



ULTRA LEVEL TECH CO., LTD.

www.ultralevel.com.tw Tel:+886-2-29180118 Fax:+886-2-29181465

We Supply the Power Customers Need ISO9001

250W ~ 400W AC-DC PFC MEDICAL & ITE APPROVED POWER SUPPLY RL0402 SINGLE OUTPUT SERIES



RL0402U Series (U-Chassis Type): 8(L) x 5(W) x 1.6(H) inches.
RL0402E Series (Enclosed Type): 9(L) x 5(W) x 1.6(H) inches.

PRODUCT SPECIFICATIONS:

Input Voltage: 90 ~ 264Vac full range, 47 ~ 63Hz.
Input Current: 6.35A at 90VAC full load.
Inrush Current: 70A Max @ 230VAC with full load and cold start.
Power Factor Correction: 0.98 @ Vin: 230Vac full load.
Fan Drive: 12VDC/400mA is available to drive an external fan.
Transient Response: Returns to within 1% in less than 2.5mS for a 50% load change and the peak transient does not exceed 5%.
Overshoot: Turn-on/off not exceed 5% over nominal voltage.
Efficiency: 70% ~ 85% depends on model.
Turn On Delay: 1 second maximum at 230 VAC.
Hold Up Time: 20mS min. at 80% of full load.
Adjustability: Output user adjustable +/-5% minimum.
Remote Sense (for under 12V models): 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 **LED 1** on the PCB.
LED display: Bi-color green **LED** in front panel (RL0402E only); Any protection occurred 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.
Input Circuit Protection (primary): Two T8A/250V fuses inserted.
Over-Power Protection: 110-140% of I-Max and auto-recovery.

FEATURES:



- ◆ Safety Approvals to IEC/EN/UL60601-1 3rd Edition
- ◆ Optional N+1 Forced Active Current Sharing
- ◆ High Quality & Reliable Component Usage
- ◆ Variable Fan Speed & Low Acoustical Noise
- ◆ Active Power Factor Corrected to EN61000-3-2 class D
- ◆ Providing Peak Power 700W within 500uS duty duration
- ◆ U-Chassis & Enclosed with built-in fan Mechanical Options
- ◆ Current Monitoring and Remote Voltage adjustment (Margin)



Short Circuit Protection: Trip without damage and auto-recovery.
Over-Voltage Protection: Latching down will occur when output voltage exceed 130% and recycle AC input to reset.
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 degree, and automatic recovery.
Switching Frequency: 30KHZ fixed frequency.
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 50 Hz, acceleration +/-7.35 M/(SxS) on X,Y and Z Axis.
EMC: EN60601-1-2/EN61204-3 Class B conducted / radiated; EN61000-3-2,3; IEC61000-4-2, 3, 4, 5, 6, 8, 11.
Safety: EN/ IEC/ UL60601-1 3rd edition; EN/ IEC/ UL62368-1.
Leakage Current: Medical degree < 200uA; ITE degree < 1.5mA.
HI-POT Test: 1600 Vac between input line and chassis (2mA DC cut off current); 4000Vac between primary and secondary windings; Primary to core 1800VAC. All for 3 sec.
Grounding Test: Apply 40 A from ground pin to the earthed connection point. Maximum allowable resistance is 0.1ohm.
Warranty: 2 years.
MTBF: 100000 Hrs (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.
Enclosure: RL0402U Series: 8(L) x 5(W) x 1.6(H) inches.
 RL0402E Series: 9(L) x 5(W) x 1.6(H) inches.
Weight: RL0402U Series: 1.3KG; RL0402E Series: 1.6KG.



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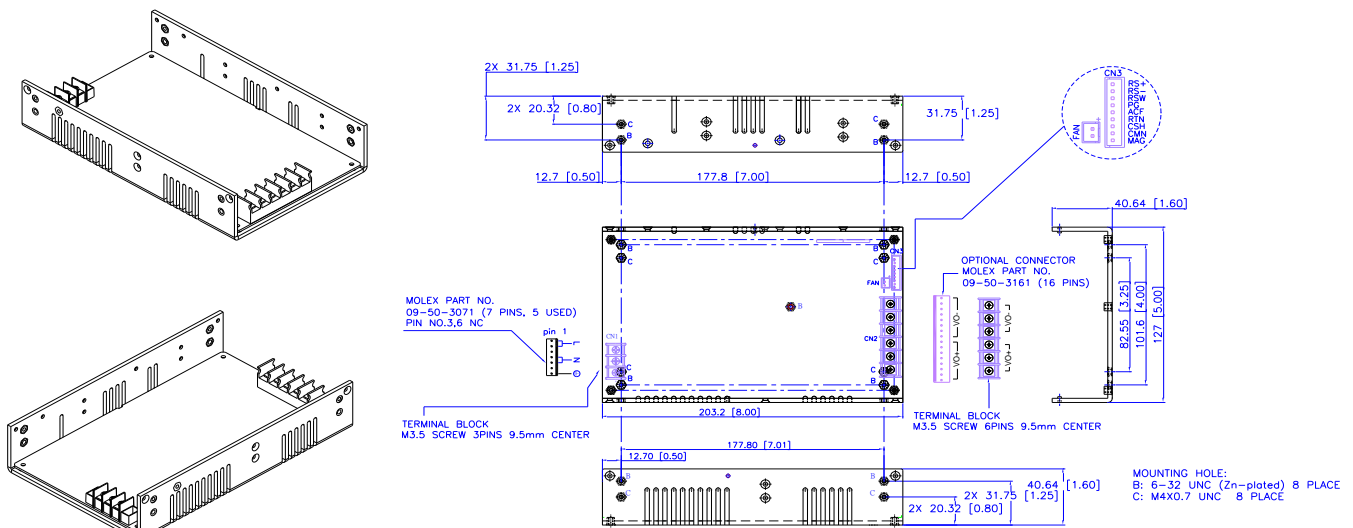
OUTPUT VOLTAGE / CURRENT RATING CHART: Measured at output power connector.

Model	Output Range	Preset Voltage	Max. Output Power or Current		Total Regulation	Ripple & Noise
			Type U (Convection)	Type U (with forced air) & E		
RL0402x-03(I)	2 ~ 3.3V	3.3V	45A	60A	+/- 1%	+/-1%
RL0402x-05(I)	5 ~ 6V	5V	45A	60A	+/- 1%	+/-1%
RL0402x-12(I)	12 ~ 15V	12V	250W	400W	+/- 1%	+/-1%
RL0402x-18(I)	16 ~ 21V	18V	250W	400W	+/- 1%	+/-1%
RL0402x-24(I)	22 ~ 30V	24V	250W	400W	+/- 1%	+/-1%
RL0402x-36(I)	31 ~ 41V	36V	250W	400W	+/- 1%	+/-1%
RL0402x-48(I)	42 ~ 58V	48V	250W	400W	+/- 1%	+/-1%

- NOTE:**
- * RL0402x-yz. x = U (U-Chassis Type) or E (Enclosed with built-in Fan Type). or y = **03, 05, 12, 18, 24, 36 or 48**. z = blank or I where I denote forced current sharing option (OR-ring diode).
 - * RL0402U Series: 400W max. with 23CFM airflow or 250W max. under convection cooling
 - * RL0402E Series: 400W max. with built-in fan flow.
 - * All output ranges are covered in agency certifications and preset output voltage for each model as above listings.
 - * Providing peak power to 700W within 500uS for all models, longer duty duration need contact manufacture.
 - * 1% minimum load is required to maintain the ripple and regulation.
 - * Output is fully isolated.

OUTLINE DRAWING:

RL0402U Series (U-Chassis Type): 8(L) x 5(W) x 1.6(H)inches; Weight: 1.3kg



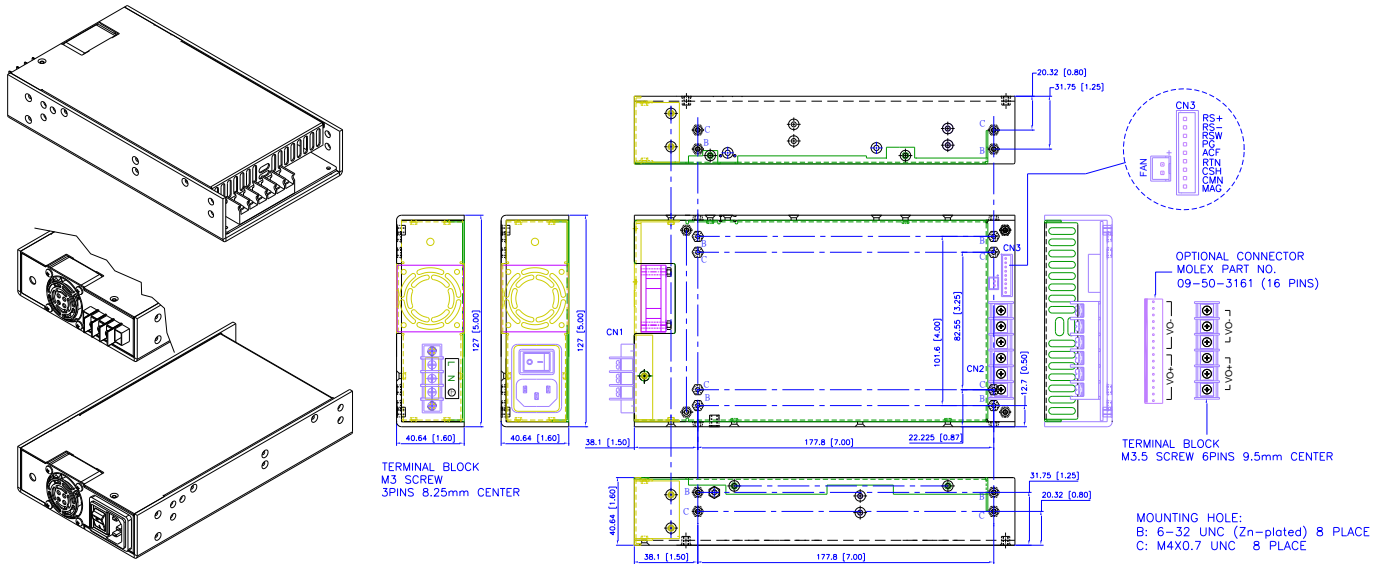


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RL0402E Series (Enclosed with built-in Fan Type): 9(L) x 5(W) x 1.6(H)inches; Weight: 1.6kg.



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 / screw torque 15.7 lb-in.
RL0402E Series: IEC320 or equivalent Snap-in mounting type or ECE Terminal block Part No. ETB51 3 pin / screw torque 4.5 lb-in.

Output Connector (CN2): Mating Molex Part No.09-50-3161 (16 pins), or Howder (HD-121-6P / screw torque 15.7 lb-in) M3.5, 8 pins terminal block, 9.5MM Center.

Output Pin Assignment: (See right table).

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 (screw torque 21 lb-in) , M4 (screw torque 13 lb-in) 4 Places individually with maximum penetration 0.15 inches on bottom side and 0.25 inch on both side.

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