

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

REDIN45

45 Watt DIN-Rail Power Supply



UL US
E224736



CB-Report
UL60950-1 certified
IEC/EN60950-1 certified
CSA C22.2 No. 60950-1-07 certified
UL508 certified
CAN/CSA-C22.2 No. 107.1-01 certified
EN55024 certified
EN55032 certified

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 60W 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 [μ F]
REDIN45-12	85-264	12	12-15	3.75	85	18800
REDIN45-24	85-264	24	24-28	1.875	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 $\pm$ 5%) 24-28VDC (24V $\pm$ 5%)		
Input Current	full load, 115VAC full load, 230VAC			1.35A 0.75A
Inrush 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:

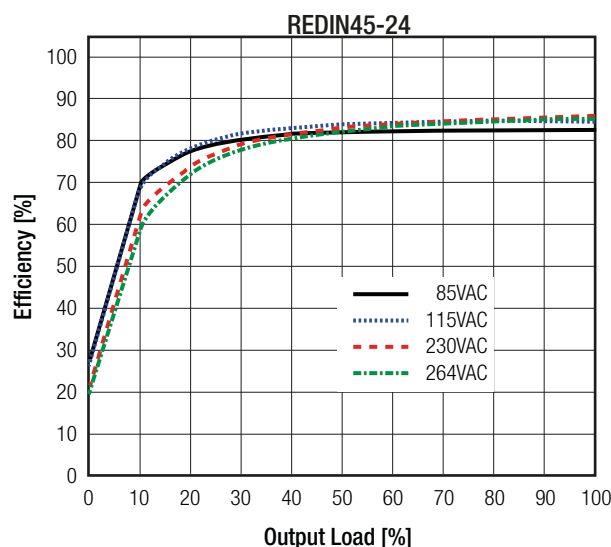
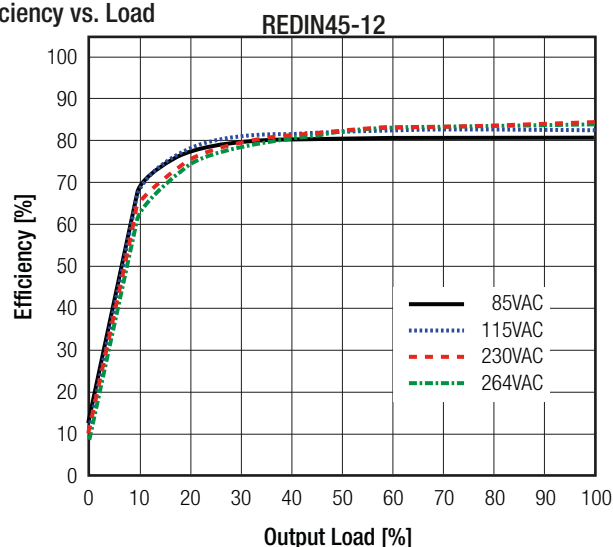
Note1: For more details refer to Vadj. Derating Graph on page PA-2

Note2: Ripple and Noise are measured at 20MHz bandwidth by using a 12" twisted pair-wire terminated with 0.1 μ F & 47 μ F parallel capacitor

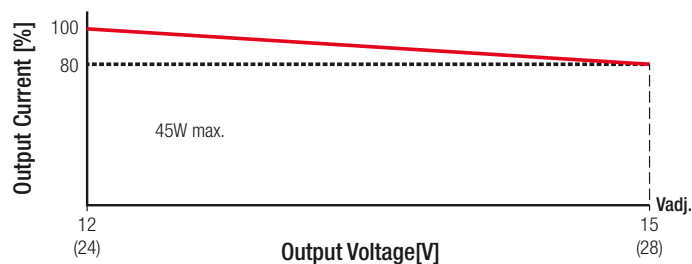
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Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

Efficiency vs. Load



Vadj. Derating



REGULATION

Parameter	Condition	Value
Line Regulation		± 0.1 typ. / $\pm 1\%$ max.
Load Regulation		0.1 typ. / 1% max.
Transient Response ⁽³⁾	12Vout (step load change: 1.875A - 3.75A) 24Vout (step load change: 0.937A - 1.875A)	$\pm 5\%$ typ. $\pm 5\%$ typ.
Dwell Time		100Hz & 1kHz 50% duty
Slew Rate		0.5A / μs

Notes:

Note3: Transienst 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°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	3.75kVAC
		I/P to FG	1.88kVAC
		O/P to FG	0.5kVAC

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

PROTECTION

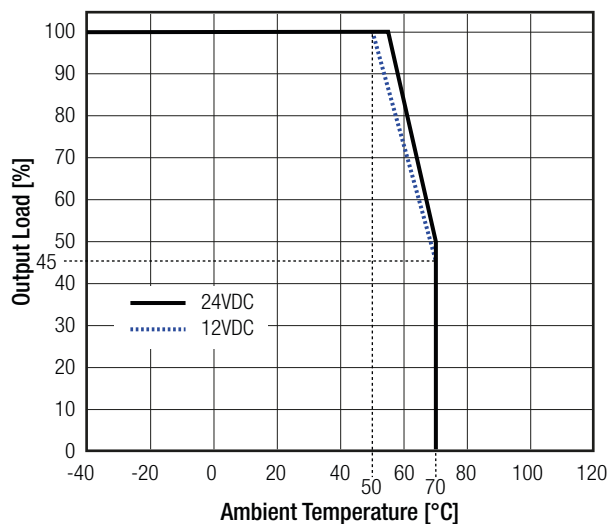
Parameter	Condition	Value
Isolation Resistance	500VDC, 70% RH, I/P to O/P; I/P to FG; O/P to FG	100M Ω min.
Leakage Current	240VAC	<1.0mA
Power OK LED	Relay Contacts LED/Relay	1A, 30VDC / 120VAC ON if $V_{out} = 11-16\text{V}$ (12V) / 22-30V (24V)

ENVIRONMENTAL

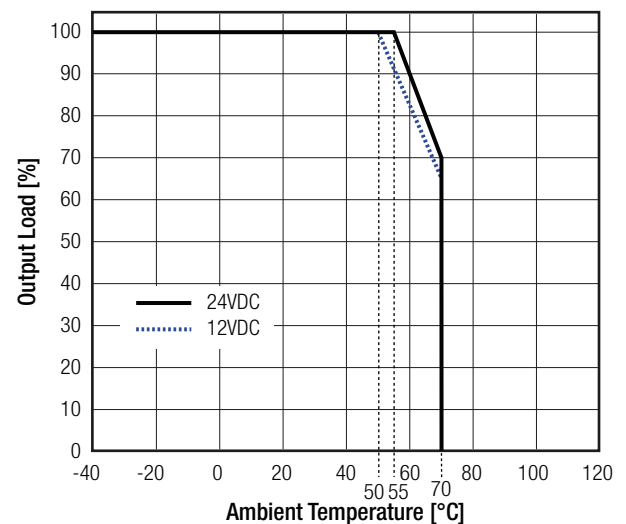
Parameter	Condition	Value
Operating Temperature Range	with derating	-20°C to +70°C (see graph)
Operating Humidity	non-condensing	20% - 90%RH
Vibration		10-500Hz 2G, 60min.
Shock	3 times each axis	10G / 11ms, along X, Y and Z axis
Altitude	see derating graph	5000m
MTBF (+25°C)	according to MIL-HDBK-217F,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

Derating Graph

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

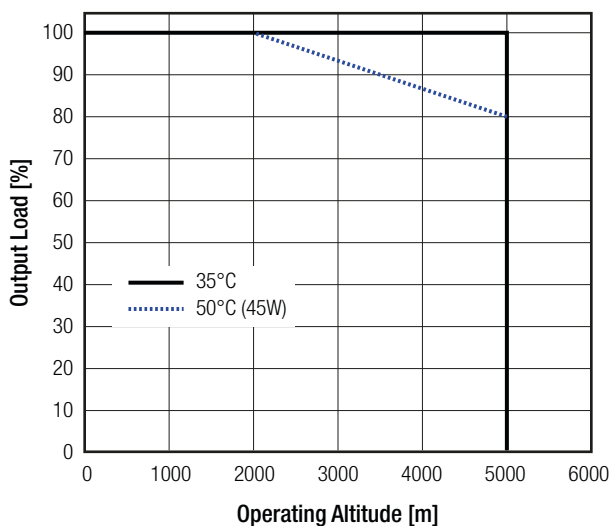


$V_{in} > 100\text{VAC}$

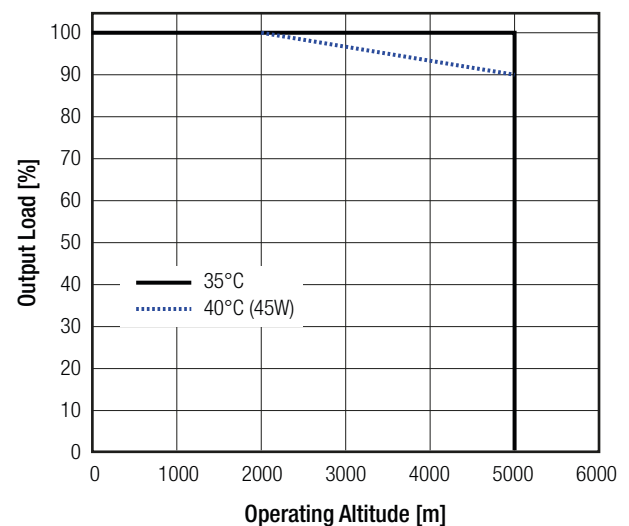


Typical Characteristics

REDIN45-12



REDIN45-24



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

SAFETY AND CERTIFICATIONS

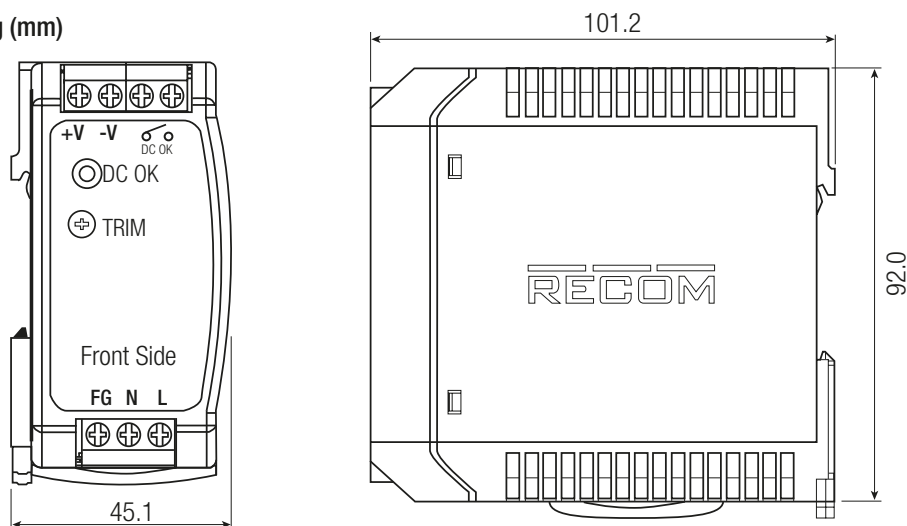
Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment - General Requirements for Safety	E224736-A23	UL60950-1 2nd Edition 2011 CAN/CSA-C22.2 No. 60950-1-07 2nd Edition 2011
Industrial Control Equipment	E470721	CAN/CSA-C22.2 No. 107.1-01, 3rd Edition 2011 UL508, 17th Edition 2013
Information Technology Equipment - General Requirements for Safety	E224736-A23	EN60950-1:2006 + A2:2013 IEC60950-1:2005 2nd Edition + A1:2009
EAC	RU-AT.37.02367	TP TC 004/2011
RoHS2		RoHS 2011/65/EU

EMC Compliance	Report / Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment – Emission Requirements		EN55032:2015
Information technology equipment - Immunity characteristics - Limits and methods of measurement		EN55024:2010 + A1:2015
ESD Electrostatic discharge immunity test	Air +/-2, 4, 8kV, Contact +/-2, 4kV	IEC61000-4-2:2008; Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	IEC61000-4-3:2006 + A1:2007 + A2:2010; Criteria A
Fast Transient and Burst Immunity	AC Power Port: +/-1.0kV	IEC61000-4-4:2012; Criteria A
Surge Immunity	AC Power Port: L-N +/-0.5, 1, 2kV L-PE, N-PE +/-0.5, 1, 2, 4kV	IEC61000-4-5:2014; Criteria A
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port 3V	IEC61000-4-6:2013; Criteria A
Power Magnetic Field Immunity	50Hz, 1A/m	IEC61000-4-8:2009; Criteria A
Voltage Dips and Interruptions	Voltage Dips >95% Voltage Dips 30% Voltage Interruptions > 95%	IEC61000-4-11:2004; Criteria A IEC61000-4-11:2004; Criteria A IEC61000-4-11:2004; Criteria B
Limits of Harmonic Current Emissions		EN61000-3-2:2014, Class A
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013
Limitations on the amount of electromagnetic interference allowed from digital and electronic devices		47 CFR FCC Part 15 Subpart B 2010-01-07, Class B

DIMENSION and PHYSICAL CHARACTERISTICS

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

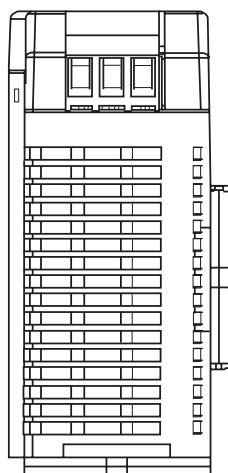
Dimension Drawing (mm)



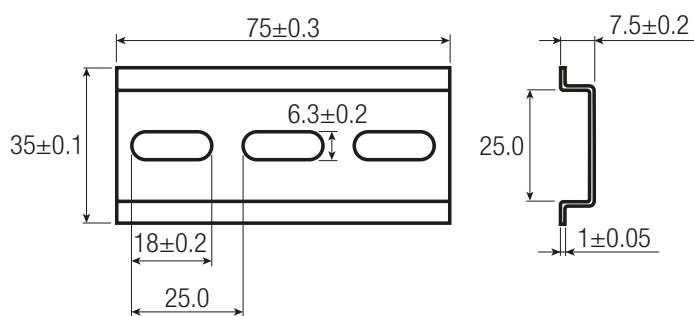
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Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

Dimension Drawing (mm)

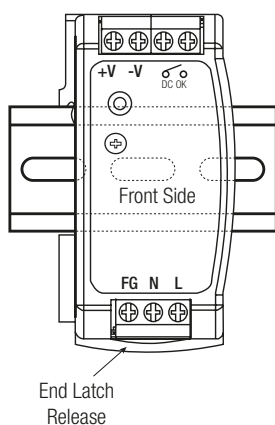


**DIN-RAIL mounting bracket
(75mm) included**

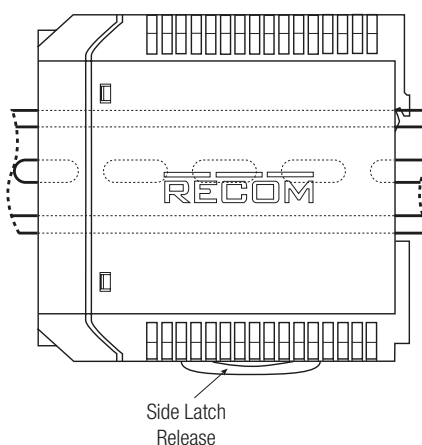


INSTALLATION

END MOUNTING



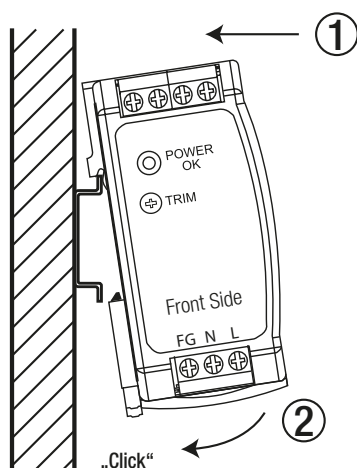
SIDE MOUNTING



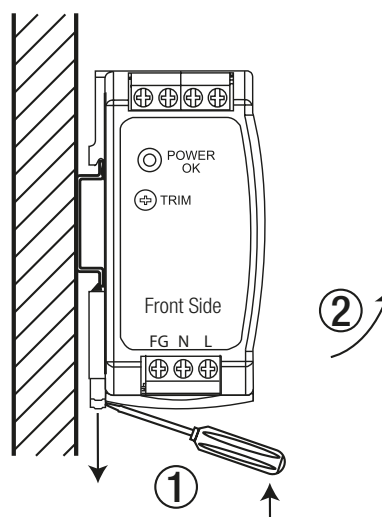
Tolerance: $\pm 0.5\text{mm}$

Mounting Instruction

Mounting



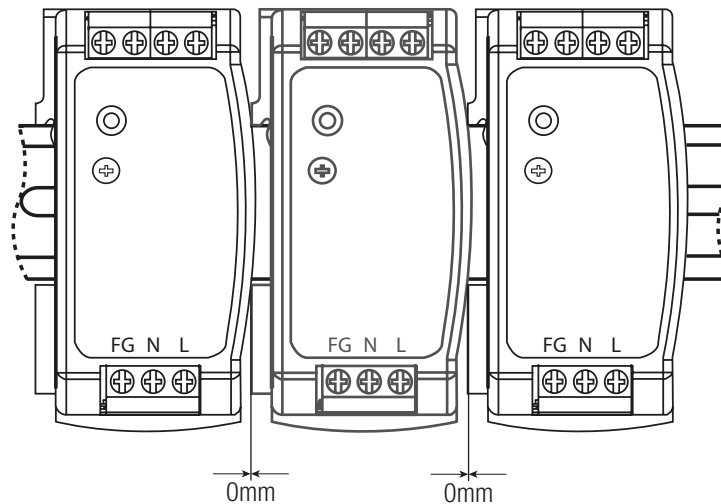
Releasing



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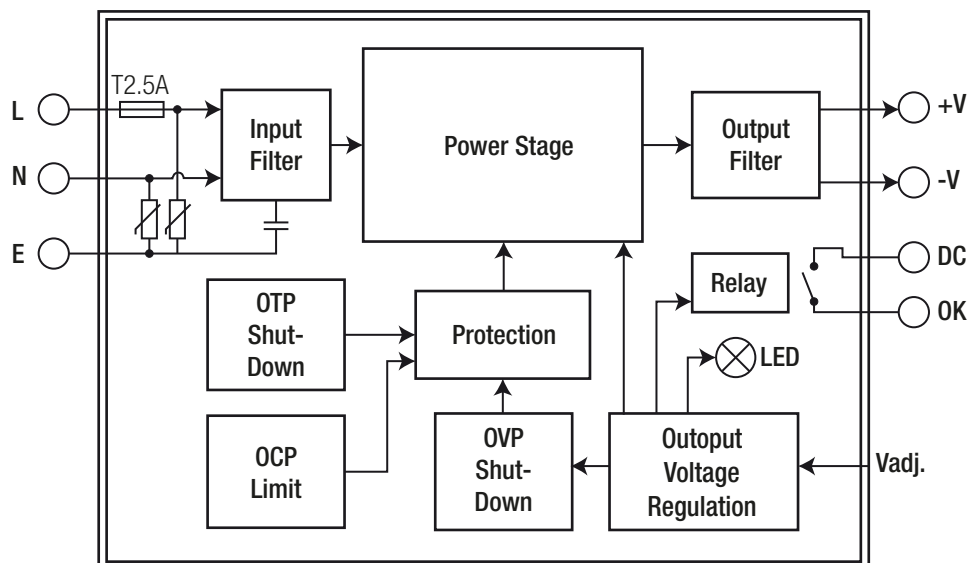
Specifications (measured at $T_a = 25^\circ\text{C}$, 230VAC, full load and after warm up)

Mounting Multiple Power Supplies



no spacers between supplies required
Kein Minimumabstand benötigt

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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