

AC/DC Wall Mount Low Density Power Supply

24V, 75W ISOLATED POWER OUTPUT IN A WALL MOUNT CONFIGURATION

Description

The RLH 75W AC/DC Low Density, wall mount power supply is a compact switching supply designed to convert AC or DC power (110/240VAC, 120~330VDC) to regulated 24VDC power for a wide range of industrial equipment.

They include one or two 75W internal power supplies, battery charge controller and 1.2AH backup batteries to provide uninterruptible power, all mounted inside a rugged thermoplastic wall mount housing.

Models with dual redundant power automatically switch to the alternate internal power supply in the event of a failure, without interruption in the power delivery.

Features include convenient 12 position screw-down terminals for connecting equipment, status LEDs for quick operational assessment, and user replaceable, sealed gel batteries. They have low output ripple along with short circuit, overvoltage and overload protection. AC mains cords are preinstalled, and may be easily removed for direct connection to source power.



Low Density Power Supply

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Standard Features

Universal AC input range, DC input is auto sensing	Short circuit, overload, over voltage and over temperature protection
Cooling by free air convection	UL 508 (industrial control equipment) approved
LED indicator for power on, DC OK, Batt Discharge and Batt Fail	100% full load burn-in test
Fix switching frequency at 50KHz	Convenient screw down terminals accept up to 8AWG wiring
Durable, vented plastic wall mount housing with padlock hasp	Exclusive unconditional lifetime warranty

Specifications subject to change without notice.

General Safety Practices

The equipment discussed in this document may require tools designed for the activity being described. RLH recommends that service personnel be familiar with the correct handling and use of any installation equipment used, and follow all safety precautions including the use of protective personal equipment as required.

Caution - Severe Shock Hazard

- Never install during a lightning storm or where unsafe high voltages are present.
- This equipment uses high AC and DC voltages and current, do not touch terminals when power is applied.
- Use caution when handling copper wiring and follow appropriate safety regulations.
- An external Surge Protective Device (SPD) is not required.

Mounting Information

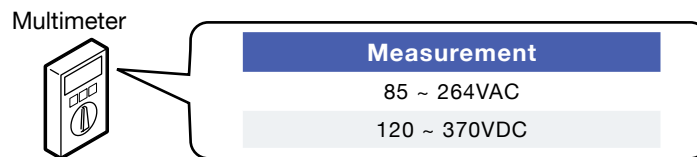
The power converter is intended to be wall mounted using the supplied hardware. Use a wall surface or backboard sufficiently strong enough to support the converter. This unit is not weatherproof, and must be mounted indoors or in a weather proof enclosure if used outdoors.

Installation

Prior to installation:

- Check for shipping damage
- Check the contents to ensure correct model and powering options
- Have a clean, dry installation environment ready

Measure the voltage of the source power and ensure it is within the acceptable range to avoid damage when power is applied.



Note: When installing into an environment with a circuit breaker before the converter, it must be rated at 1.5 times (minimum) the output current rating of the converter. For example, use a 25A circuit breaker for a 16A output converter ($1.5 \times 16 = 24$).

Do not connect power to the converter at this point.

Install onto wall surface

Mount the power converter to a wall surface using the mounting holes at the top and bottom of the housing.

Connect equipment

Connect equipment to their respective + POS and – NEG DC OUTPUT terminals.

Note: Always make sure the power is removed before making connections to the output terminals.

Connect input terminals

Turn OFF and lock out the circuit breaker at the source panel for incoming power. Ensure that power is removed from the source wiring prior to making any connections. Output power is energized when input power is supplied and the batteries connected.

For AC power source, use the preinstalled AC cord(s) and plug them into a standard 3 prong AC power mains outlet. The AC power outlet must include a ground.

For DC input power source, remove the AC power cords and connect the primary DC source power to the AC/DC INPUT terminals at bottom of the internal power supply. Note the polarity, ensuring that the positive input wire attaches to the + positive terminal. If using redundant power modules, connect the DC inputs to both internal power supply units.

Apply input power

Double check all connections. Apply power to the input wiring by turning on the source power breaker back at the panel or mains switch.

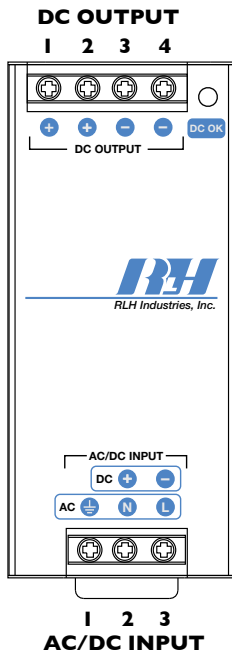
Once the AC/DC input power is applied, the output terminals are energized. Double check output power at the DC OUTPUT terminals with a multimeter.

Connect Backup Batteries

To connect the batteries to the charge system and make them available for backup use, connect the jumper wire between the batteries.

Note: The batteries are shipped with the connection wire removed. Once the wire is connected, battery output power is energized. Allow 24 hours for the batteries to achieve a full charge after connecting for the first time.

Input / Output Terminals



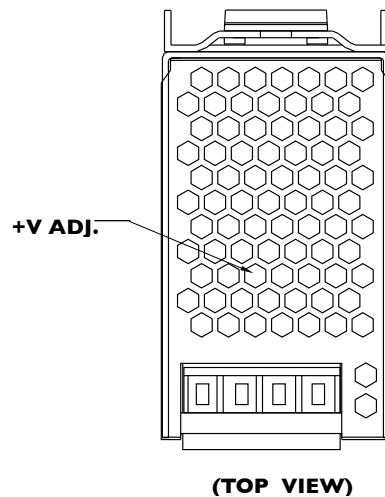
DC TERMINAL (OUTPUT)

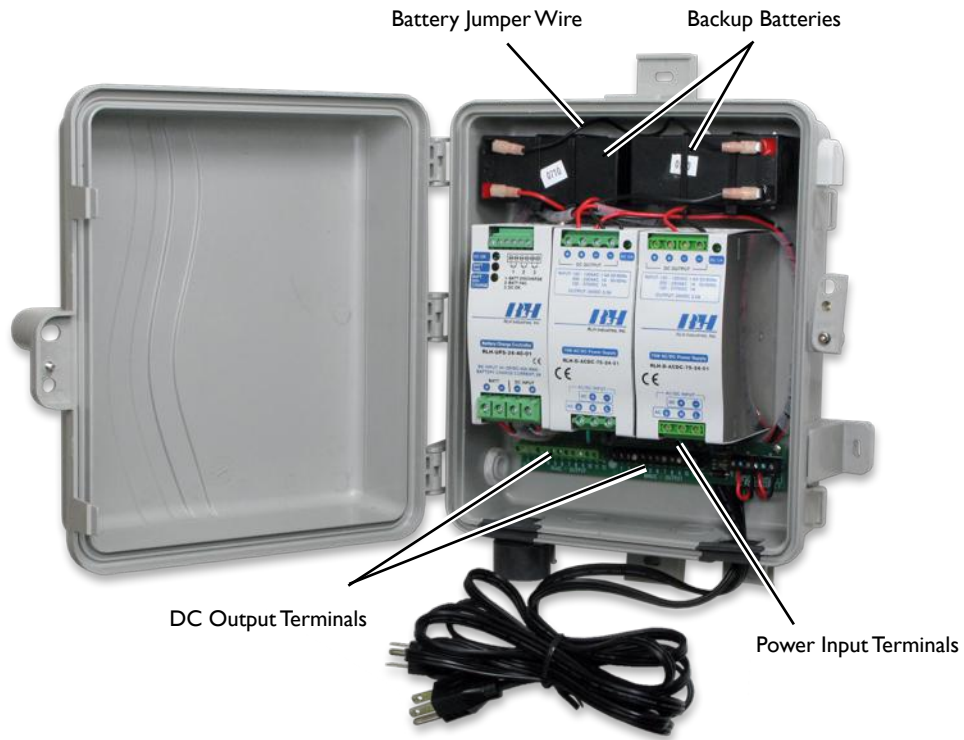
No.	Description
1, 2	DC Output +V
3, 4	DC Output -V

AC/DC TERMINAL (INPUT)

No.	Description	
	AC	DC
1	FG \oplus	~
2	N	V+
3	L	V-

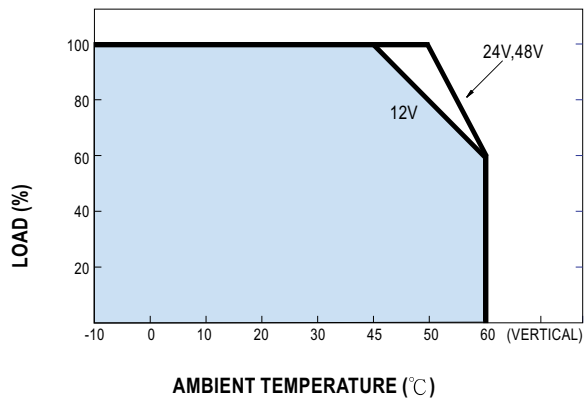
Output Voltage Adjustment



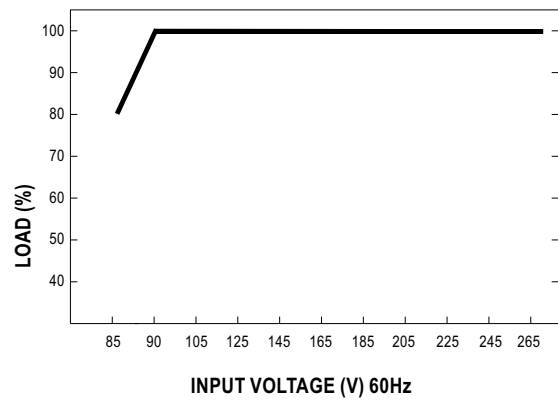


Internal Components - Redundant power supply model shown

Derating Curve



Output Derating vs. Input Voltage



Derating curve and static characteristics

Operation

The charge controller continuously maintains the correct charge level on the battery and ensures a seamless power transition to battery power when needed for a complete UPS power supply solution.

There are three functions built-in to the battery charge controller for monitoring the battery condition, battery discharge, and DC power. Each function is indicated with an LED and a contact relay for remote monitoring.

DC Power LED

The green DC OK LED will be ON and the relay will close when DC power is detected (21~29VDC ± 3%) at the DC INPUT terminals.

Battery Discharge LED

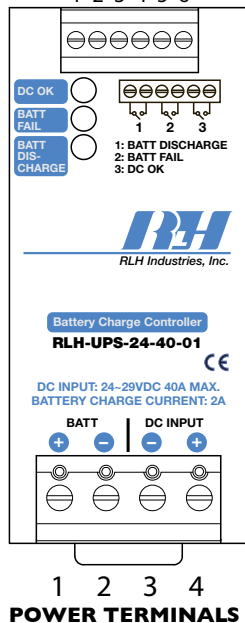
The orange BATT DISCHARGE LED will be ON and the relay will close when the system is drawing current >2A from the backup batteries. If both the BATT DISCHARGE and DC Power LEDs are ON, the attached equipment load is greater than the capacity of the power supplies, and this will cause the batteries to fail prematurely.

Battery Fail LED

The red BATT FAIL LED will be ON and the relay will close when the batteries are over discharging or the batteries have failed need to be replaced. Every 25 seconds the unit will send out a test signal through BATT FAIL relay contact and LED indicator once the battery has failed.

Status Indicators

CONTACT TERMINALS



CONTACT TERMINALS

Terminal	LED	Alarm	Description
1	ORG	1	Battery discharging
2			
3	RED	2	Battery failure
4			
5	GRN	3	DC input power is detected
6			

POWER TERMINALS

Terminal	Description
1	Battery + connection
2	Battery - connection
3	DC input +
4	DC input -

Note: No DC voltage can be measured at the DC INPUT of the charge controller unit without first having a working DC power source connected to the DC INPUT terminals. It employs a protective relay that allows voltage to only travel in one direction when connected to both the battery and power source.

Specifications

DC OUTPUT	DC VOLTAGE	24V	
	RATED CURRENT	3.2A	
	CURRENT RANGE	0 ~ 3.2A	
	RATED POWER	76.8W	
	RIPPLE & NOISE (max.) Note 2	150mVp-p	
	VOLTAGE ADJ. RANGE	24 ~ 28V	
	VOLTAGE TOLERANCE Note 3	±1.0%	
	LINE REGULATION	±0.5%	
	LOAD REGULATION	±1%	
	SETUP, RISE TIME	1000ms, 60ms/230VAC, 1800ms, 60ms/115VAC at full load	
	HOLD UP TIME (Typ.)	60ms/230VAC, 12ms/115VAC at full load	
	INPUT	VOLTAGE RANGE	85 ~ 264VAC, 120 ~ 370VDC
		FREQUENCY RANGE	47 ~ 63Hz
EFFICIENCY (Typ.)		80%	
AC CURRENT (Typ.)		1.6A/115V, 0.96A/230V	
INRUSH CURRENT (Typ.)		Cold Start 20A/115VAC, 40A/230VAC	
LEAKAGE CURRENT		<1mA / 240VAC	
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Constant current limiting, Recovers automatically after fault condition is removed.	
	OVER VOLTAGE	29 ~ 33V Protection type : Shut down o/p voltage, re-power on to recover	
	OVER TEMPERATURE	85°C ±5°C (TSW1) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down	
ENVIRON- MENT	WORKING TEMP.	-10°C~ +60°C (Refer to output load derating curve)	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-20°C ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
BATTERY BACKUP	CAPACITY	1.2AH	
	TYPE	Rechargeable Gell Cell	
	BATTERIES PER UNIT	2	
BATTERY INPUT / OUTPUT	VOLTAGE RANGE (Typ.)	21 ~ 29V	
	CURRENT RANGE	0 ~ 40A	
	CHARGE CURRENT (Typ.)	2A	
	EXTERNAL BATTERY (Typ.)	4 / 7 / 12 / 20AH / 24V	

Specifications subject to change without notice.

Specifications

FUNCTION	RELAY CONTACT RATING	30VDC, 1A (max.)
	DC BUS OK	Relay contact : Short when DC voltage between 21~29V(3%), relay contacts LED (Green) ON : DC BUS OK; LED (Green) OFF : DC BUS failure
	BATTERY FAIL See Note 2	Relay contact : Short when battery failure is observed through the battery test function, relay contacts LED (Red) ON : Battery over-discharge warning or battery malfunction LED (Red) OFF : Battery OK
	BATTERY DISCHARGE	Relay contact : Short when battery in discharge condition, relay contacts LED (Yellow) ON : Battery discharging LED (Yellow) OFF : Battery is not discharging or discharging current <2.0A
POWER SUPPLY SAFETY & EMC	SAFETY STANDARDS	UL508, CE, TUV EN60950-1 approved
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC
	EMI CONDUCTION & RADIATION	Compliance to EN55011,EN55022 (CISPR22) Class B
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, ENV50204, EN55024, EN61000-6-2 (EN50082-2), heavy industry level, criteria A
OTHER	MTBF	123.1K hrs min. MIL-HDBK-217F (25°C)
	POWER SUPPLY HOUSING DIMENSIONS	W11.4" x H13.4" x D4.5" Including mounting tabs
	RECOMMENDED INPUT CIRCUIT BREAKER	1.5 X Input Rating
NOTE	<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. Tolerance: includes set up tolerance, line regulation and load regulation. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. Every 25 seconds, the unit will send out test signal through "Battery Fail" relay contact and LED indicator once the battery has failed. 	

Ordering Information

Part Number	Input	Output	Current	Redundant Power	Battery Backup	Replacement Battery Set
8806-1203-04D	I 10-240AC/I 20-330VDC	24VDC	3.2A	N/A	1.2AH	8806-1205-03
(CLEI: NPPSSW0CRA)						
8806-1203-04D2	I 10-240AC/I 20-330VDC	24VDC	3.2A	Included	1.2AH	8806-1205-03
8806-1203-04D-NB	I 10-240AC/I 20-330VDC	24VDC	3.2A	N/A	N/A	N/A
8806-1203-04D2-NB	I 10-240AC/I 20-330VDC	24VDC	3.2A	Included	N/A	N/A

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Warranty

RLH is recognized throughout the U.S. and offers the only **UNCONDITIONAL LIFETIME WARRANTY** in the industry. We are very proud of our warranty which simply states that the product is warranted to be free of defects in material and workmanship for the **LIFE OF THE PRODUCT**. Batteries carry a 5- year unconditional warranty.

- We believe our customers shouldn't have to incur additional costs due to failure or damage
- We engineer our products with total confidence in our quality
- We understand how safety and reliability impact the total cost of ownership
- We know that customer support extends beyond the initial sale, so **we stand behind our products**

RLH will replace any product, or part thereof, that fails **FOR ANY REASON**, provided the defective part is returned to RLH Freight prepaid. This warranty is **UNCONDITIONAL** and valid even when RLH products have been abused or mishandled, or the product has been damaged as a result of a natural disaster. This warranty will reduce your costs and simplify your maintenance activities. Not all RLH products are covered by this warranty.

To make a warranty claim, or schedule repair or replacement of your RLH product, please contact us for an RMA number. You will be promptly assisted by one of our warranty specialists. All returns must have an RMA number before we can receive any items.

Technical Support

Normal technical support: (Mon - Fri 6am - 6pm PST)	Local (714) 532-1672 Toll Free (800) 877-1672 Toll Free (866) DO-FIBER
24/7 Technical support:	(714) 366-2503 (714) 457-5740

Contact Information

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Please contact your RLH sales representative for pricing and delivery information.

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