	Hiccup Mode

General Specifications (continued)

Earth Leakage Current	<750µA@264Vac, 60Hz, NC	**Short Circuit Protection**	Provided - no damage will occur if the output is shorted. Hiccup Mode
Efficiency	88% typical at 115Vac	**Overvoltage Protection**	OVP firing reduces output voltage to <50% of nominal in <50mS. See chart for trip range.
Output Power	150W continuous with 200 lfm airflow, 100W convection cooled – See chart for specific voltage model ratings.	**Switching Frequency**	PFC: Variable 30-400kHz. Main Converter: Variable 35-180kHz, 65-70kHz at full load.
Transient Response	50% load step. $\Delta i/\Delta t$: <0.2A/µS Max Volt Deviation = 3%	**Isolation**	Input-Output: 4000Vac Input-Ground: 1800Vac Output-Ground: 500Vac
Ripple and Noise	See chart	**Operating Temperature**	-10°C to +70°C
Output Voltage	See chart	**Temperature Derating**	Derate output power linearly above 50°C to 50% at 70°C
Voltage Adjustability	+/-5% from nominal	**Storage Temperature**	-40°C to +85°C
Minimum Load	Not required	**Altitude**	Operating: -500 to 10,000 ft Non-operating: -500 to 40,000 ft.
Total Regulation	+/- 5%. See chart	**Relative Humidity**	5% to 95%, non-condensing
Vibration	Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis Non-Operating: 0.026g2/Hz, 5.0grms overall, 3 axes, 1 hr/axis	**Shock**	Operating: Half-sine, 20gpk, 10ms, 3 axes, 6 shocks total Non-Operating: Half-sine, 40 gpk, 10 ms, 3 axes, 6 shocks total
Dimensions	W: 2.0” x L: 4.0” x H: 1.3”	**Safety Standards**	EN/CSA/UL/IEC60950-1, 2nd Edition
Weight	183g	**MTBF**	640,000 hours at 100W convection, 1,500,000 hours at 150W with 200LFM air

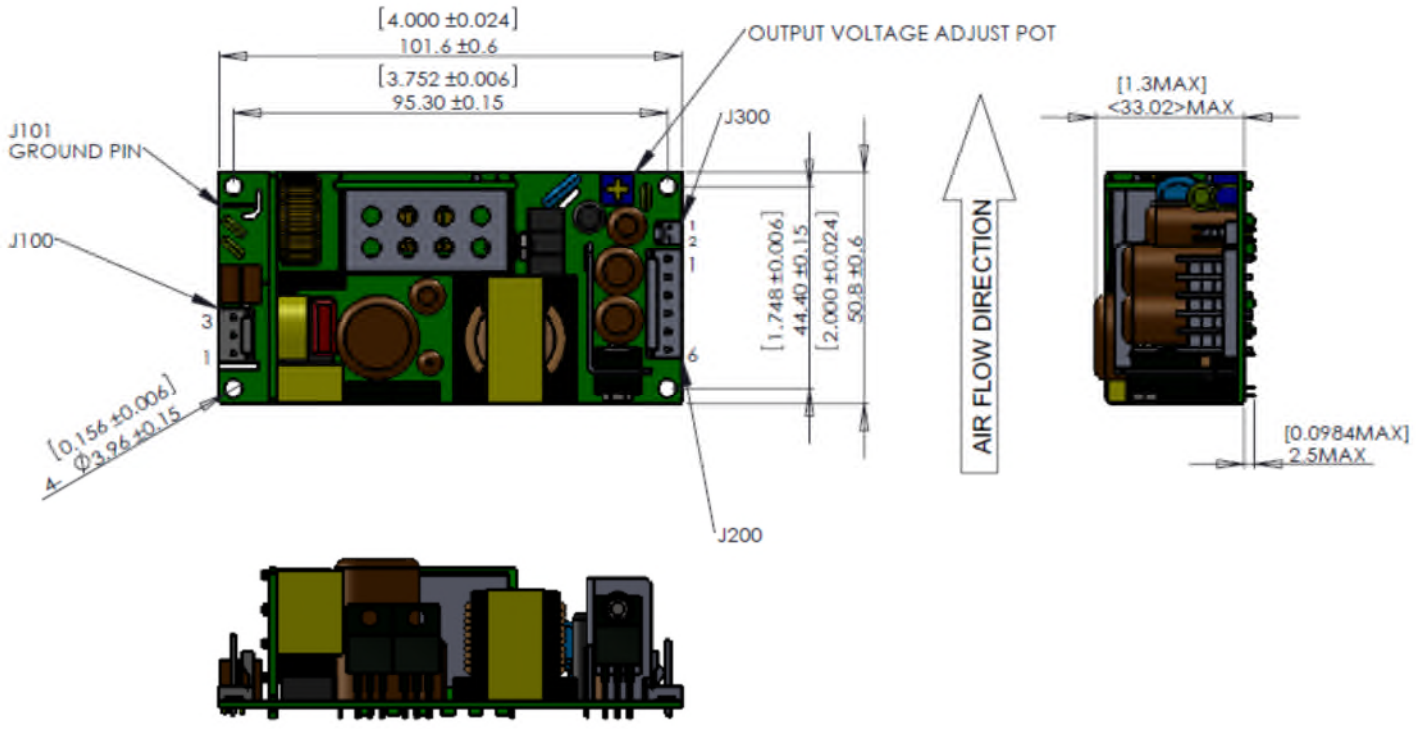
Auxiliary Signals

AC Power Fail:	During normal operations, stays HIGH.	**Power Fail:**	Goes LOW with 5 mS warning before loss of output power due to AC failure
		DC OK:	Open collector logic signal goes and stays HIGH 100mS to 500mS after main output reaches regulation.

EMI/EMC Compliance

Conducted Emissions	EN55011/22 Class B, FCC Part 15, Subpart B, Class B
Radiated Emissions	EN55011/22 Class A, FCC Part 15, Subpart B, Class A w/6db margin
Static Discharge Immunity	EN61000-4-2, Criteria A, 6kV Contact Discharge, 8kV air discharge
Radiated RF Immunity	EN61000-4-3, 3V/m. Criteria A
EFT/Burst Immunity	EN61000-4-4, 2kV/5kHz, Criteria A
Line Surge Immunity	EN61000-4-5, 1kV differential, 2kV common-mode, Criteria A
Conducted RF Immunity	EN61000-4-6, 3Vrms, Criteria A
Power Frequency Magnetic Field Immunity	EN61000-4-8, 3A/m, Criteria A
Voltage Dip Immunity	EN61000-4-11, 0% Vin, 0.5cycle; 40% Vin, 5 cycles; 70% Vin, 25 cycles; Criteria A
Line Harmonic Emissions	EN61000-3-2, Class A, B, C, & D
Flicker Test	EN61000-3-3, Complies (dmax<6%)

Mechanical Drawing



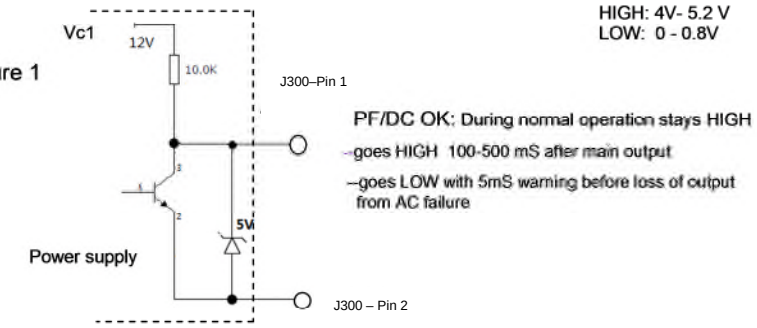
Connector Information

Input Connector J100	Ground J101	DC Output Connector J200		Signal Connector J300
PIN 1) AC LINE PIN 2) EMPTY PIN 3) AC NEUTRAL	0.187" FASTON TAB	PIN 1) +Vout PIN 4) -Vout PIN 2) +Vout PIN 5) -Vout PIN 3) +Vout PIN 6) -Vout		PIN 1) PF/DC OK PIN 2) Common
Mating Connector: Molex 09-50-3031 Pins= 08-52-0072	Mating Connector: Molex 01-90020009	Mating Connector: AMP 640250-6 Pins = 640252-1		Mating Connector: Molex 1375820-2 Pins = 1375819

Power Fail/DC OK Signals – J300

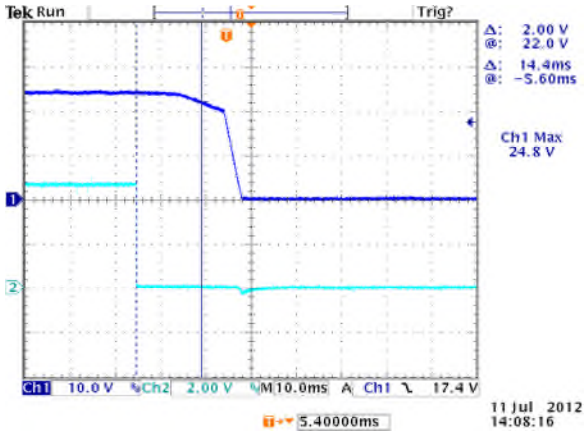
AC Power Failure/DC OK

Figure 1

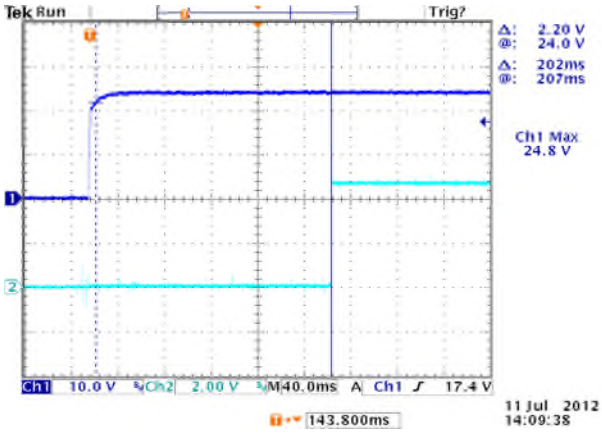


AC Power failure and DC OK signals use the same pin ,so the signals can be used as follows:

DC OK: Pin2 = HIGH & Pin1 = HIGH **AC Power Failure**: Pin2 = LOW & Pin1 = LOW



AC POWER FAIL SIGNAL



DC OK SIGNAL

Isolation Specifications

Parameter	Conditions/Description	Min	Nom	Max	Units
Insulation Safety Rating	Input/Ground Input/Output Output/Ground		Basic Reinforced n/a		
Electric Strength Test Voltage	Input/Ground Input/Output Output/Ground	1800 4000 500	-	-	Vac Vac Vac

Input Specifications

All specifications apply over specified input voltage, output load, and temperature range, unless otherwise noted.

Parameter	Conditions/Description	Min	Nom	Max	Units
Input Voltage		90	115/230	264	Vac
Turn-On Input Voltage	Ramping up		82.7		Vac
Turn-Off Input Voltage	Ramping down		67.0		Vac
Input Frequency		47	50/60	63	Hz
Inrush Current Limitation	264Vac, cold start	-	-	50	A
Power Factor	Vi_{nom}, Io_{nom}	0.9	-	-	
Efficiency	Vi_{nom}, Io_{nom} CINT1150A1206K01 CINT1150A2406K01 CINT1150A4806K01 CINT1150A5606K01	-	88%	-	%

Protection

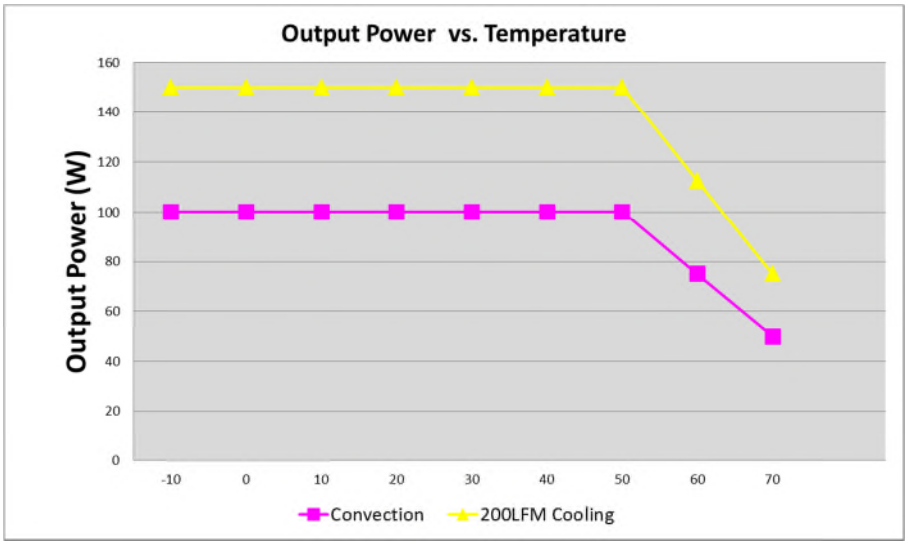
All specifications apply over specified input voltage, output load, and temperature range, unless otherwise noted

Parameter	Conditions/Description	Min	Nom	Max	Units
Input Fuse	Not user accessible				
Input Transient Protection	2KV(CM) and 1KV(DM) surge			2	KV (CM)
Output	No-load	Hiccup Mode			
	Short Circuit	Hiccup Mode			
	Overload	Hiccup Mode			
Overvoltage Protection	Latch style	See Models chart for trip ranges			
Over temperature Protection	Automatic power shutdown at TC =155°C				

Characteristic Curves

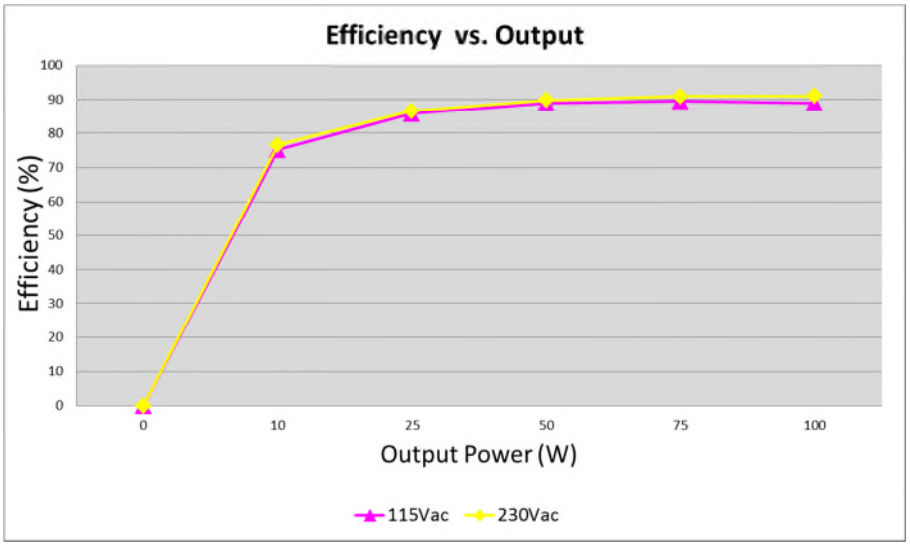
Output vs. Temperature

100W convection cooled and 150W continuous with 200 LFM airflow, Derating output power to 50% at 70°C.



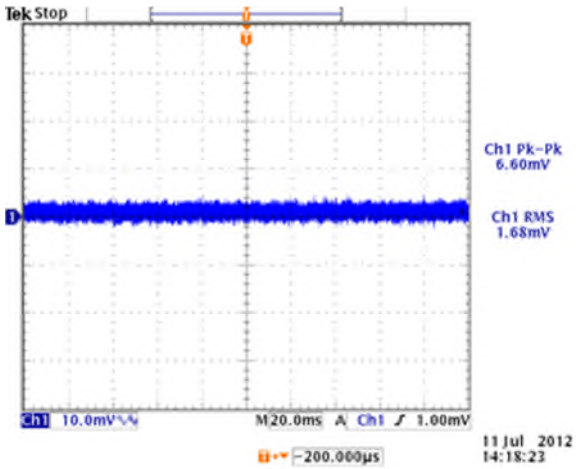
Efficiency vs. Loading

The high efficiency is achieved by using LLC technology, PFC topology minimizing switching losses. Synchronous SCHOTTKY or ultra-fast diode is used as rectifier in CINT1150 family because of high output voltage level.

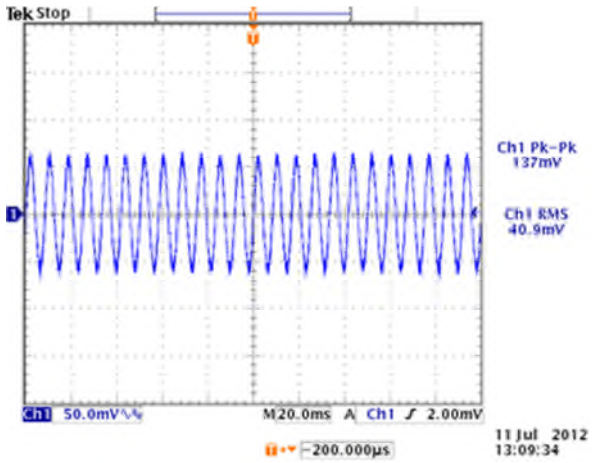


Ripple & Noise

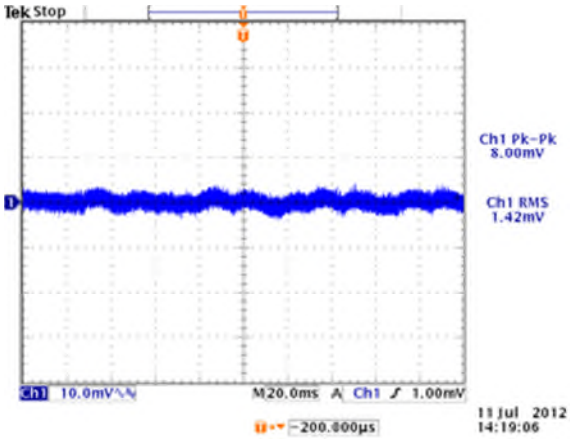
To verify that the output ripple and noise does not exceed the level specified in the product specification. Measured using a scope probe socket with 0.1uF ceramic and a 10uF electrolytic capacitor connected in parallel across it, 20MHz BW.



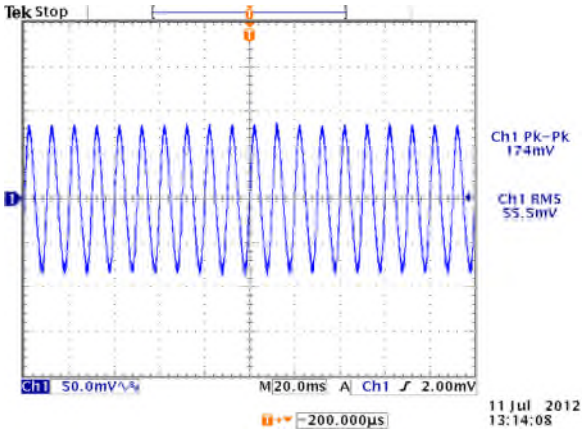
24V OUT, NO LOAD, 90VAC, 60HZ



24V OUT, FULL LOAD, 90VAC, 60HZ



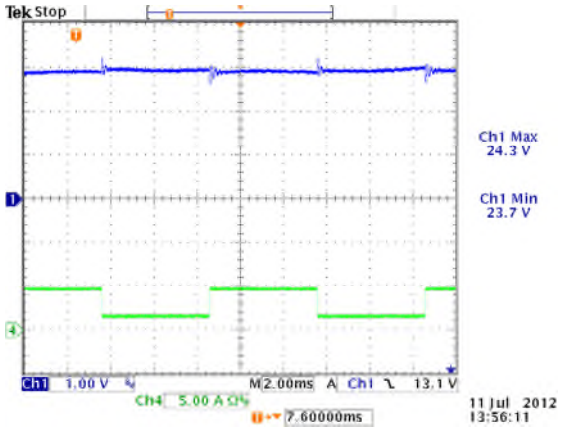
24V OUT, NO LOAD, 264VAC, 50HZ



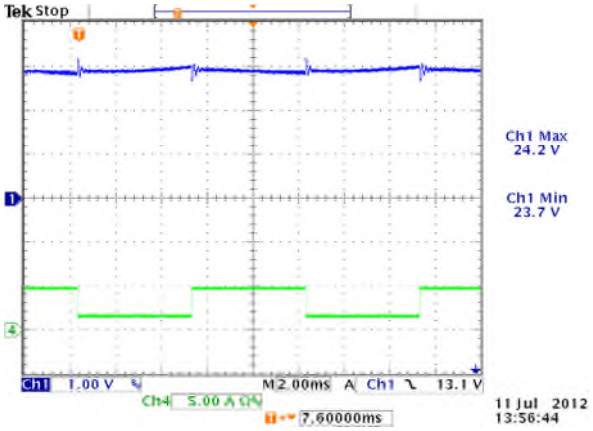
24V OUT, FULL LOAD, 264VAC, 50HZ

Output Transient Response

50% load step within the regulation limits of minimum and maximum load, dI/dt< 0.2A/µSec. Recovery time not specified as there is no laps in regulation with a 50% Load Step. Maximum voltage deviation is 3%, This test is performed on the MAIN OUTPUT ONLY.



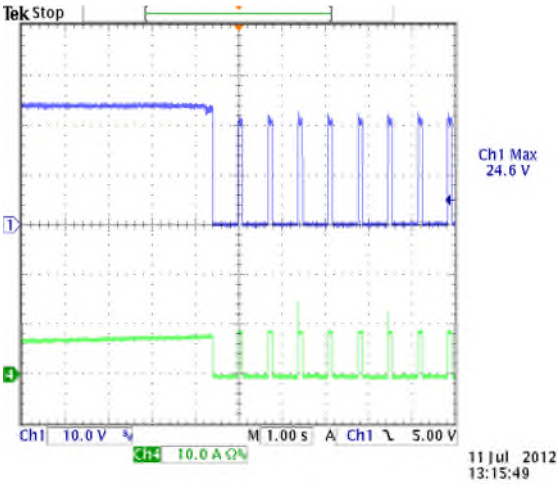
24V OUT, 120VAC, 25% TO 75% LOAD STEP



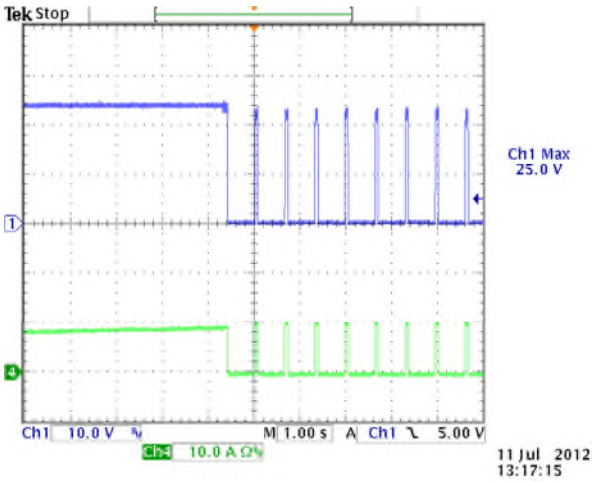
24V OUT, 240VAC, 25% TO 75% LOAD STEP

Output Overload Characteristic

Supply shall protect itself against Overload conditions. The Power Supply shall recover from Overload Conditions without operator intervention.



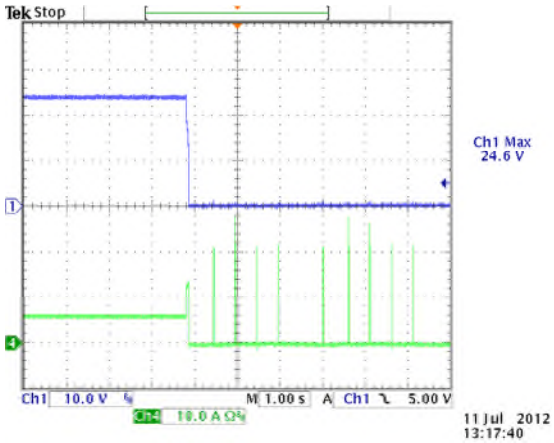
24V OUT, 90VAC



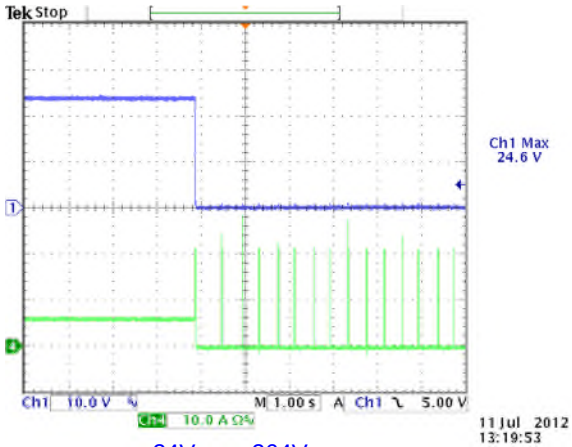
24V OUT, 264VAC

Short Circuit Protection

Supply shall protect itself against Short Circuit conditions. No damage will occur if the output is shorted..



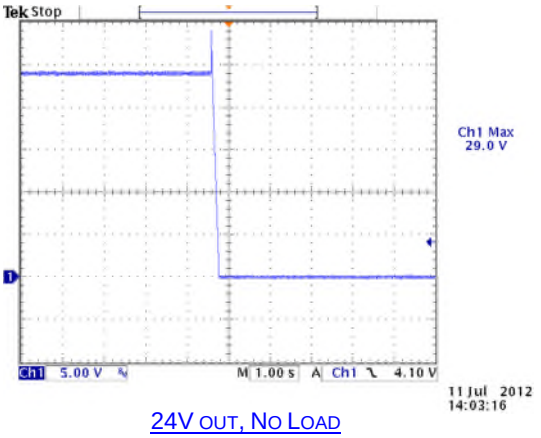
24V OUT, 90VAC



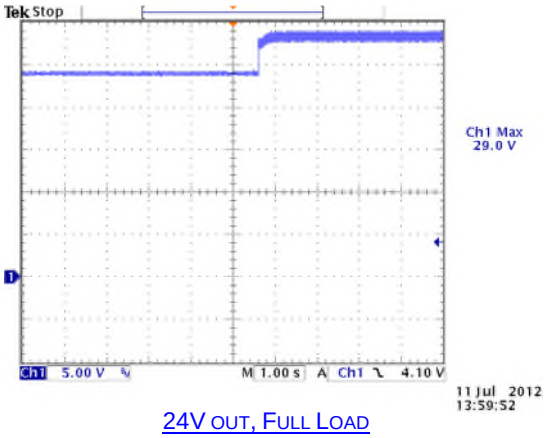
24V OUT, 264VAC

Overvoltage Protection

OVP firing reduces output voltage to <50% of nominal in <50ms. See models chart for trip ranges.

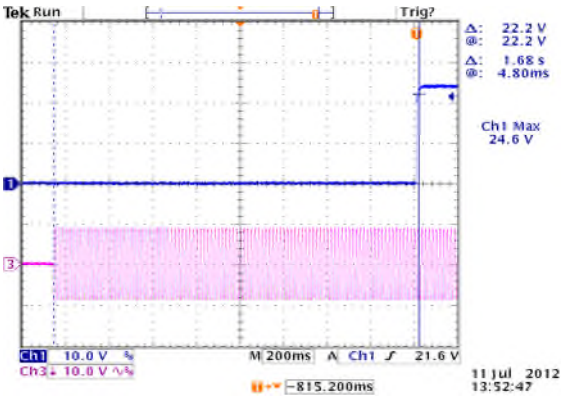


24V OUT, NO LOAD

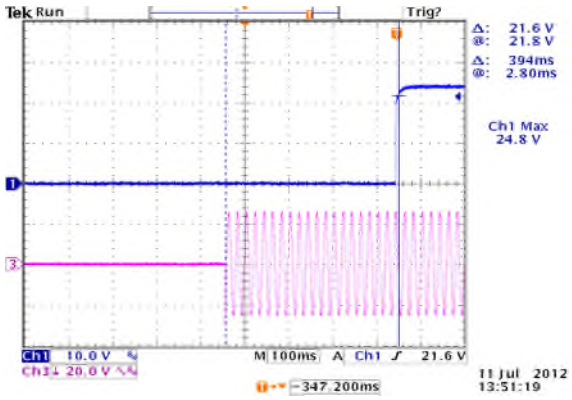


24V OUT, FULL LOAD

Turn On Time

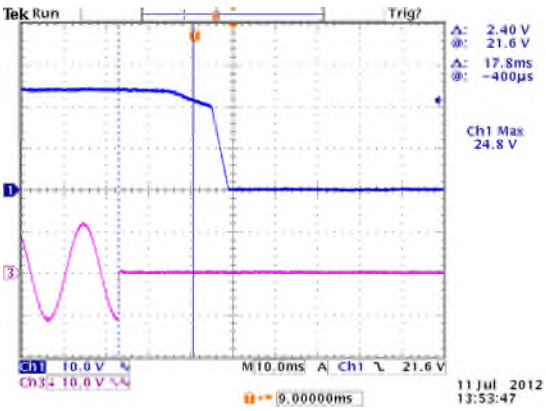


90VAC, FULL LOAD



264VAC, FULL LOAD

Hold Up Time



120VAC, FULL LOAD