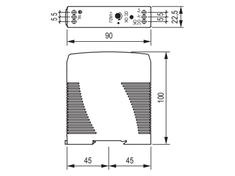
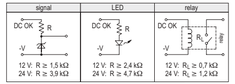
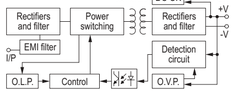
Dimensions

RPS-20-12
RPS-20-24

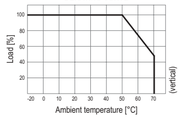


APPLICATION OF DC OK ACTIVE SIGNAL ✪

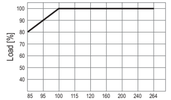




DERATING CURVE

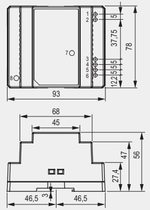


OUTPUT DERATING VS INPUT VOLTAGE (Ta = 25 °C)



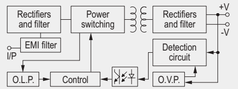
✪ Function DC OK (max.):
12 V: 9...13.5 V / 40 mA
24 V: 18...27 V / 20 mA

RPS-30-12
RPS-30-24

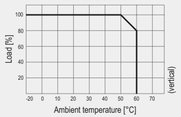


TERMINAL PIN NO. / ASSIGNMENT

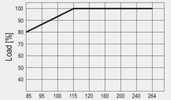
No.	Assignment	No.	Assignment
1	AC/N	5, 6	-V
2	AC/L	7	LED
3, 4	+V	8	+V ADJ.



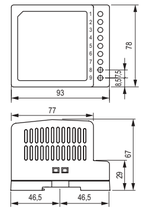
DERATING CURVE



OUTPUT DERATING VS INPUT VOLTAGE (Ta = 25 °C)

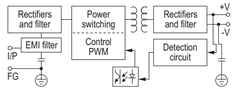


RPS-45-12
RPS-45-24

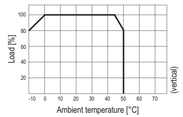


TERMINAL PIN NO. / ASSIGNMENT

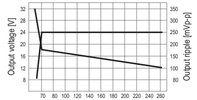
No.	Assignment	No.	Assignment
1	AC/L	6, 7	DC OUTPUT +V
2	AC/N	8	LED
3	FG ⏚	9	+V ADJ.
4, 5	DC OUTPUT -V		



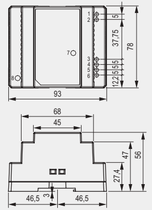
DERATING CURVE



STATIC CHARACTERISTICS (24 V) (Ta = 25 °C)

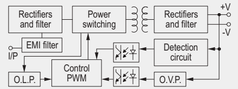


RPS-60-12
RPS-60-24

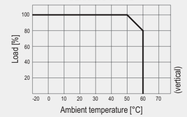


TERMINAL PIN NO. / ASSIGNMENT

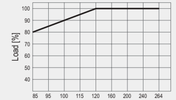
No.	Assignment	No.	Assignment
1	AC/N	5, 6	-V
2	AC/L	7	LED
3, 4	+V	8	+V ADJ.



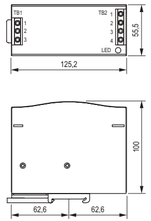
DERATING CURVE



OUTPUT DERATING VS INPUT VOLTAGE (Ta = 25 °C)



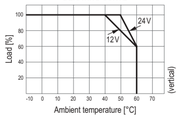
RPS-75-12
RPS-75-24



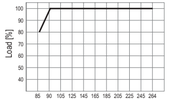
TERMINAL PIN NO. / ASSIGNMENT

No.	Assignment (TB1)	No.	Assignment (TB2)
1	FG ⏚	1, 2	DC OUTPUT +V
2	AC/N(DC+)	3, 4	DC OUTPUT -V
3	AC/L(DC-)		

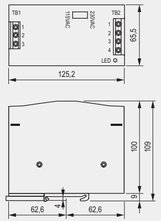
DERATING CURVE



OUTPUT DERATING VS INPUT VOLTAGE (Ta = 25 °C)



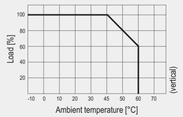
RPS-120-12
RPS-120-24



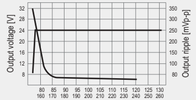
TERMINAL PIN NO. / ASSIGNMENT

No.	Assignment (TB1)	No.	Assignment (TB2)
1	FG ⏚	1, 2	DC OUTPUT +V
2	AC/N	3, 4	DC OUTPUT -V
3	AC/L		

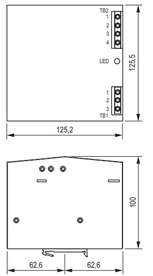
DERATING CURVE



STATIC CHARACTERISTICS (24 V DC) (Ta = 25 °C)



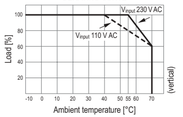
RPSP-240-24



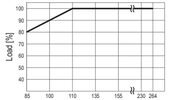
TERMINAL PIN NO. / ASSIGNMENT

No.	Assignment (TB1)	No.	Assignment (TB2)
1	FG ⏚	1, 2	DC OUTPUT +V
2	AC/N	3, 4	DC OUTPUT -V
3	AC/L		

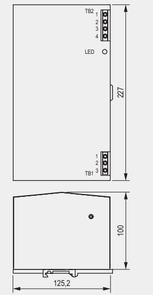
DERATING CURVE



OUTPUT DERATING VS INPUT VOLTAGE (Ta = 25 °C)



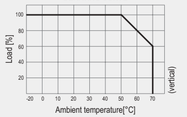
RPSP-480-24



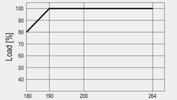
TERMINAL PIN NO. / ASSIGNMENT

No.	Assignment (TB1)	No.	Assignment (TB2)
1	AC/L	1, 2	DC OUTPUT +V
2	AC/N	3, 4	DC OUTPUT -V
3	FG ⏚		

DERATING CURVE



OUTPUT DERATING VS INPUT VOLTAGE (Ta = 25 °C)



block diagrams, charts

Project part - financed by the EUROPEAN UNION
European Regional Development Fund

UNION FOR ENTERPRISING PEOPLE
COMPETITIVENESS PROGRAMME

company quoted at the WSE

industrial DIN rail power supplies

09/2008

www.relpol.com.pl

relpol S.A.

Industrial DIN rail power supplies

in plastic cover

in metal cover

Features

- single output, for direct mounting on 35 mm DIN rail mount,
- universal AC or DC input (full range, except RPSP-480), or AC input range selectable by switch (RPS-120),
- protections: short circuit, overload, overvoltage, (overtemperature ②),
- cooling with by free air convection,
- LED indicator for power on,
- 100% full load burn-in test,
- fixed switching frequency at: (100 kHz ①) or (55 kHz ②),
- high efficiency and low dissipation,
- low noise and interference,
- wires connection: input / output - 2, 3 or 4 terminals,
- 3 years warranty,

- compliance with safety standards: EN60950-1, UL60950-1, Design refer to EN50178 ① or UL508, UL60950-1, EN60950 Approved ②

- compliance with EMC standards ③:
  - EMI conduction & radiation: EN55011, EN55022 (CISPR22) Class B,
  - harmonic current: EN61000 -3-2,-3,
  - EMS immunity: ENV50204, EN55024, EN61000-4-2,3,4,5,6,8,11, EN61000-6-2, EN61204-3 Heavy industry level, criteria A,

- recognitions and certifications: CE

① Refers to power supplies in plastic cover.
② Refers to power supplies in metal cover.
③ The power supply is considered a component which will be installed into a final equipment. The final equipment must be reconfirmed that it still meets EMC directives.

Type of power supply	RPS-20-12	RPS-20-24	RPS-30-12	RPS-30-24	RPS-45-12	RPS-45-24	RPS-60-12	RPS-60-24	RPS-75-12	RPS-75-24	RPS-120-12	RPS-120-24	RPSP-240-24	RPSP-480-24
All parameters specified in the technical data table, NOT specially mentioned, are measured at 230 V AC input voltage, rated load and +25 °C of ambient temperature.														
Technical data	Power supplies in plastic cover, for direct mounting on 35 mm DIN rail mount, EN 50022								Power supplies in metal cover, for direct mounting on 35 mm DIN rail mount, EN 50022					
Output circuit														
DC voltage	12 V	24 V	12 V	24 V	12 V	24 V	12 V	24 V	12 V	24 V	12 V	24 V	24 V	24 V
Rated current	1,67 A	1 A	2 A	1,5 A	3,5 A	2 A	4,5 A	2,5 A	6,3 A	3,2 A	10 A	5 A	10 A	20 A
Current range	0...1,67 A	0...1 A	0...2 A	0...1,5 A	0...3,5 A	0...2 A	0...4,5 A	0...2,5 A	0...6,3 A	0...3,2 A	0...10 A	0...5 A	0...10 A	0...20 A
Rated power	20 W	24 W	24 W	36 W	48 W	48 W	60 W	60 W	76,8 W	76,8 W	120 W	120 W	240 W	480 W
Max. ripple & noise ❶	120 mVp-p	150 mVp-p	120 mVp-p	150 mVp-p	200 mVp-p	480 mVp-p	120 mVp-p	150 mVp-p	100 mVp-p	150 mVp-p	80 mVp-p	80 mVp-p	80 mVp-p	120 mVp-p
Voltage adjustment range	10,8...13,2 V	21,6...26,4 V	10,8...13,2 V	21,6...26,4 V	10,8...13,2 V	21,6...26,4 V	11,1...13,2 V	21,6...26,4 V	12...14 V	24...28 V	12...14 V	24...28 V	24...28 V	24...28 V
Voltage tolerance ❷	± 1%	± 1%	± 1%	± 1%	± 1%	± 1%	± 1%	± 1%	± 2%	± 1%	± 2%	± 1%	± 1%	± 1%
Line \ load regulation	± 1% \ ± 1%	± 1% \ ± 1%	± 1% \ ± 1%	± 1% \ ± 1%	± 1% \ ± 1%	± 1% \ ± 1%	± 1% \ ± 1%	± 1% \ ± 1%	± 0,5% \ ± 1%	± 0,5% \ ± 1%	± 0,5% \ ± 1%	± 0,5% \ ± 1%	± 0,5% \ ± 1%	± 0,5% \ ± 1%
Setup ❸	1000 ms 115 V AC	500 ms 230 V AC	100 ms 115 V AC, 230 V AC		800 ms 230 V AC		200 ms 115 V AC	100 ms 230 V AC	1800 ms 115 V AC	1000 ms 230 V AC	500 ms 115 V AC, 230 V AC		800 ms 115 V AC, 230 V AC	1200 ms 230 V AC
Voltage increase time ❸	30 ms 115 V AC, 230 V AC		30 ms 115 V AC, 230 V AC		60 ms 230 V AC		30 ms 115 V AC, 230 V AC		60 ms 115 V AC, 230 V AC		70 ms 115 V AC, 230 V AC		40 ms 115 V AC, 230 V AC	40 ms 230 V AC
Voltage support time (typical) ❸	20 ms 115 V AC	50 ms 230 V AC	21 ms 115 V AC	50 ms 230 V AC	50 ms 230 V AC		23 ms 115 V AC	100 ms 230 V AC	12 ms 115 V AC	60 ms 230 V AC	30 ms 115 V AC, 230 V AC		20 ms 115 V AC, 230 V AC	16 ms 230 V AC
Input circuit														
Voltage range	85...264 V AC	120...370 V DC	85...264 V AC	120...370 V DC	85...264 V AC	120...370 V DC	85...264 V AC	120...370 V DC	85...264 V AC	120...370 V DC	88...132 / 176...264 V AC ❿	120...370 V DC	85...264 V AC	120...370 V DC	180...264 V AC	250...370 V DC
Frequency range	47...63 Hz		47...63 Hz		47...63 Hz		47...63 Hz		47...63 Hz		47...63 Hz		47...63 Hz	47...63 Hz
Efficiency (typical)	80%	84%	81%	83%	77%	80%	83,5%	86%	76%	80%	80%	84%	84%	89%
AC current (typical)	0,55 A 115 V AC	0,35 A 230 V AC	0,88 A 115 V AC	0,48 A 230 V AC	1,5 A 115 V AC	0,75 A 230 V AC	1,2 A 115 V AC	0,8 A 230 V AC	1,6 A 115 V AC	0,96 A 230 V AC	2,8 A 115 V AC	1,7 A 230 V AC	3,5 A 115 V AC	1,8 A 230 V AC	4 A 230 V AC	
Max. inrush current (typical)	cold start: 20 A 115 V AC	40 A 230 V AC	cold start: 15 A 115 V AC	30 A 230 V AC	cold start: 30 A 115 V AC	60 A 230 V AC	cold start: 30 A 115 V AC	40 A 230 V AC	cold start: 20 A 115 V AC	40 A 230 V AC	cold start: 30 A 115 V AC	60 A 230 V AC	cold start: 30 A 115 V AC	50 A 230 V AC	cold start: 40 A 230 V AC	
Leakage current	< 1 mA 240 V AC		–		–		–		< 1 mA 240 V AC		< 3,5 mA 240 V AC		< 3,5 mA 240 V AC		< 3,5 mA 240 V AC	
General data														
Protection • overload ❹	105...160% rated output power		105...160% rated output power		105...150% rated output power		105...155% rated output power		105...150% rated output power		105...150% rated output power		105...150% rated output power		105...150% rated output power	
• overvoltage ❺	13,8...16,2 V	27,6...32,4 V	13,8...16,2 V	27,6...32,4 V	13,8...16,2 V	27,6...32,4 V	13,8...16,2 V	27,6...32,4 V	15...16,5 V	29...34 V	15...16,5 V	29...33 V	30...36 V		30..36 V	
• overtemperature ❻	–		–		–		–		+85 °C ± 5 °C (TSW1)		+85 °C ± 5 °C (TSW1)	+90 °C ± 5 °C (TSW1)	+100 °C ± 5 °C (TSW1)		+100 °C ± 5 °C (TSW1)	
Overvoltage category	isolation Class: II wg PN-EN 60664-1		isolation Class: II wg PN-EN 60664-1		isolation Class: II wg PN-EN 60664-1		isolation Class: II wg PN-EN 60664-1		–		–		–		–	
Min. insulation resistance	input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC		input / output: 100 MΩ 500 V DC	
Insulation dielectric strength	input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC		input / output: 3 000 V AC input / ground: 1 500 V AC	
Dimensions (L x W x H) \ Weight	90 x 22,5 x 100 mm \ 190 g		93 x 78 x 56 mm \ 270 g		93 x 78 x 67 mm \ 310 g		93 x 78 x 67 mm \ 300 g		125,2 x 55,5 x 100 mm \ 600 g		125,2 x 65,5 x 100 mm \ 790 g		125,2 x 125,5 x 100 mm \ 1200 g		125,2 x 227 x 100 mm \ 2400 g	
Ambient • storage	-40...+85 °C		-40...+85 °C		-20...+85 °C		-20...+85 °C		-20...+85 °C		-20...+85 °C		-20...+85 °C		-40...+85 °C	
temperature • operating ❼	load 100%: -20...+50 °C ❽		load 100%: -20...+50 °C ❽		load 100%: -20...+45 °C ❽		load 100%: -20...+50 °C ❽		load 100%: 0...45 °C ❽		load 100%: -10...+45 °C ❽		load 100%: -10...+55 °C ❽		load 100%: -20...+50 °C ❽	
Humidity • storage	10...95% RH		10...95% RH		10...95% RH		10...95% RH		10...95% RH		10...95% RH		10...95% RH		10...95% RH	
• operating	20...90% RH non-condensing		20...90% RH non-condensing		20...90% RH non-condensing		20...90% RH non-condensing		20...90% RH non-condensing		20...90% RH non-condensing		20...90% RH non-condensing		20...90% RH non-condensing	
Temperature impact	± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C		± 0,03% / °C 0...+50 °C	
Vibration resistance	2 g 10...500 Hz ❾		2 g 10...500 Hz ❾		2 g 10...500 Hz ❾		2 g 10...500 Hz ❾		2 g 10...500 Hz ❾		2 g 10...500 Hz ❾		2 g 10...500 Hz ❾		2 g 10...500 Hz ❾	
MTBF	236,9 k hrs min. ❿		441,5 k hrs min. ❿		364,6 k hrs min. ❿		216,2 k hrs min. ❿		123,1 k hrs min. ❿		136,8 k hrs min. ❿		105,5 k hrs min. ❿		180,9 k hrs min. ❿	

❶ Ripple & noise are measured at 20 MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0,1 µF & 47 µF parallel capacitor. ❷ Tolerance: includes set up tolerance, line regulation and load regulation. ❸ At full load. ❹ Protection against overload: rectangular limitation of the current*; automatically returns to normal operation, immediately after the overload ceases. *the output current remains constant within the set range, e.g. 105...160% of the rated current, irrespectively of change of the output voltage. ❺ Overvoltage protection - protection against unwanted increase of the voltage: the output voltage is cut off; in order to restart the device, power supply shall be switched off and then on again. ❻ Thermal protection: the output voltage is cut off, operation is restarted immediately after the temperature has dropped. ❼ Refer to output load derating curve. ❽ Derating curve - see diagrams. The technical data table specified temperature values for 100% load. ❾ Resistance along each axis X, Y, Z. Tested in 10 minutes cycle for the axes, with a pause up to 60 minutes between consecutive positions. ❿ MIL-HDBK-217F +25 °C. ⓫ AC input range selectable by switch.

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