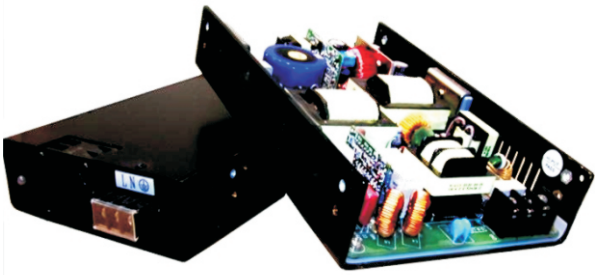
Series RL0402
400W PFC MEDICAL & ITE POWER SUPPLY



FEATURES

- **Safety Approvals to IEC/EN/UL60601-1 3rd edition (for medical version)**
- **High quality & reliable component usage**
- **Variable fan speed & low acoustical noise**
- **Optional N+1 forced active current sharing**
- **Providing peak power 700W within 500uS duty duration**
- **Active PFC to EN61000-3-2 class D**
- **U-chassis and enclosed with built-in fan mechanical options**
- **RoHS compliant**

c US E201808 ITE E257331 MEDICAL

DESCRIPTION

Designed for demanding applications, the RL0402 400W switching power supplies offer single output range with a broad range of standard options.

SPECIFICATION

Input Voltage: 90-264VAC, full range
Input Frequency: 47-63Hz
Inrush Current:
35A Max. @ 230VAC with full load and cold start
Fan Drive:
12VDC/400mA is available to drive an external fan.
Transient Response:
Returns within 1% in less than 2.5mS for a 50% load change and the peak transient does not exceed 5%.
Overshoot:
Turn off, when AC input gets 5% over nominal voltage.
Efficiency: 70% - 85% depends on model
Turn-on Delay: 1 second max. at 230VAC
Hold up Time: 20mS min. at 80% of full load
Adjustability: Output user adjustable ±5% minimum
Remote Sense: Designated RS+ and RS- on the CN3 (Not available for current sharing models)
Remote ON/OFF: Designated as RSW on the CN3, requires a low signal to inhibit output.
Power Supply On:
Green LED designated as LED1 on the PCB
LED Display: Bi-color green LED in front panel (RL0402E only); Any protection occured or RSW applied low signal will emit orange.
Power Good: PG on CN3 goes high 100-500mS after DC regulation and low at least 1mS before loss of regulation (open collector).
Current Sharing: Designated as CSH on the CN3, optional single wired for forced current sharing function and parallel up to 4 units within 10% accuracy at full load.
Current Monitor:
Designated as CMN on the CN3 for current sense for a 0.5V to 3VDC to represent 0% to 100% output current.
Margin (Option): Designated as MAG on the CN3 providing output voltage remote adjustment by applying logical low~high signal.
AC Fail Option: Designated as ACF on the CN3 to monitor the input voltage when input goes under 80 ±5VAC the signal will go low (0V) and then go high (+5V) once reappears over 86VAC.
Input Circuit Protection (Primary): Two T8A/250V fuses inserted.
Over Power Protection: 110-140% of I-Max and auto-recovery
Short Circuit Protection: Trip without damage and auto-recovery.
Over Voltage Protection: Latching down will occur when output voltage exceeds 130% and restart AC input supply after.
Input Voltage Protection: Power shut down under 80 ±5VAC and recovered over 86VAC.
Over Temperature Protection: Protected in the event of excessive operating ambient 85 degrees and automatic recovery.
Switching Frequency: 30KHz fixed frequency

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HiTek Power

SPECIFICATION

Operating Temperature: 0°C to +70°C ambient, de-rating at 2.5% per degree from +50°C to +70°C.
Storage Temperature: -20 to +85 degrees C
Operating Humidity: 5% to 90%RH, non-condensing
Storage Humidity: 5% to 95%RH, non-condensing
Vibration: Frequency 5 to 50HZ, acceleration ±7.35M/(SxS) on X, Y and Z axis.
EMC: EN 60601-1-2 / EN 61204-3 - class B conducted/radiated EN 61000-3-2,3; IEC 61000-4-2, 3,4,5,6,8,11
Safety: EN/IEC/UL 60601-1 3rd edition; EN/IEC/UL 60950-1
Leakage Current: Medical degree less than 200μA; ITE degree less than 1.5mA.

Hi-Pot Test: 1500VAC between input line and chassis (2mA DC cut of current); 4000VAC between primary and secondary windings; Primary to core 1500VAC. All for 3sec.
Grounding Test: Apply 40A from ground pin to the earthed connection point. Max. allowable resistance is 0.1OHM
Warranty: 12 months
MTBF: 100000Hrs (according to MIL-HBK-217F) at 30°C.
Cooling: **RL0402U series**: U-chassis @ 400W max. with 23CFM airflow or 250W max. under convection cooling.
RL0402E series: Enclosed with side built-in fan @ 400W max.
Burn-in: 45 ±5 degree C for 1 hour @ 230VAC with full load.

Output Voltage / Current Rating Chart: Measured at output power connector

Model	Output Voltage Range	Preset Voltage	Max. Output Power or Current		Total Regulation	Ripple & Noise
			Type U (convection)	Type U (with foreced air & E)		
RL0402X-12(I)	12-15V	12V	250W	400W	±1%	±1%
RL0402X-24(I)	22-30V	24V	250W	400W	±1%	±1%
RL0402X-48(I)	42-58V	48V	250W	400W	±1%	±1%

NOTE

1) RL0402x-yz series where X=U (U-chassis type) or E (Enclosed with built-in fan type) or Y=12, 24 or 48.
   Z= blank or I where I denote for current sharing option (OR-ring diode).
2) RL0402U series: 400W max. with 23CFM airflow or 250W max. under convection cooling (Option: Top cover).
3) RL0402E series: 400W max. with built-in fan flow.
4) All output ranges are covered in agency certifications and preset output voltage for each model as above listings.
5) Providing peak power to 700W within 500uS for all models, longer duty duration need to contact HiTek Power.
6) 1% minimum load is required to maintain the ripple and regulation.
7) Output is fully isolated.

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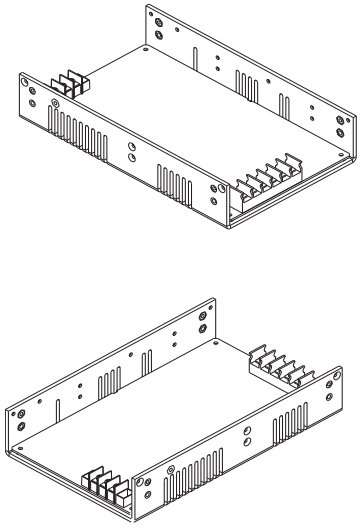
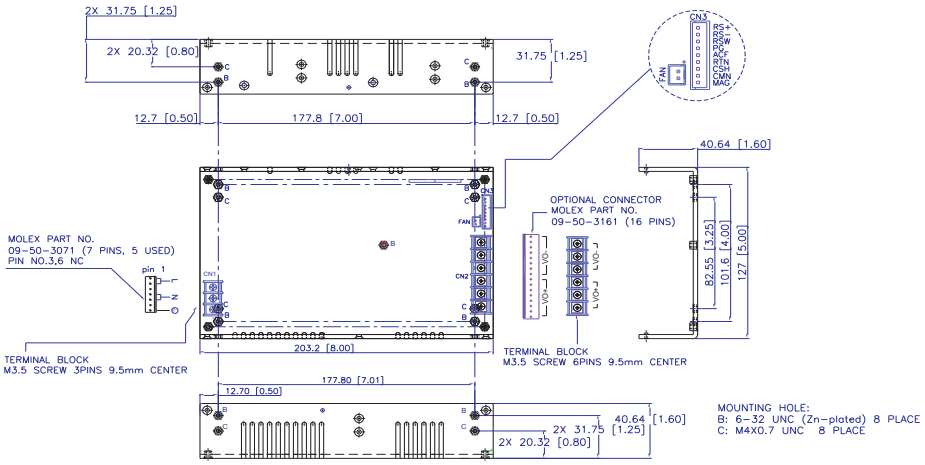
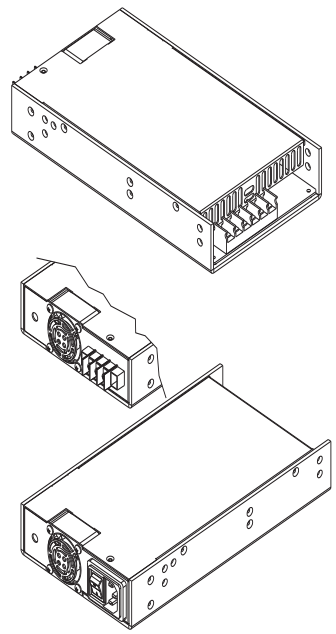
Mechanical Specifications: RL0402U Series (U-chassis type): 8 (L) x 5 (W) x 1.6 (H) inches
Weight: 1.3kg

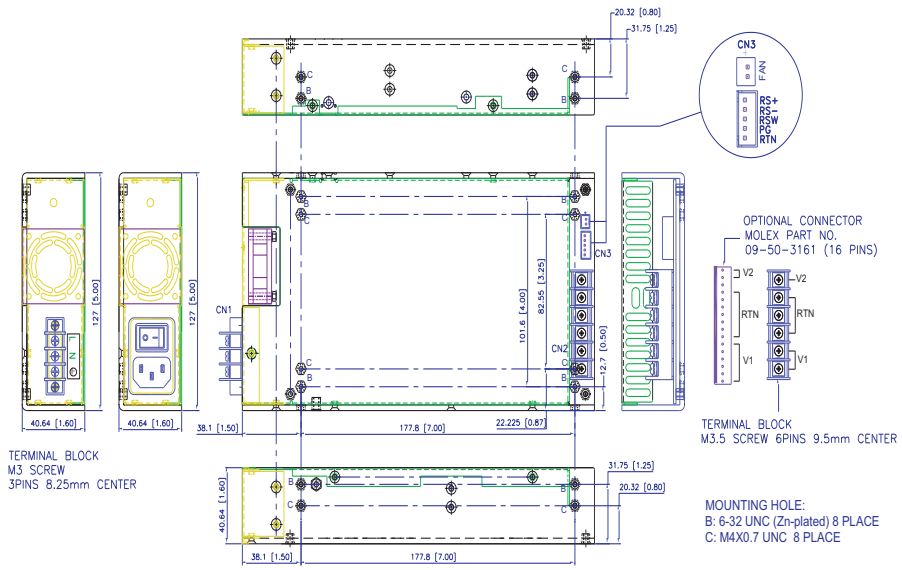
Option: Top Cover





RL0402E Series (Enclosed with built-in fan type): 9 (L) x 5 (W) x 1.6 (H) inches; Weight: 1.6kg





***Application note:**

During installation please ensure that there is a minimum distance of 2.8mm between the unit and the system chassis.Warning: Hazardous voltages exist in the primary stages of this power supply. Do not touch if energized to avoid possibility of electric shock.

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Suffix Code for I/O Connector

Input	Output	U-Case	E-Case	Medical Version	Industrial Version
Terminal	Terminal	(00)	(00)	(M00)	(I00)
Molex	Molex	(01)	n.a	(M01)	(I01)
Terminal	Molex	(02)	(02)	(M02)	(I02)
Molex	Terminal	(03)	n.a	(M03)	(I03)
IEC 320	Molex	n.a	(04)	(M04)	(I04)
IEC 320	Terminal	n.a	(05)	(M05)	(I05)

n.a = not available for this series

Output Assignment

	Molex	Howder
VO+	(Pins 1-8)	(Pins 1-3)
VO-	(Pins 9-16)	(Pins 4-6)

I/O Connector Pin Assignment:

Input Connector (CN1):

RL0402U series: Mating Molex Part No. 09-50-3071 equivalent (7 pin, 5 used) or Howder terminal block part no. HD-121-3P.

RL0402E series: IEC320 or equivalent Snap-in mounting type or DINKLE terminal block part no. DT-35-A02W-03 (3 pin).

Output Connector (CN2):

Mating Molex Part No. 09-50-3161 (16 pins), or Howder (HD-121-6P) M3.5, 8 pins terminal block, 9.5MM Center.

Output Pin Assignment: See table above.

Logic Signal Connectors (CN3):

Mating JST XHP-9 or equivalent (CHYAO SHIUNN JS-2001-09) Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

Mounting Inserts:

6-32, M4 4 places individually with maximum penetration 0.15 inches on bottom side and 0.25 inch on both side.

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HiTek Power

GERMANY

Joh.-Friedr.-Boettger-Str. 21
63322 Roedermark

Phone +49 6074 69285-0
Fax: +49 6074 69285-10
E-Mail: sales.de@hitekpower.com

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