

Features

DIN Rail Series

- Universal AC input (85-264VAC)
- Long 7 year warranty
- Protections: SCP, OVP, OCP, OTP
- 100% full load burn-in test
- DC OK indicator LED with relay contacts
- cooling by free air convection, 5000m operation
- UL, CSA & CE certified with CB report

RECOM
AC/DC Converter

REDIN60

60 Watt
DIN-Rail
Power Supply



Description

This DIN-rail mounted power supply uses high reliability components to give a long, trouble-free life. The power supply can be end mounted to save space or side mounted for use in low-profile cabinets. Relay contacts simplify DC OK monitoring and the units can deliver 80W start-up power. The REDIN series is fully certified for industrial use and carries a 7-year warranty.

Selection Guide

Part Number	Input Voltage Range [VAC]	Output Voltage [VDC]	Output Trimming Voltage [VDC]	Rated Current [A]	Efficiency typ. [%]	Max. Capacitive Load [μF]
REDIN60-12	85-264	12	12-15	5.0	85	18800
REDIN60-24	85-264	24	24-28	2.5	86	4700

Specifications (measured at Ta= 25°C, 230VAC, full load and after warm up)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range	all operating conditions	85VAC		264VAC
max. Input Voltage	max. 1 second			300VAC 375VDC
Output Voltage Adjustment (Factory Setting) ⁽¹⁾	12Vout 24Vout	12-15VDC (12V±5%) 24-28VDC (24V±5%)		
Input Current	full load, 115VAC full load, 230VAC			1.8A 1.0A
absolute max. Input Current	cold start at 25°C, 115VAC cold start at 25°C, 230VAC			40A 60A
No Load Power Consumption	standard (with Relay) /NR option (no Relay)			<1000mW <500mW
Start Up time	cold start, 230VAC		500ms	1000ms
Rise time	cold start, 230VAC		20ms	
Hold-up time	full load, 115VAC full load, 230VAC		20ms 50ms	
Input Frequency Range		47Hz		63Hz
Operating Frequency Range			65kHz	
Efficiency		see Selection Guide		
Output Ripple and Noise ⁽²⁾	12Vout 24Vout		60mVp-p 75mVp-p	
Over Load Capability	all operating conditions	140% for 5 seconds max.		
Notes:				
Note1: For more details refer to Vadj. Derating Graph on page PA-2				
Note2: Ripple and Noise are measured at 20MHz bandwidth by using a 12" twisted pair-wire terminated with 0.1µF & 47µF parallel capacitor.				
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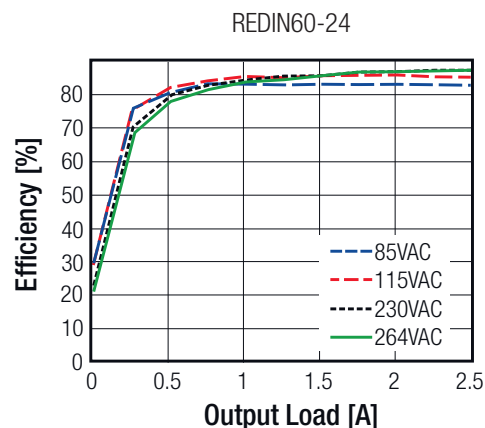
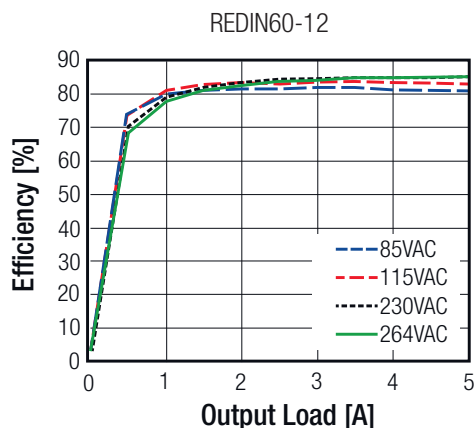


UL **US** **CE**
E224736

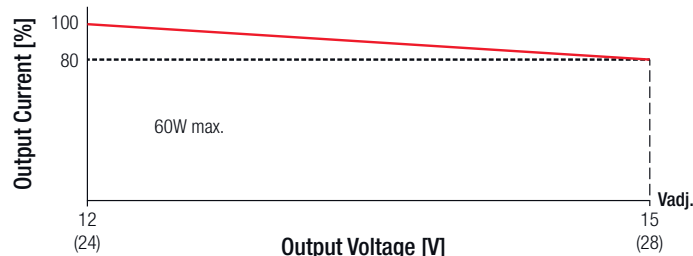
CB-Report
UL60950-1 certified
UL508 certified
IEC60950-1 certified
EN60715 compliant
EN50022 compliant
CSA C22.2 No. 60950-1-07 certified

Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

Efficiency vs. Load



Vadj. Derating



REGULATION

Parameter	Condition	Value
Line Voltage Regulation		± 0.1 typ. / $\pm 1\%$ max.
Load Voltage Regulation		± 0.1 typ. / $\pm 1\%$ max.
Transient Response ⁽³⁾	12Vout (step load change: 2.5A - 5.0A) 24Vout (step load change: 1.25A - 2.5A)	$\pm 5\%$ typ. $\pm 5\%$ typ.
Dwell Time		100Hz & 1kHz 50% duty
Slew Rate		0.5A / μs

Notes:

Note3: Transient Response + E-CAP loading 3300 μF . Other specs with resistive load only.

PROTECTION

Parameter	Condition		Value
Input Fuse			T2.5A, slow blow type
Short Circuit Protection (SCP)			auto-recovery after fault condition, Hiccup Mode
Over Voltage Protection (OVP)	12Vout 24Vout		18VDC max., shut-down latch-off o/p voltage, re-power on to recover 35VDC max., shut-down latch-off o/p voltage, re-power on to recover
Over Voltage Category			OVCII
Over Current Protection (OCP)			150% typ., auto-recovery after fault condition
Over Temperature Protection (OTP)	detect on inside ambient		105 $^\circ\text{C} \pm 5\%$, shut-down latch-off o/p voltage, re-power on to recover
Isolation Voltage	tested for 1 minute	I/P to O/P I/P to FG O/P to FG	3.75kVAC 1.88kVAC 0.5kVAC
Isolation Resistance	500VDC, 70% RH, I/P to O/P; I/P to FG; O/P to FG		100M Ω min.
Leakage Current	240VAC		>1mA
Power OK LED	Relay Contacts LED/Relay		1A, 30VDC / 120VAC ON if Vout = 11-16V (12V) / 22-30V (24V)

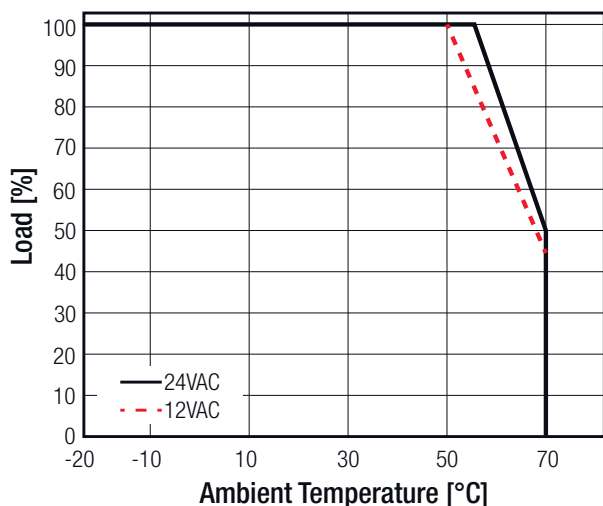
Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

ENVIRONMENTAL

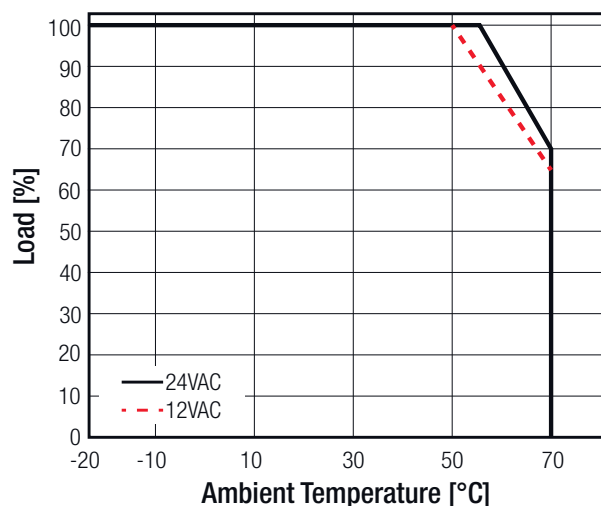
Parameter	Condition	Value
Operating Temperature Range	with derating	-20°C to $+70^\circ\text{C}$ (see graph)
Operating Humidity	non-condensing	20% - 90%RH
Vibration		10-500Hz 2G, 60min.
Shock	3 times each axis	10G / 11ms, along X, Y and Z axis
Altitude	see derating graph	5000m
MTBF ($+25^\circ\text{C}$)	according to MIL-HDBK-217F, 115VAC, 60Hz, 75% load	200×10^3 hours
Design Lifetime ($+40^\circ\text{C}$)		87.6×10^3 hours

Derating Graph

$V_{in} \leq 100\text{VAC}$

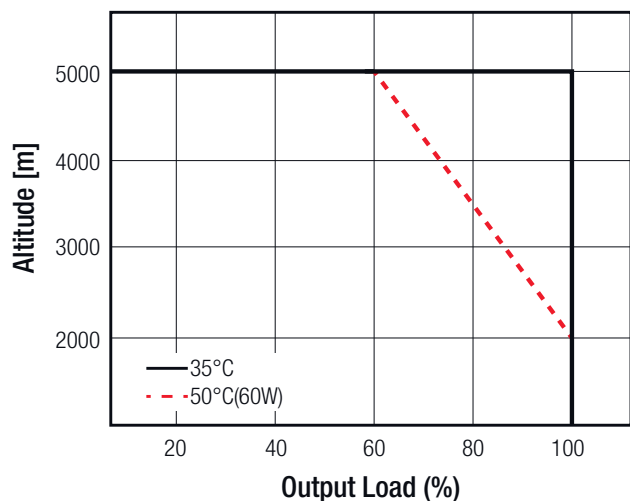


$V_{in} > 100\text{VAC}$

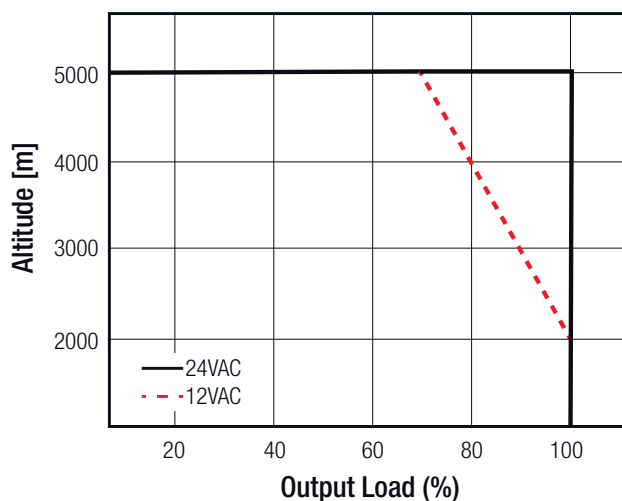


Typical Characteristics

REDIN60-12



REDIN60-24



Specifications (measured at Ta= 25°C, 230VAC, full load and after warm up)

SAFETY AND CERTIFICATIONS

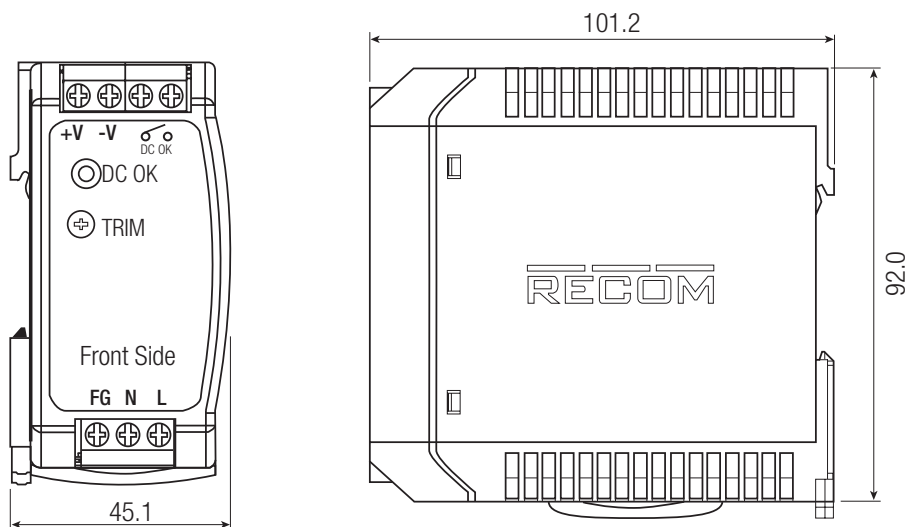
Certificate Type (Safety)	Report / File Number	Standard
UL General Safety	E224736	UL60950 1, 2nd Edition
CSA General Safety		UL1310 C22.2 No. 60950-1-07, 2nd Edition
Industrial Control Equipment General Use Power Supplies	E470721	UL508 C22.2 No. 107.1
IEC/EN General Safety	E224736	IEC/EN60950-1, 2nd Edition
Chinese Safety Standard	E224736	GB 4943.1-2011

EMC Compliance	Report / Condition	Standard / Criterion
EMI Standard	Report: HA150146	EN55022, Class B
		EN55024, Class B
		FCC15, Class B
ESD	±8kV Contact & Air Discharge	EN61000-4-2, Criteria A
Radiated Immunity	10V/m, 80-3000MHz, 80% AM at 1kHz	EN61000-4-3, Criteria A
Fast Transient	Level 2	EN61000-4-4, Criteria A
Surge	±2kV / L-N, ±4kV / L, N-FG	EN61000-4-5, Criteria A
Conducted Immunity	10Vrms, 0.15-80MHz, 80% AM at 1kHz	EN61000-4-6, Criteria A
Power frequency magnetic field immunity test		EN61000-4-8, Criteria A
Noise Immunity	40% reduction, 200ms	EN61000-4-11, Criteria A
	70% reduction, 500ms	EN61000-4-11, Criteria B
	90% reduction, 5s	EN61000-4-11, Criteria B
Harmonic Immunity		EN61000-3-2
Voltage Flicker	not applicable input below 75W	EN61000-3-3

DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	plastic, (UL94V-0)
Unit Dimension (WxHxD)		45.1 x 92.0 x 101.2mm
Unit Weight		332g

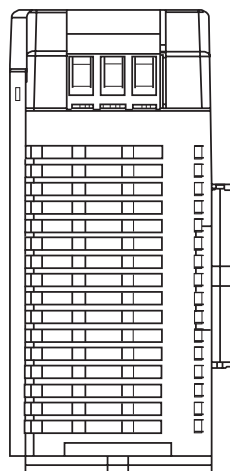
Dimension Drawing (mm)



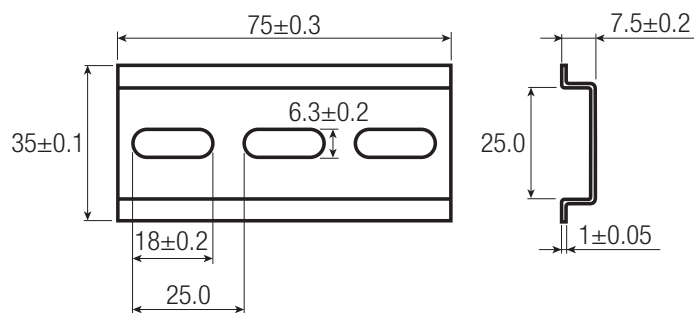
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Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

Dimension Drawing (mm)

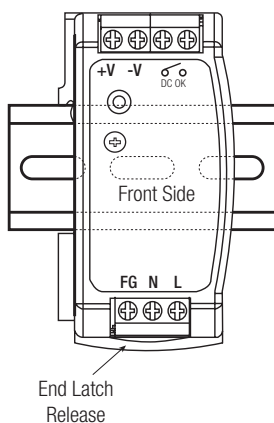


DIN-RAIL mounting bracket
(75mm) included

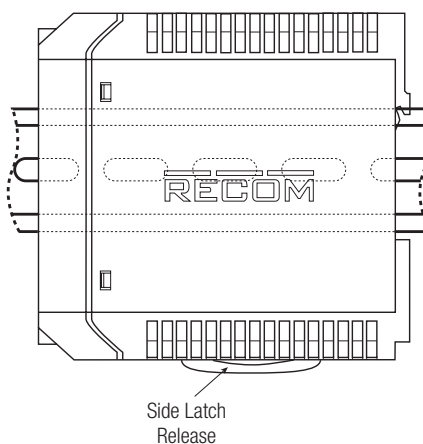


INSTALLATION

END MOUNTING



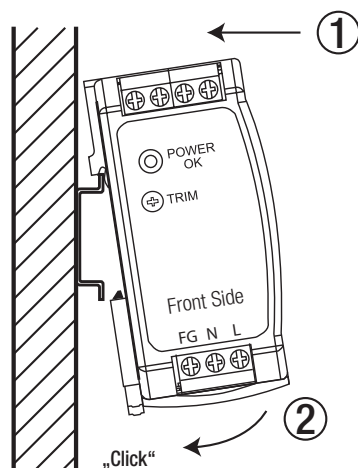
SIDE MOUNTING



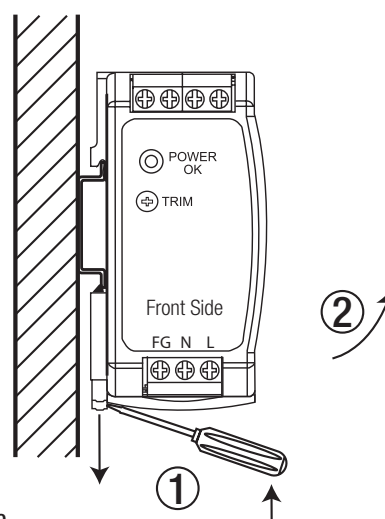
Tolerance: $\pm 0.5\text{mm}$

Mounting Instruction

Mounting



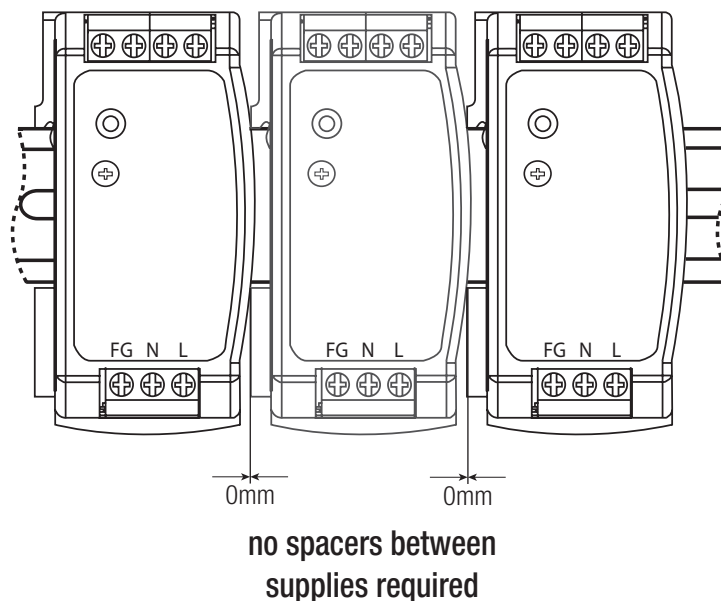
Releasing



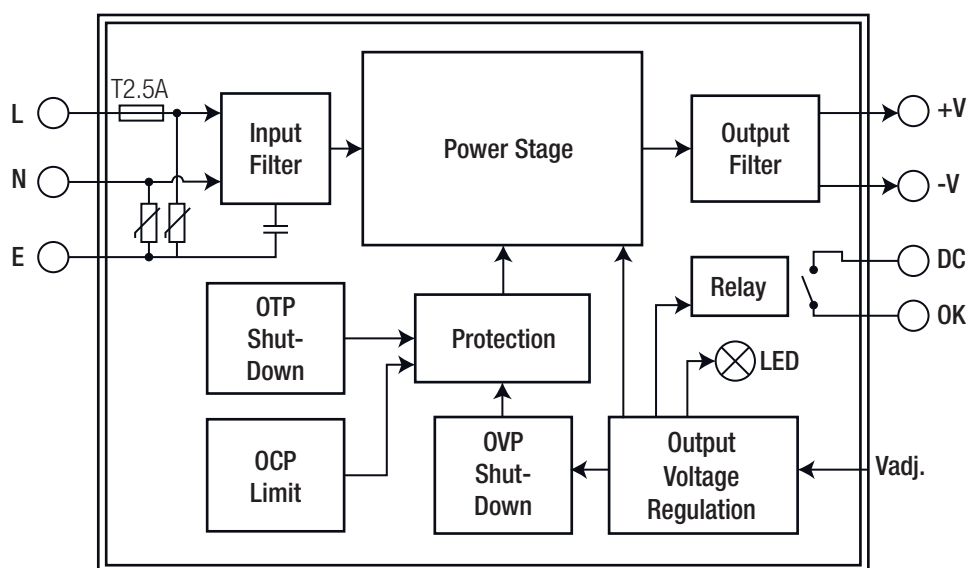
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Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

Mounting Multiple Power Supplies



BLOCK DIAGRAMM



PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	cardboard box	116.0 x 97.0 x 54.0mm
Packaging Quantity		1pcs
Storage Temperature Range		-30°C to +85°C
Storage Humidity		10% - 90% RH

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