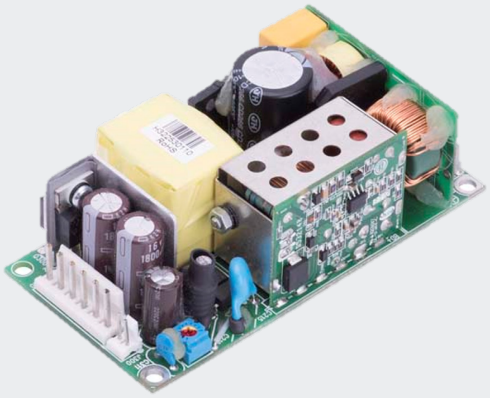
SL POWER
CINT1150 SERIES

150 Watts Single Output
Industrial Grade



Industrial

Advanced Energy's SL Power CINT1150 family is the latest offering in high density single output open-frame AC/DC power supplies. Approved to EN/CSA/IEC/UL62368-1, 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 rang of 90 to 264 VAC and wide temperature range -10°C to +70°C, devering full rated output power up to +50°C. In addition, these models feature Power Fail and DC OK signals.

AT A GLANCE

Total Power

150 Watts

Input Voltage

90 to 264 VAC

# of Outputs

Single

RoHS CE

SPECIAL FEATURES

- 2"W x 4"L x 1.3"H Size
- For 1U Applications
- Universal Input 90 to 264 VAC
- 150 W w/air, 100 W convection cooled
- Power Fail/Output Good Signal
- Approved to EN/CSA/IEC/UL62368-1
- ROHS Compliant
- 3 Years Warranty

SAFETY

- EN/CSA/IEC/UL62368-1

ELECTRICAL SPECIFICATIONS

Input	
Input Range	90 to 264 VAC, 47 to 63 Hz, 1Ø 127 to 370 VDC
Turn-On Input Voltage	82.7 VAC, norminal
Turn-Off Input Voltage	67.0 VAC, norminal
Power Factor	>0.9
Switching Frequency	PFC: Variable 30 to 400 kHz Main converter: Variable 35 to 180kHz, 65 to 70 kHz at full load
Inrush Current	50 A max., cold start @ 264 VAC input
Input Current	115 VAC: 2 A, 230 VAC: 1 A
Input Fuses	250 VAC fuses provided in both line & neutral
Earth Leakage Current	<750 µA @ 264 VAC, 60 Hz, NC
Efficiency	88% typical at 115 VAC
Isolation Voltage	Input/Ground: 1800 VAC Input/Output: 4000 VAC Output/Ground: 500 VAC
Output	
Maximum Power	150 W continuous with 200 LFM airflow, 100 W convection cooled
Ripple and Noise	See chart
Total Regulation	+/-5%, See chart
Minimum Load	Not required
Output Voltage	See chart
Adjustment Range	+/-5% from nominal
Transient Response	50% load step, Δi/Δt<0.2 A/µs. Max. voltage deviation is 3%
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 100 ms to 500 ms after main output reaches regulation.
Reliability	
MTBF	640K hrs at 100 W convection. 1,500 K hrs at 150 W with 200 LFM air
Warranty	3 years
Protection	
Overvoltage Protection	Latch. OVP firing reduces output voltage to <50% of nominal in <50 ms. See chart for trip range.
Short Circuit Protection	Hiccup mode. No damage will occur if the output is shorted
Thermal Protection	Automatic power shutdown at TC = 155°C
Overload Protection	Hiccup mode

SYSTEM TIMING SPECIFICATIONS

Parameter	Min	Typ	Max	Unit
Turn On Time - 115 VAC inversely proportional to input voltage and thermistor temperature	-	-	2000	ms
Hold Up Time - 120 VAC @ 100% load	12	-	-	ms

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
Line Harmonic Emissions	EN61000-3-2, Class A, B, C, D
Voltage Fluctuations & Flicker	EN61000-3-3, Complies (dmax<6%)
Static Discharge Immunity	EN61000-4-2, 6kV contact, 8kV air, Criteria A
Radiated RF EM Immunity	EN61000-4-3, 3 V/m, Criteria A
Electrical Fast Transients / Bursts	EN61000-4-4, 2 kV/5 Khz, Criteria A
Surges Line to Line (DM) and Line to Ground (CM)	EN61000-4-5, 1kV DM, 2kV CM, Criteria A
Conducted Disturbances Induced by RF Fields	EN61000-4-6, 3 Vrms, Criteria A
Power Frequency Magnetic Fields Immunity	EN61000-4-8, 3 A/m, Criteria A
Voltage Dips	EN61000-4-11: --0% Vin, 0.5 cycle --40% Vin, 5 cycle --70% Vin, 25 cycle Criteria A

ENVIRONMENTAL SPECIFICATIONS

Vibration	Operating: 0.003 g/Hz, 1.5 grams overall, 3 axes, 10 min/axis Non-operating: 0.026 g²/Hz, 5 grams overall, 3 axes, 1 hr/axis
Shock	Operating: Half-sine, 20 gpk, 10 ms, 3 axes, 6 shocks total Non-operating: Half-sine waveform, 40 gpk, 10 ms, 3 axes, 6 shocks total
Operating Temperature	-10°C to +70°C, -40°C start up
Temperature Derating	Derate output power above 50°C to 50% at 70°C
Storage Temperature	-40°C to +85°C
Altitude	Operating: -500 to 10,000 ft. Non-operating: -500 to 40,000 ft
Relative Humidity	5% to 95%, non-condensing
Weight	183 g

ORDERING INFORMATION

Model Number	Output Voltage	Output Current		Ripple & Noise[2]	Total Regulation	OVP Threshold
		w/200 LFM air	Convection[1]			
CINT1150A1206K01	12 V	12.5 A	8.33 A	0.5% RMS, 1.2% pk-pk	+/-5%	14.0 ± 1.1 V
CINT1150A2406K01	24 V	6.25 A	4.17 A	0.5% RMS, 1.0% pk-pk	+/-5%	28.0 ± 2.5 V
CINT1150A4806K01	48 V	3.13 A	2.08 A	0.5% RMS, 1.0% pk-pk	+/-5%	55.0 ± 4.0 V
CINT1150A5606K01	56 V	2.68 A	1.79 A	0.5% RMS, 1.0% pk-pk	+/-5%	<59.9 V

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

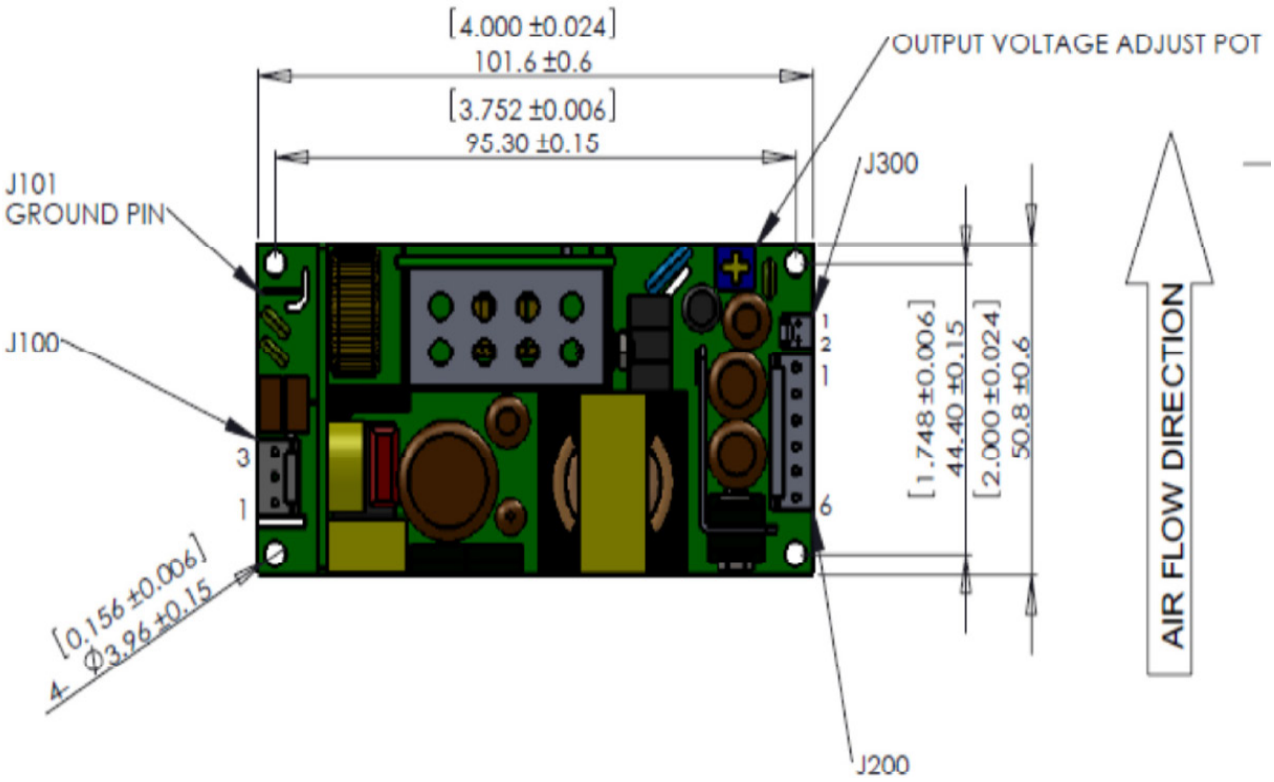
SAFETY

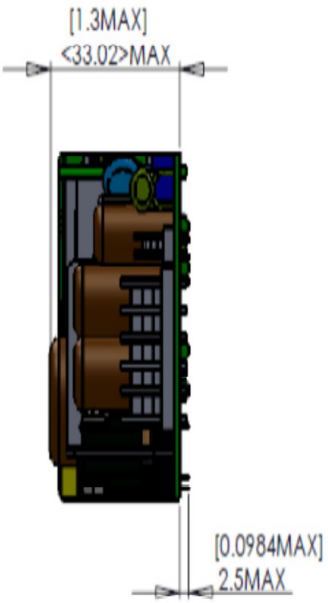
EN	EN62368-1
CSA	CAN/CSA-C22.2 No. 62368-1
IEC	IEC62368-1
UL	UL62368-1

PIN ASSIGNMENTS

Type	Connector	Pin #	Assignment	Mating Connector
INPUT	J100	1	AC Line	Molex: 09-50-3031 Pins: 08-52-0072
		2	Empty	
		3	AC Neutral	
GROUND	J101	0.187" FASTON TAB		Molex: 01-90020009
OUTPUT	J200	1	+Vout	AMP: 640250-6 Pins: 640252-1
		2	+Vout	
		3	+Vout	
		4	-Vout	
		5	-Vout	
		6	-Vout	
SIGNAL CONNECTOR	J300	1	PF/DC OK	Molex: 1375820-2 Pins: 1375819
		2	Common	

MECHANICAL DRAWING





Notes:
1. All dimensions in mm (inches).
2. Dimensions: W: 2” x L: 4” x H: 1.3”.
3. Unit weight: 183 g.

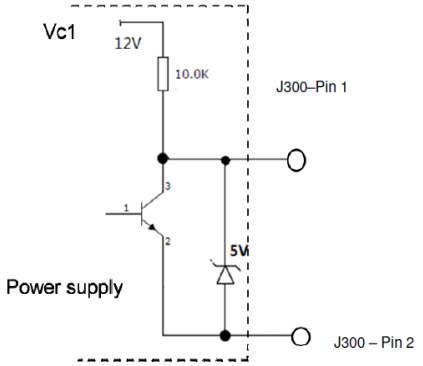
POWER FAIL/DC OK SIGNALS - J300

AC Power Fail/DC OK

PF/DC OK: During normal operation stays HIGH

Goes HIGH 100 to 500 ms after main output

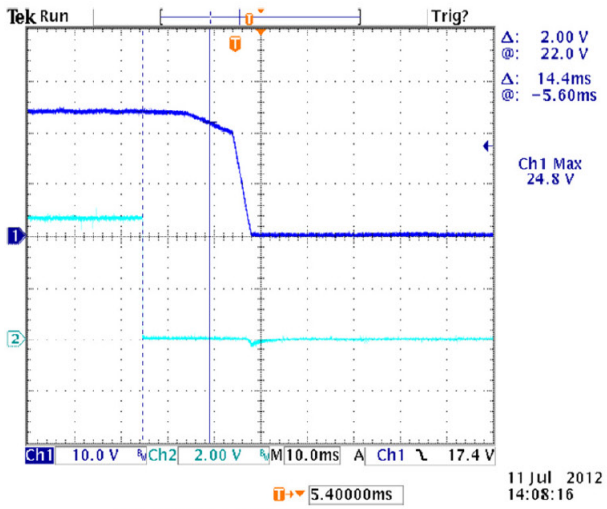
Goes LOW with 5 ms warning before loss of output from AC failure



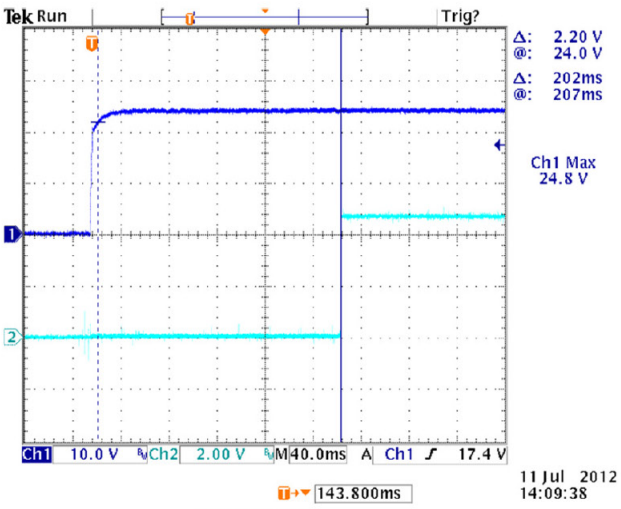
AC Power failure and DC OK signals use the same pin, so the signals can be used as follows

DC OK: Pin2 = HIGH & Pin1 = HIGH

AC Power Fail: Pin2 = LOW & Pin1 = LOW



AC POWER FAIL SIGNAL

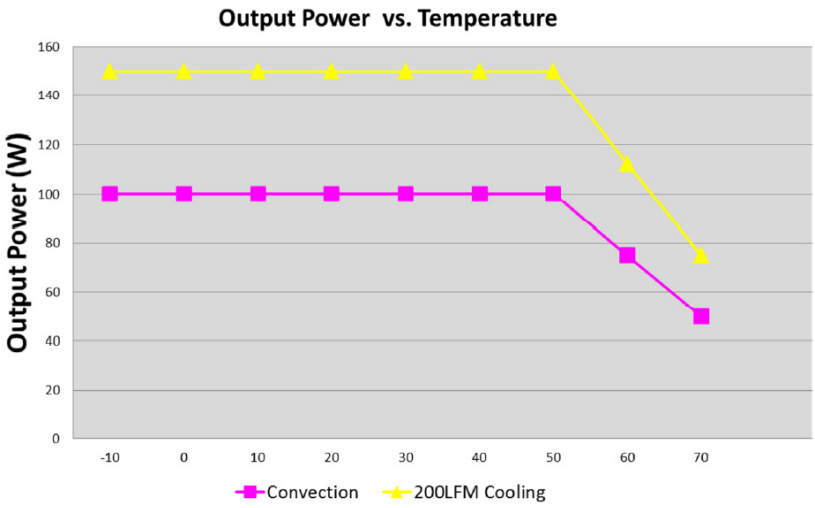


DC OK SIGNAL

CHARACTERISTIC CURVES

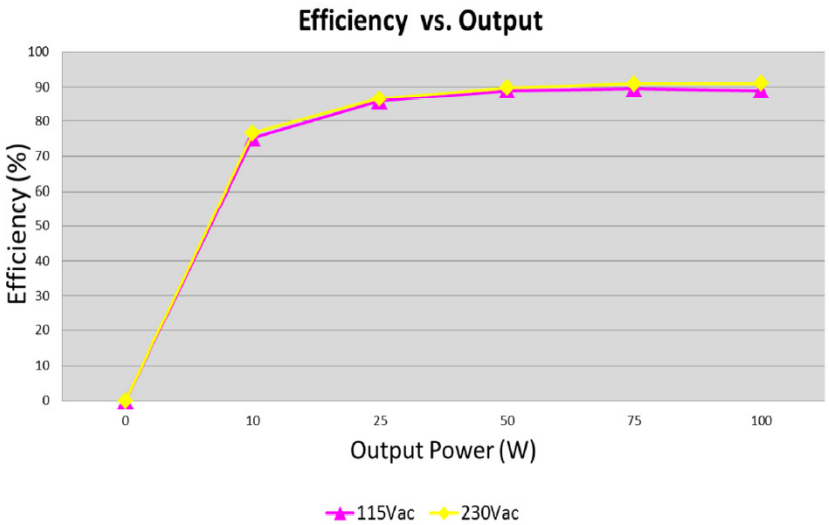
Output VS. Temperature

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



Efficiency VS. Loading

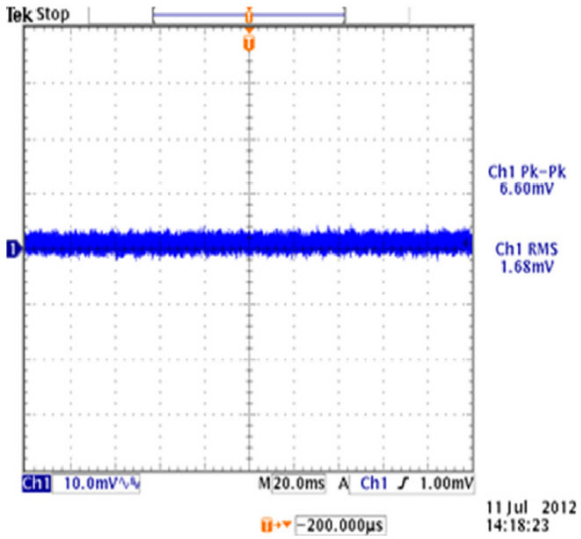
The high efficiency is achieved by using LLC technology, PFC topology minimizing switching losses. Synchronous SCHOTTKY or ultra-fast diode is used as rectifier in CINT1150 family because of high output voltage level.



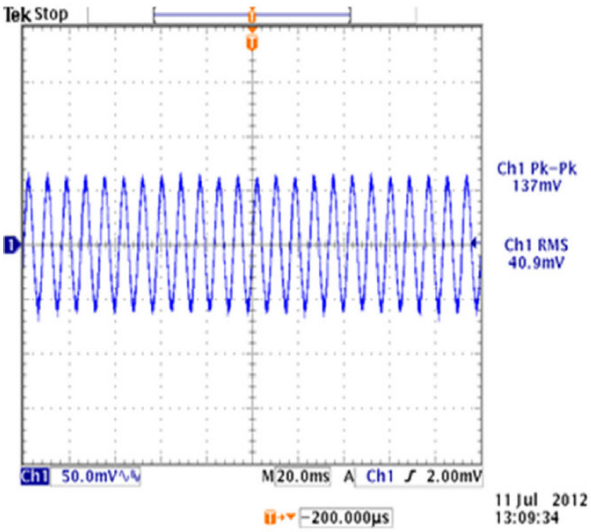
CHARACTERISTIC CURVES

Ripple & Noise

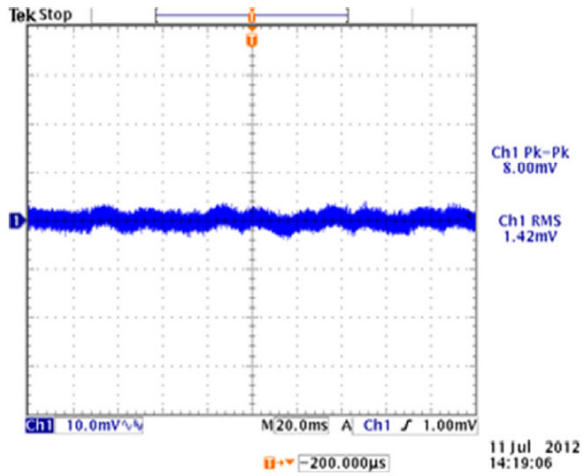
To verify that the output ripple and noise does not exceed the level specified in the product specification. Measured using a scope probe socket with 0.1 uF ceramic and a 10 uF electrolytic capacitor connected in parallel across it, 20 MHz BW.



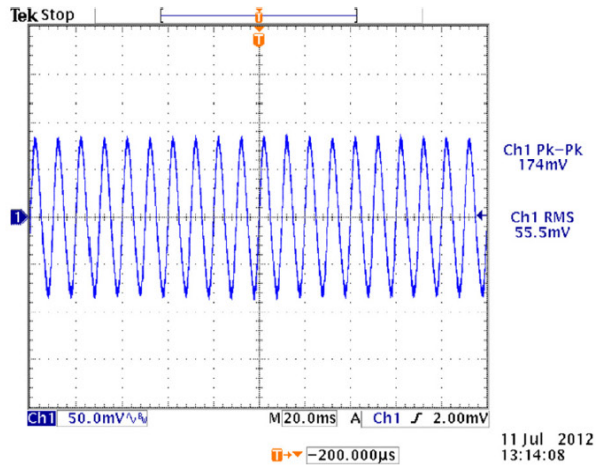
24V OUT, NO LOAD, 90VAC, 60HZ



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



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

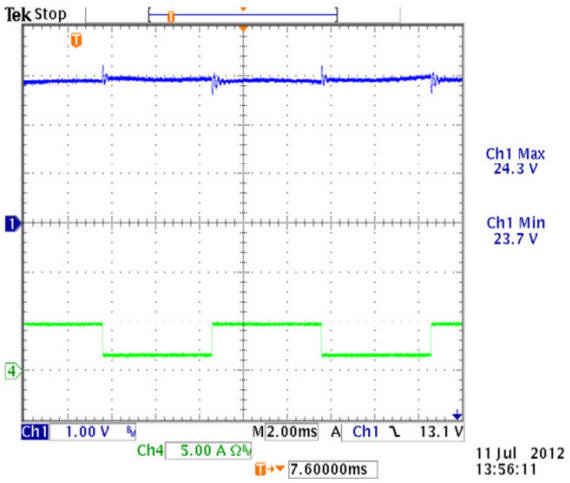


24V OUT, FULL LOAD, 264VAC, 50HZ

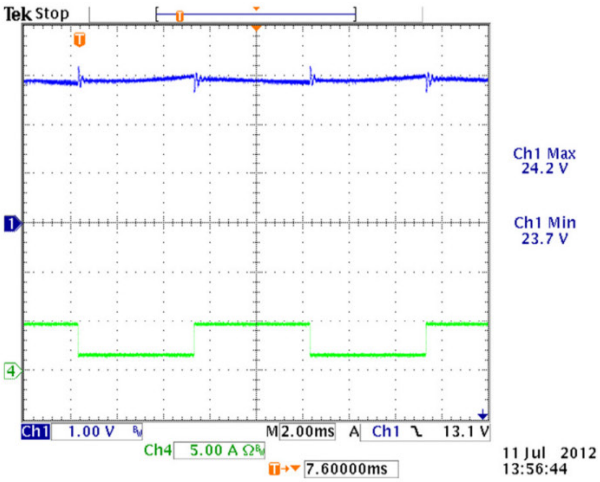
CHARACTERISTIC CURVES

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.



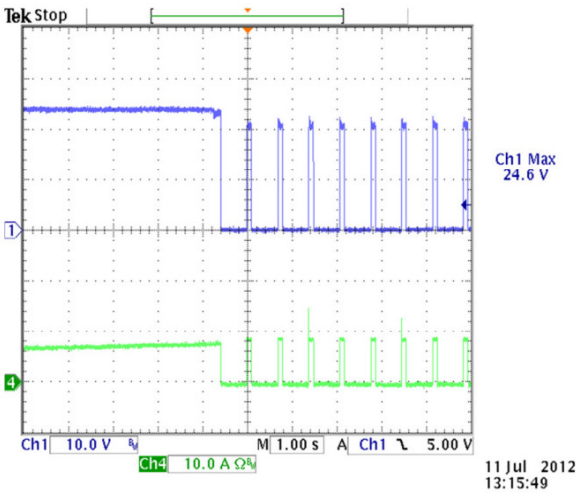
24V OUT, 120VAC, 25% TO 75% LOAD STEP



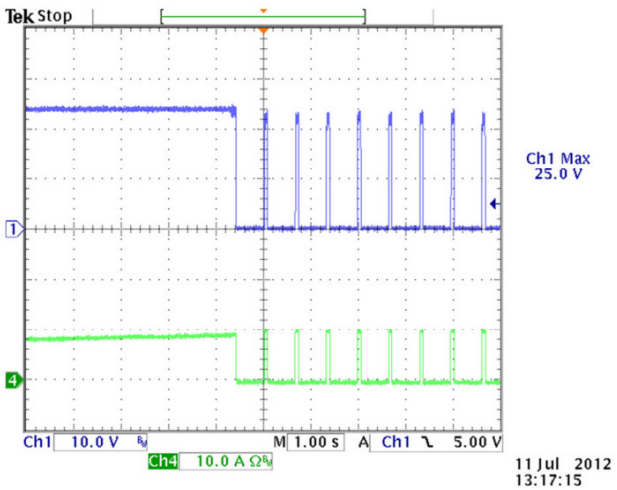
24V OUT, 240VAC, 25% TO 75% LOAD STEP

Output Overload Characteristic

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



24V OUT, 90VAC

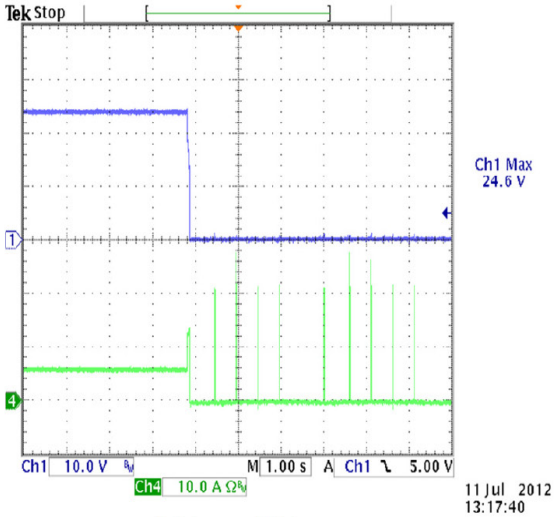


24V OUT, 264VAC

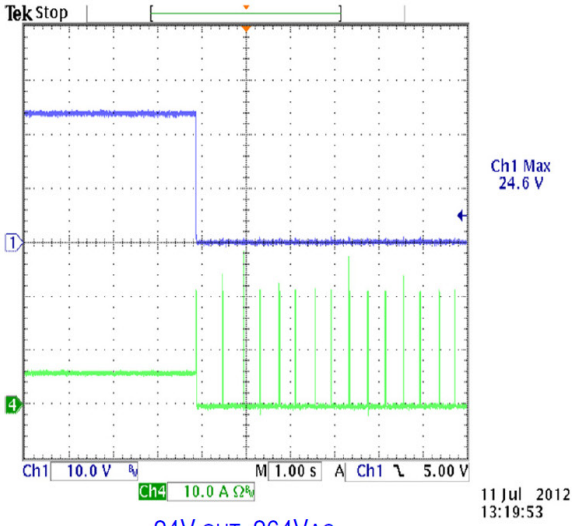
CHARACTERISTIC CURVES

Short Circuit Protection

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



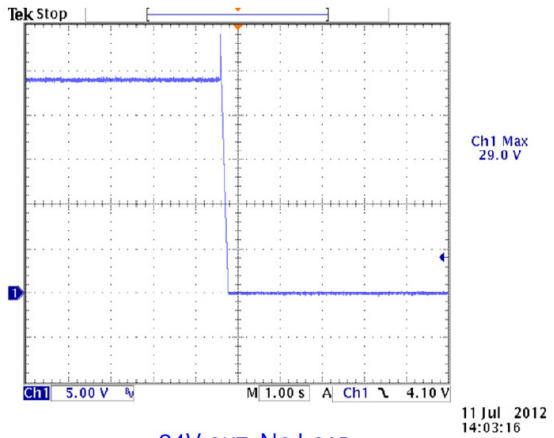
24V OUT, 90VAC



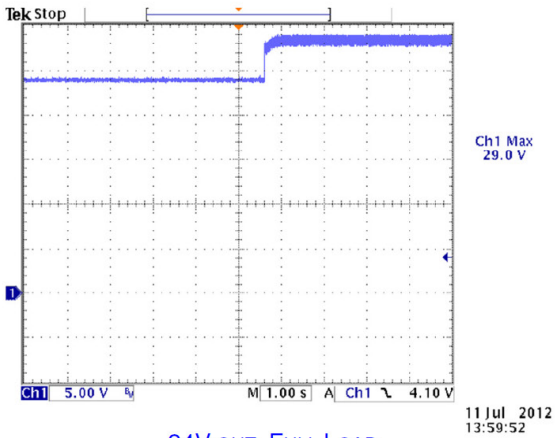
24V OUT, 264VAC

Overvoltage Protection

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



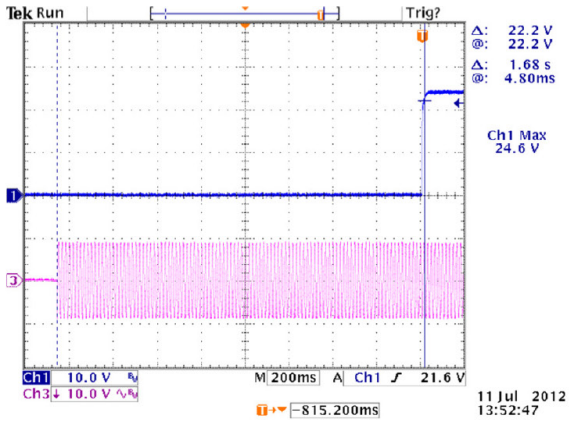
24V OUT, NO LOAD



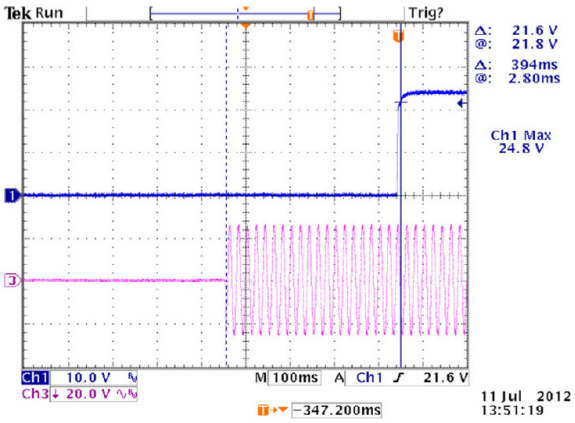
24V OUT, FULL LOAD

CHARACTERISTIC CURVES

Turn On Time

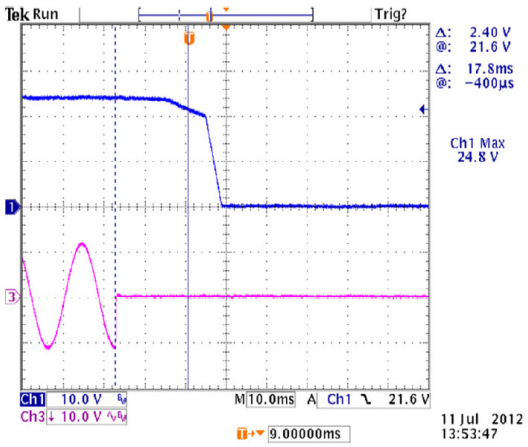


90VAC, FULL LOAD



264VAC, FULL LOAD

Hold Up Time



120VAC, FULL LOAD

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE | TRUST

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