HiTek Power

Series RL0402D

400W PFC MEDICAL & ITE DUAL 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**
- **5/12/24V Dual output optional combinations**
- **U-chassis type drive max. 250W under air convection**
- **U-chassis and enclosed with built-in fan mechanical options**
- **Active PFC for EN61000-3-2 class D**
- **RoHS compliant**

DESCRIPTION

Designed for demanding applications, the RL0402D 400W switching power supplies offers dual output ranges 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.
Power Factor Correction: 0.98 @ Vin: 230VAC full load
Transient Response:
Returns to within 1% in less than 2.5mS for a 50% load change and the peak transient does not excess 5%.
Overshoot: Turn off, when AC input gets 5% over nominal voltage.
Efficiency: 75% - 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
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 (RL0402DE 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).
Input Circuit Protection (Primary): Two T8A/250V fuses inserted.
Short Circuit Protection: Trip without damage and auto-recovery.
Over Voltage Protection: Latching down will occur when output voltage exceeds 130% restart AC input supply after.
Input Voltage Protection: Power shut down under 80 ±5VAC and recovered over 86VAC.
Over Power Protection: 110~140% if I-Max and auto-recovery.
Over Temperature Protection: Protected at ambient 85C, auto-recovery.
Operating Temperature: 0°C to +70°C ambient, de-rating at 2.5% per degree from +50°C to +70°C.
Switching Frequency: 30KHZ fixed frequency
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.

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Hi-Pot Test: 1500VAC between input line and chassis (2mA DC cut off 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: **RL0402DU series**: U-chassis @ 400W max. with 23CFM airflow or 250W max. under convection cooling.

RL0402DE series: Enclosed with side built-in fan @ 400W max.

Burn-in: 45 ± degree C for 1 hour @ 230VAC with full load.

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

Model	Output Voltage Range	Max. Output Current		Total Regulation	Ripple & Noise
		Convection	22.9CFM		
RL0402DX-0512	V1: +5V	30A	40A	±5%	±1%
	V2: +12V	16.7A	25A	±5%	±1%
RL0402DX-0524	V1: +5V	30A	40A	±5%	±1%
	V2: +24V	8.34A	12.5A	±5%	±1%
RL0402DX-1224	V1: +12V	16.7A	25A	±5%	±1%
	V2: +24V	8.33A	12.5A	±5%	±1%

NOTE

- RL0402Dxy series where X=E (Enclosed with built-in fan type) or U (U-chassis type) or Y=0312, 0512, 0524 and 1224.
- RL0402U series: 400W max. with 23CFM airflow or 250W max. under convection cooling (Option: Top cover).
- Total combined power of V1 and V2.

-10% minimum load is required for all outputs to maintain the ripple and regulation (Output is fully isolated).

400W Max. with 22.95 CFM forced air and 250W convection cooled for RL0402DU1224; 400W for RL0402DE1224 by self-cooling.
300W Max. with 22.95 CFM forced air and 200W convection cooled for other RL0402DUy; 300W for other RL0402DEy by self-cooling.

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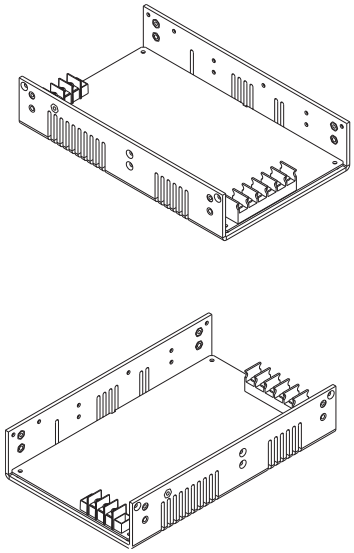
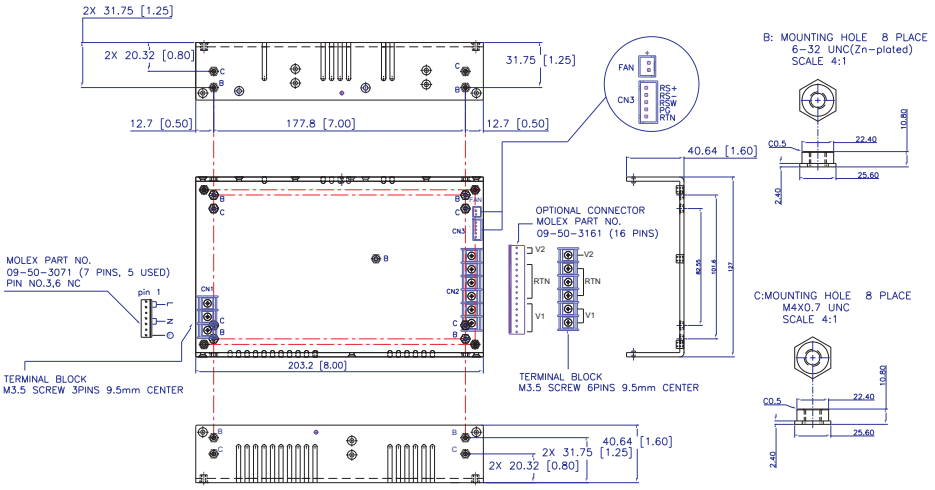
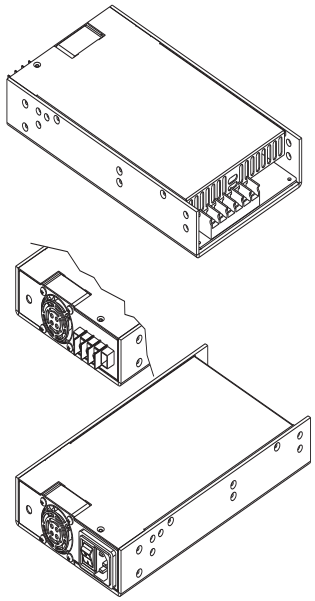
Mechanical Specifications: RL0402DU Series (U-chassis type): 8 (L) x 5 (W) x 1.6 (H) inches
Weight: 1.3kg

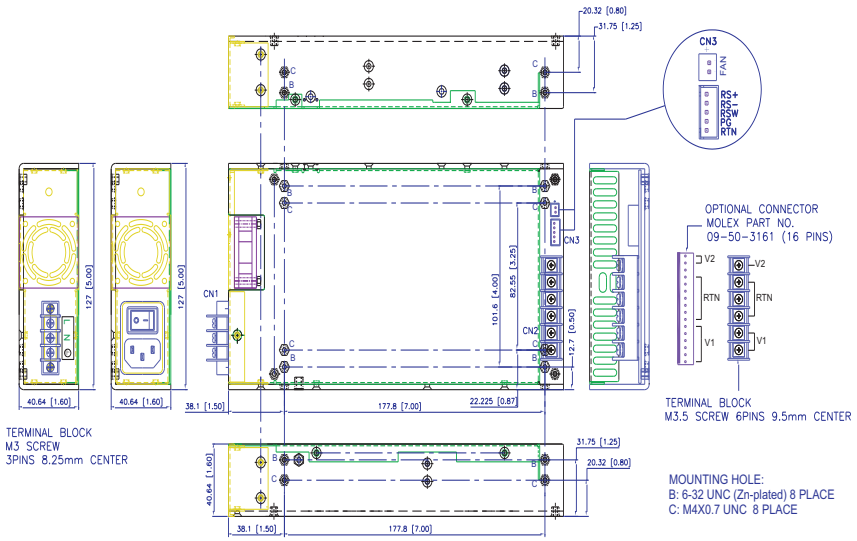
Option: Top Cover





RL040D2DE 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)
IEC320	Molex	n.a.	(04)	(M04)	(I04)
IEC320	Terminal	n.a.	(05)	(M05)	(I05)

Output Assignment

	V1	V2	RTN
Molex	Pins 1-6	Pins 14-16	Pins 7-13
Howder	Pins 1-2	Pins 6	Pins 3-5

n.a = not available for this series

I/O Connector Pin Assignment:

Input Connector (CN1):

RL0402DU series: Mating Molex Part No. 09-50-3071 equivalent (7 pin, 5 used) or Howder terminal block part no. HD-121-3P.

RL0402DE 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-5or equivalent (CHYAO SHIUNN JS-2001-05) 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.

GERMANY

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