

ADEL system

Power Supplies

General DescriptionP2

Series PSM Industrial Switching.....P3

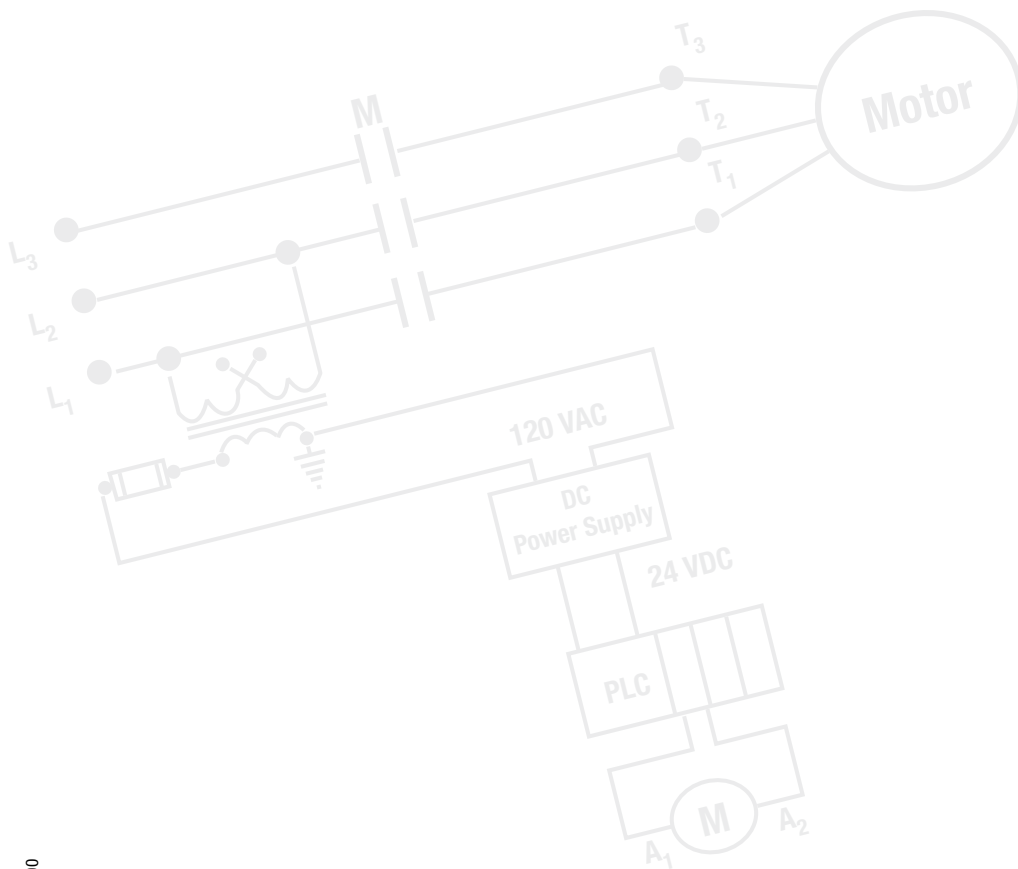
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SSNA9000

ADEL system

Industrial Switching Power Supplies

High Quality AC to DC power with up to 125% reserve capacity



2-Year Warranty

Sprecher + Schuh is proud to bring you the best in AC to DC power supplies.

Power from a Source you can Trust

Established in 1991, ADEL System designs and manufactures high quality industrial power supplies. Their years of development effort, focused on switching technology, enables ADEL to satisfy a wide range of applications in industrial automation. This range of products can meet the most demanding requirements for AC to DC switching power supplies.

ADEL system also manufactures DC to DC switching, as well as linear power supplies, UPS systems and battery chargers. ADEL also designs custom power electronic solutions to fit the unique demands of special applications. A highly experienced engineering team insures high quality and cost-efficiency.

Quality to the Highest Standard

100% of ADEL's products are tested in the factory. Each product undergoes functional tests, or 2-hour run-in test at maximum operating voltage and current. The PSM product range features long duration electrolytic capacitors designed for long life in rugged industrial applications. The compatibility with CE requirements on electromagnetic interference is fully tested in the laboratory. The ADEL power supplies are backed with an extended 2-year warranty.



Unparalleled Benefits

ADEL system Power Supplies offer unparalleled benefits in the industry:

- Metal Case IP 20 provides excellent heat dissipation
- 125% Reserve Power for 1 minute
- Start-up demand up to 5 times normal current for 500ms
- Built-in overload protection
- Internally fused for short-circuit protection
- 480V models for connection without the need for control transformers
- Easy Installation, DIN Rail Mountable

Wide Range of Applications

ADEL system Power Supplies can apply to numerous applications and industries:

- PLC and Smart Relay power
- Proximity Switches
- Light Curtains
- Textile & Robotic Machinery
- Material Handling Equipment
- Metal & Wood Working
- Freezers & Refrigerators
- Building Automation
- Air Cleaning Systems
- Packing Equipment





Industrial Switching Mode Power Supplies

	Input Voltage VAC	Watts	Output Voltage VDC	Output Amps	Catalog Number	Price
Single Phase	115-230	60	24	2.5	PSM242A	230
	115-230	120	24	5	PSM244A	345
	115	240	24	10	PSM2410A	500
	230	240	24	10	PSM2410C	500
Two Phase	400-480	240	24	10	PSM2410B	625



Industrial Approvals ①②③		
		

- ① Power supplies are UL508 approved allowing for application in industrial control equipment (control panels) without derating at 50°C or less.
- ② Power supplies are cSAus approved under 60950 allowing for application in controlled environment (ie. computer rooms): 25°C max, Pollution Category No.2, Over Voltage category No.2.
- ③ CSA approval under 601010 allowing for application in industrial control panels: 40°C max, Pollution Category No.3, Over Voltage category No.3 is pending.

SSNA9000

PSM242A

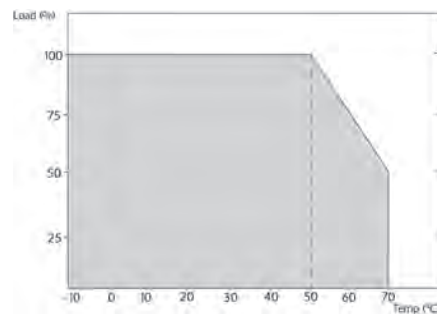
Input: single-phase **115 - 230 V AC**
 Output: One output **2.5 A @ 24 V DC**
60 Watts

Strong overload without switch-off
 Short-circuit protection
 Over-voltage protection
 IP20
 DIN Rail Mountable
 Extremely small size



Input Data	Input Rated Voltage (2 x V AC)	115...230 V AC
	Rated Voltage range	93...264 V AC
	Inrush Current (Vn - In)	≤ 11 A ≤ 5 msec.
	Frequency	47...63 Hz
	Input Current (Input Rated Voltage)	0.9...0.5 A
	Internal Fuse	Fast 4 A
	External Fuse (recommended)	Fast 4 A
Output Data	Output Voltage (Vn) / Nominal Current (In)	24 V DC ±3% / 2.5A
	Adjustment range (Vadj)	22...26 V DC
	Start up with Strong Load (capacitive load)	≤ 20.000 / ≤ 30.000µF
	Switching on delay applying mains voltage	2.5 sec. (max)
	Max. Continuous Current	1.1 x In ± 5%
	Reserve Out Current (max. 1 min. 50 °C)	I _{max} =I _n +25% approx.
	Hold-up Time (at 100 – 240 V AC)	Typ. 27 msec
	Residual Ripple	≤ 60 mV_{pp}
	Minimum Load	No
	Efficiency	≥ 81 %
Climatic Data	Ambient Temperature (operation)	-10...+70 °C (>50°derating)
	Ambient Temperature (Storage)	-25...+85 °C
	Humidity; no moisture condensation	95 % to 25 °C
	General Data	
Isolation Voltage (Input/Output)	3000 V AC	
Input / ground isolation PE	1605 V AC	
Output / ground isolation PE	500 V AC	
Degree of protection	IP 20	
Protection class	I with PE connected	
Dimension (w-h-d)	50x95x155 mm	
Weight	0.45 kg approx.	

Output Derating Curve



Output Characteristic Curve U/I



Norms and certifications

According to EMC 89/336/EEC and Low voltage 93/68/EEC

Electrical Safety

According to IEC/EN 60950 (VDE 0805) e EN 50178 (VDE 0160) for assembling device. The device must be installed according to IEC/EN 60950.

Generic

Immunity according to EN50082-2 Level 4 Class B
 Noise Radiation according to EN 55011

PSM244A

Input: single-phase **115 - 230 V AC**

Output: One output **5 A @ 24 V DC**
120 Watts

Strong overload without switch-off

Short-circuit protection

Over-voltage protection

IP20

DIN Rail Mountable

Extremely small size



Input Data	Input Rated Voltage (2 x V AC)	115...230 V AC
	Rated Voltage range	93...264 V AC
	Inrush Current (Vn - In)	≤ 11 A ≤ 5 msec.
	Frequency	47...63 Hz
	Input Current (Input Rated Voltage)	0.9...0.5 A
	Internal Fuse	Fast 4 A
	External Fuse (recommended)	Fast 4 A
	Output Data	Output Voltage (Vn) / Nominal Current (In)
Adjustment range (Vadj)		22...26 V DC
Start up with Strong Load (capacitive load)		≤ 30.000µF
Switching on delay applying mains voltage		3 sec. (max)
Max. Continuous Current		1.1 x In ± 5%
Reserve Out Current (max. 1 min. 50 °C)		I _{max} =I _n +25% approx.
Hold-up Time (at 100 - 240 V AC)		Typ. 27 msec
Residual Ripple		≤ 60 mV_{pp}
Minimum Load		No
Efficiency		≥ 82 %
Short-circuit protection (hiccup mode)		Yes
Over Load protection (hiccup mode)		Yes
Over Voltage Output protection		Yes (max 35 V DC)
Parallel connection		Yes
Climatic Data	Ambient Temperature (operation)	-10...+70 °C (>50°derating)
	Ambient Temperature (Storage)	-25...+85 °C
	Humidity; no moisture condensation	95 % to 25 °C
General Data	Isolation Voltage (Input/Output)	3000 V AC
	Input / ground isolation PE	1605 V AC
	Output / ground isolation PE	500 V AC
	Degree of protection	IP 20
	Protection class	I with PE connected
	Dimension (w-h-d)	55x115x155 mm
Weight	0.70 kg approx.	

Norms and certifications

According to EMC 89/336/EEC and Low voltage 93/68/EEC

Electrical Safety

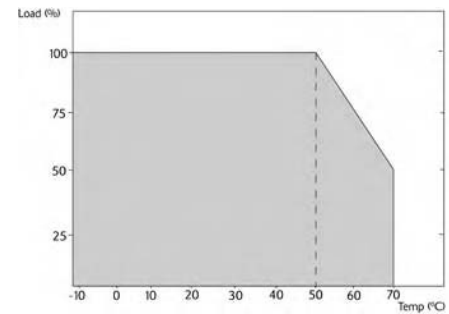
According to IEC/EN 60950 (VDE 0805) e EN 50178 (VDE 0160) for assembling device. The unit must be installed according to IEC/EN 60950.

Generic

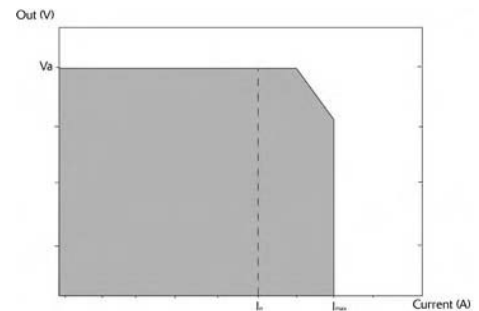
Immunity according to EN50082-2 Level 4 Class B

Noise Radiation according to EN 55011

Output Derating Curve



Output Characteristic Curve U/I



PSM2410A

Input: single-phase **115 V AC**

Output: One output **10 A @ 24 V DC**
240 Watts

Strong overload without switch-off

Short-circuit protection

Over-voltage protection

IP20

DIN Rail Mountable

Extremely small size



Input Data	Input Rated Voltage (2 x V AC)	115 V AC
	Rated Voltage range	90...132 V AC
	Inrush Current (Vn – In)	≤ 14 A ≤ 5 msec.
	Frequency	47...63 Hz
	Input Current (Input Rated Voltage)	3.5A max
	Internal Fuse	Fast 6.3 A
	External Fuse (recommended)	Fast 6 A
	Output Data	Output Voltage (Vn) / Nominal Current (In)
Adjustment range (Vadj)		22...26 V DC
Start up with Strong Load (capacitive load)		≤ 30.000µF
Switching on delay applying mains voltage		2.5 sec. (max)
Max. Continuous Current		1.1 x In ± 5%
Reserve Out Current (max. 1 min. 50 °C)		I_{max}=I_n+25% approx.
Hold-up Time (at 100 – 240 V AC)		Typ. 27 msec
Residual Ripple		≤ 60 mV_{pp}
Minimum Load		No
Efficiency		≥ 86 %
Short-circuit protection (hiccup mode)		Yes
Over Load protection (hiccup mode)		Yes
Over Voltage Output protection		Yes (max 35 V DC)
Parallel connection	Yes	
Climatic Data	Ambient Temperature (operation)	-10...+70 °C (>50°derating)
	Ambient Temperature (Storage)	-25...+85 °C
	Humidity; no moisture condensation	95 % to 25 °C
General Data	Isolation Voltage (Input/Output)	3000 V AC
	Input / ground isolation PE	1605 V AC
	Output / ground isolation PE	500 V AC
	Degree of protection	IP 20
	Protection class	I with PE connected
	Dimension (w-h-d)	132x118x135 mm
	Weight	1.15 kg approx.

Norms and certifications

According to EMC 89/336/EEC and Low voltage 93/68/EEC

Electrical Safety

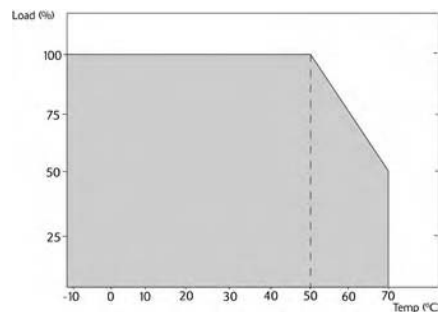
According to IEC/EN 60950 (VDE 0805) e EN 50178 (VDE 0160) for assembling device. The unit must be installed according to IEC/EN 60950.

Generic

Immunity according to EN50082-2 Level 4 Class B

Noise Radiation according to EN 55011

Output Derating Curve



Output Characteristic Curve U/I



PSM2410C

Input: single-phase **230 V AC**

Output: One output **10 A @ 24 V DC**
240 Watts

Strong overload without switch-off

Short-circuit protection

Over-voltage protection

IP20

DIN Rail Mountable

Extremely small size



Input Data	Input Rated Voltage (2 x V AC)	230 V AC
	Rated Voltage range	187...264 V AC
	Inrush Current (Vn - In)	≤ 14 A ≤ 5 msec.
	Frequency	47...63 Hz
	Input Current (Input Rated Voltage)	3.5A max
	Internal Fuse	Fast 6.3 A
	External Fuse (recommended)	Fast 6 A
	Output Data	Output Voltage (Vn) / Nominal Current (In)
Adjustment range (Vadj)		22...26 V DC
Start up with Strong Load (capacitive load)		≤ 30.000µF
Switching on delay applying mains voltage		2.5 sec. (max)
Max. Continuous Current		1.1 x In ± 5%
Residual Ripple		≤ 60 mVpp
Minimum Load		No
Efficiency		≥ 86 %
Short-circuit protection (hiccup mode)		Yes
Over Load protection (hiccup mode)		Yes
Over Voltage Output protection		Yes
Parallel connection		Yes
Climatic Data		Ambient Temperature (operation)
	Ambient Temperature (Storage)	-25...+85 °C
	Humidity; no moisture condensation	95 % to 25 °C
General Data	Isolation Voltage (Input/Output)	3000 V AC
	Input / ground isolation PE	1605 V AC
	Output / ground isolation PE	500 V AC
	Degree of protection	IP 20
	Protection class	I with PE connected
	Dimension (w-h-d)	132x118x135 mm
	Weight	1.15 kg approx.

Norms and certifications

According to EMC 89/336/EEC and Low voltage 93/68/EEC

Electrical Safety

According to IEC/EN 60950 (VDE 0805) e EN 50178 (VDE 0160) for assembling device. The unit must be installed according to IEC/EN 60950.

Generic

Immunity according to EN50082-2 Level 4 Class B

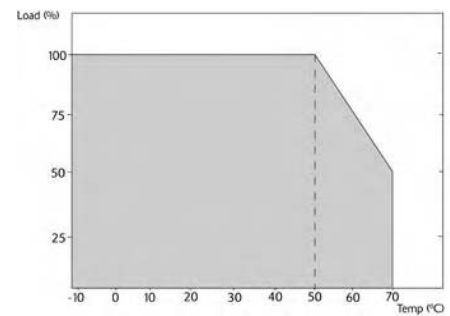
Noise Radiation according to EN 55011

Available

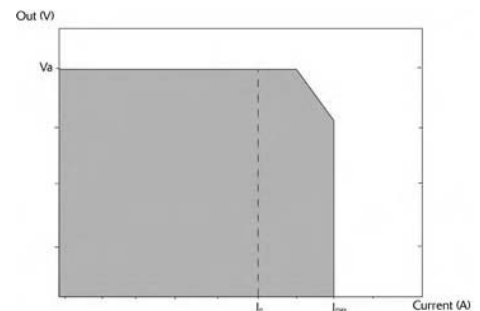
PSM1210C (12V DC, 10 A)

PSM0510C (5V DC, 10 A)

Output Derating Curve



Output Characteristic Curve U/I



PSM2410B

Input: two-phase **400 - 480 V AC**

Output: One output **10 A @ 24 V DC**
240 Watts

Strong overload without switch-off

Short-circuit protection

Over-voltage protection

IP20

DIN Rail Mountable

Extremely small size



Input Data	Input Rated Voltage (2 x V AC)	400...480 V AC
	Rated Voltage range	360...530 V AC
	Inrush Current (Vn – In)	≤ 17 A ≤ 5 msec.
	Frequency	47...63 Hz
	Input Current (Input Rated Voltage)	1...0.85 A
	Internal Fuse	Fast 4 A
	External Fuse (recommended)	Fast 4 A
	Output Data	Output Voltage (Vn) / Nominal Current (In)
Adjustment range (Vadj)		22...26 V DC
Start up with Strong Load (capacitive load)		≤ 30.000µF
Switching on delay applying mains voltage		2.5 sec. (max)
Max. Continuous Current		1.1 x In ± 5%
Reserve Out Current (max. 1 min. 50 °C)		I_{max}=I_n+25% approx.
Hold-up Time (at 100 – 240 V AC)		Typ. 27 msec
Residual Ripple		≤ 60 mV_{pp}
Minimum Load		No
Efficiency		≥ 89 %
Short-circuit protection (hiccup mode)		Yes
Over Load protection (hiccup mode)		Yes
Over Voltage Output protection		Yes (max 35 V DC)
Parallel connection	Yes	
Climatic Data	Ambient Temperature (operation)	-10...+70 °C (>50°derating)
	Ambient Temperature (Storage)	-25...+85 °C
	Humidity; no moisture condensation	95 % to 25 °C
General Data	Isolation Voltage (Input/Output)	3000 V AC
	Input / ground isolation PE	1605 V AC
	Output / ground isolation PE	500 V AC
	Degree of protection	IP 20
	Protection class	I with PE connected
	Dimension (w-h-d)	132x118x135 mm
	Weight	1.15 kg approx.

Norms and certifications

According to EMC 89/336/EEC and Low voltage 93/68/EEC

Electrical Safety

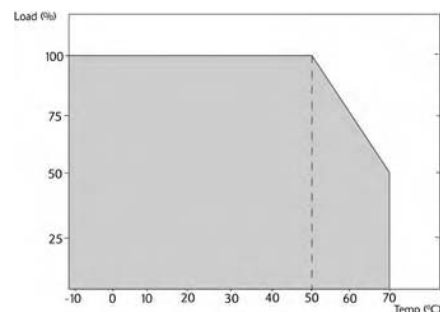
According to IEC/EN 60950 (VDE 0805) e EN 50178 (VDE 0160) for assembling device. The unit must be installed according to IEC/EN 60950.

Generic

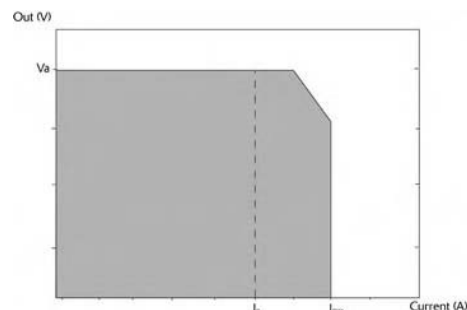
Immunity according to EN50082-2 Level 4 Class B

Noise Radiation according to EN 55011

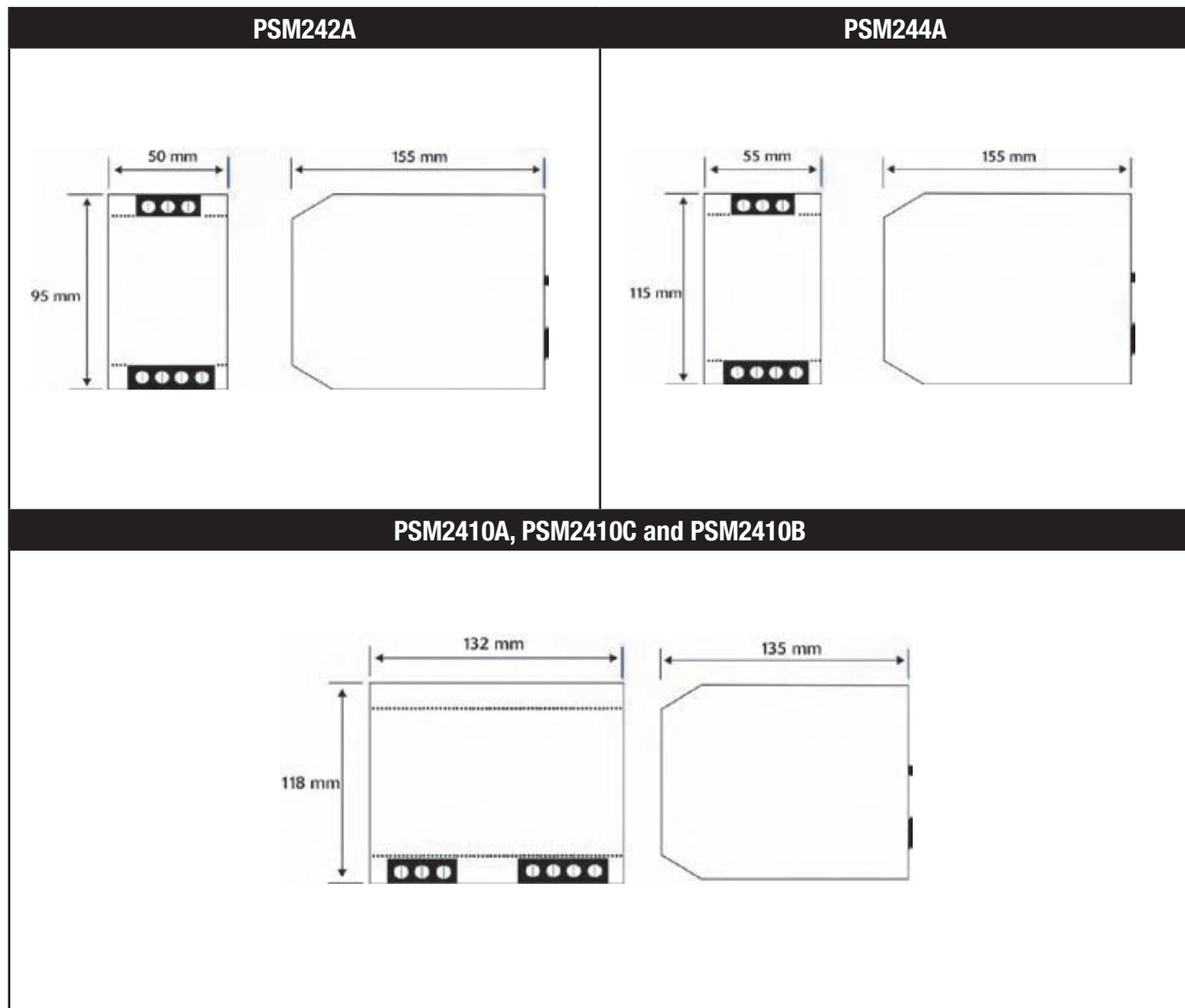
Output Derating Curve



Output Characteristic Curve U/I



Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



ADEL system

Available in 2009

Flexible Switching Power Supplies

High Quality AC to DC power with up to 145% of rated Output to 40°C



3-Year Warranty

Sprecher + Schuh is proud to bring you a new Flexible Power Supply from the best in AC to DC power supplies, Adel System.

Solutions for Power Supply Continuity

The new FLEXline DC Power Supplies offer more power and flexibility for all your power needs. FLEX units are power rated from 100 to 145%, have a voltage input from 115V to 500V, and three modes of output circuit protection. The extremely compact housings offer a variety of features.

Unparalleled Benefits

ADEL system Power Supplies offer unparalleled benefits in the industry:

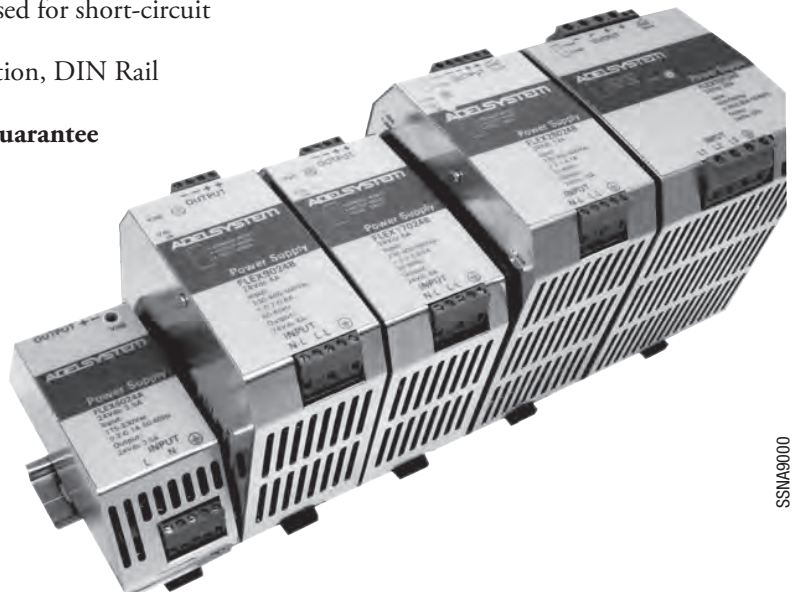
- High quality AC to DC power with up to 145% of rated output to 40°C
- 1- and 2-phase input from 230V to 500V AC and 480V models for connection without the need for control transformers
- Hiccup, Restart after main and Fold-back protection modes
- Operating temperature range of -25/+70°C
- Metal Case IP 20 provides excellent heat dissipation
- Built-in overload protection
- Internally fused for short-circuit protection
- Easy Installation, DIN Rail Mountable
- **Three year guarantee**



One Solution, Many Applications

ADEL system Power Supplies can apply to numerous applications and industries:

- PLC and Smart Relay power
- Proximity Switches
- Light Curtains
- Textile & Robotic Machinery
- Material Handling Equipment
- Metal & Wood Working
- Freezers & Refrigerators
- Building Automation
- Air Cleaning Systems
- Packing Equipment



Available in 2009

Three Modes of Protection

Hiccup Mode

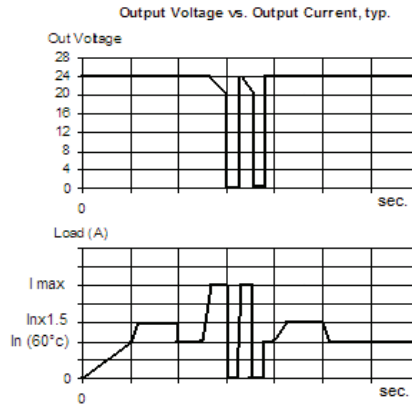
The power supply switches off in the event of a short-circuit and will try to start again after a short time, 1.5 sec typically. The “Hiccup-mode” of switching off and on is repeated until the problem is eliminated.

Restart after main

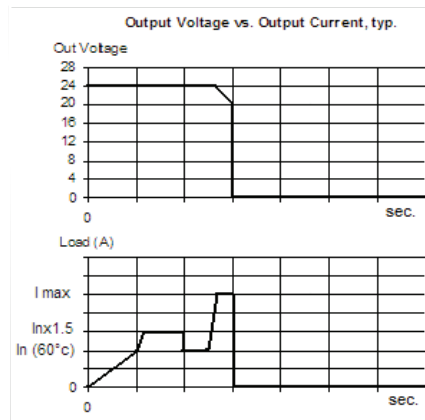
The power supply switches off in the event of a short-circuit. To restart the power supply, it is necessary to turn off the main power input for approximately one minute.

Fold-back mode

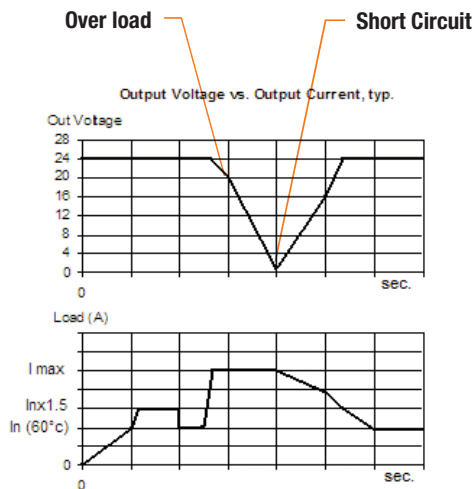
When the overload occurs, the output current can increase more than 1.5 times its nominal value at 60°C (at some units even more) and the output voltage is gradually reduced as the current increases. In addition, the units do not switch off and do not go in to Hiccup mode.



Hiccup Mode



Restart after main



Fold-back Mode



Available in 2009

Flexible Switching Mode Power Supplies

Input Voltage VAC	Watts	Output Voltage VDC	Output Amps	Catalog Number
Single Phase				
115-230	40-60	24	4	FLEX6024A
115-230	72-120	24	5	FLEX9024A
115-230	120-180	24	9	FLEX17024A
115-230	240-345	24	16	FLEX28024A
115-230	480-600	24	35	FLEX50024A
Two Phase				
230-400-500	72-120	24	5	FLEX9024B
230-400-500	120-180	24	9	FLEX17024B
230-400-500	240-345	24	16	FLEX28024B
Three Phase				
400-500	480-600	24	35	FLEX50024B



P
 Power Supplies
FLEX

Norms and certifications

The CE mark in According to EMC 89/336/EEC and 93/68/EEC and the Low voltage directive 73/23/EEC

EMC Immunity

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11

Electrical Safety

According to UL508, IEC/EN 60950 (VDE 0805) e EN 50178 (VDE 0160) for assembling device. The unit must be installed according to IEC/EN 60950. Input / Output separation: SELV EN60950-1 and PELV EN 60204-1. Double or reinforced insulation.

EMC Emission:

EN 55011, EN61000-3-2

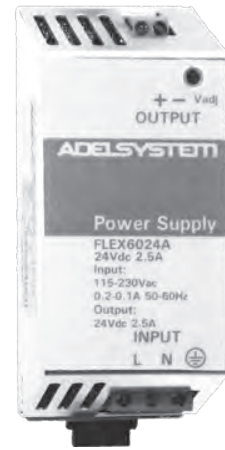
Standards Conformity

EN 60204-1 Safety of Electrical Equipment Machines
 EN 61558-2-17 Safety of power transformer

FLEX6024A

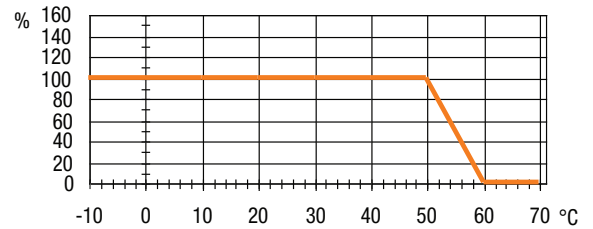
Input: single-phase **115 - 230 V AC**
 Output: One output **4 A @ 24 V DC**
60 Watts

Efficiency up to **88%**
 Strong overload without switch-off up to **25%**
 Flexible power continuity: **40 to 60 W**
 DIN Rail Mountable
 Extremely small size

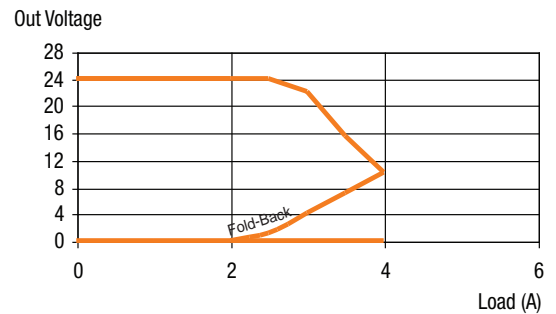


Input Data	Nominal Input Voltage (2 x Vac)	115 – 230 Vac
	Input Voltage range (Vac)	90 – 264
	Inrush Current (Vn and In Load) I ² t	≤ 7 A ≤ 5 msec.
	Frequency	47 – 63 Hz ±6%
	Input Current (115 – 230 Vac)	0.2 – 0.1 A
	Internal Fuse	Yes
	External Fuse (recommended)	4 A
Output Data	Output Voltage (Vn) Factory Setting ±3%	24 Vdc
	Adjustment range (Vadj)	22 – 27 Vdc
	Start up with Strong Load (capacitive load)	≤ 25.000μF
	Turn-On delay after applying mains voltage	1.5 sec. (max)
	Continuous Current at 24 V < 40°C (In)	2 A (115) 2.5 A (230)
	Continuous Current at 24 V < 50°C (In)	1.5 A (115) 2 A (230)
	Max current	4 A
	Hold-up Time (min. Vac) 24Vdc 5A	Typ. 20 msec
	Residual Ripple	≤ 80 mV _{pp}
	Efficiency	≥ 88 %
	Over temperature Protection	Yes. Shut-down output and automatic restart.
	Short-circuit protection	Hiccup Mode
	Dissipation power load max (W)	6
	Over Load protection	Yes
	Over Voltage Output protection	Yes (typ. 35 Vdc)
	Parallel connection	Yes
	Climatic Data	Ambient Temperature operation
Ambient Temperature Storage		-40 up to +85 °C
Humidity at 25 °C, no condensation		95 % to 25 °C
General Data	Isolation Voltage (In / Out)	3000 Vac
	Isolation Voltage (In / PE)	1605 Vac
	Isolation Voltage (Out / PE)	500 Vac
	Protection Class (EN/IEC 60529)	IP 20
	Reliability: MTBF IEC 61709	> 500.000 h
	Pollution Degree Environment	2
	Connection Terminal Blocks Screw Type	2,5 mm
	Protection class	I with PE connected
	Dimension (w-h-d)	50x115x50 mm
	Weight	0.3 kg approx.

Output derating Curve
Continuous Load



Output Voltage vs. Output Current, typ.



Available in 2009

FLEX9024A

Input: single-phase **115 - 230 V AC**
 Output: One output **5 A @ 24 V DC**
120 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **70 to 120 W**
 Selectable Protection Mode:

Hiccup, Fold back & Restart after Main

DIN Rail Mountable

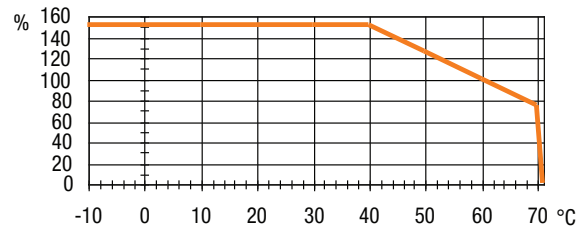
Extremely small size



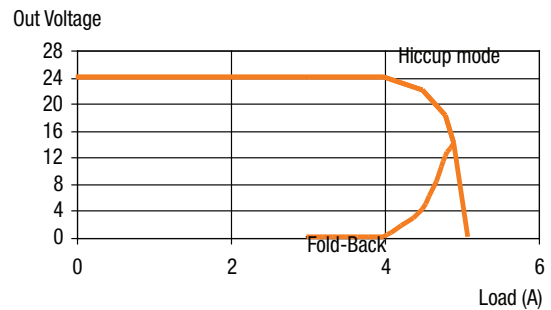
Power Supplies
FLEX

Input Data	Nominal Input Voltage (2 x Vac)		
	Manual select Input from 115 to 230	115 – 230 Vac	
	Input Voltage range (Vac)	90 – 135 (115)	
	180 – 264 (230)		
	Inrush Current (Vn and In Load) I ² t	≤ 11 A ≤ 5 msec.	
	Frequency	47 – 63 Hz ±6%	
	Input Current (115 – 230 Vac)	1.0 – 0.6 A	
	Internal Fuse	T 4 A	
	External Fuse (recommended)	4 A (curve B)	
	Output Data	Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)		22 – 27 Vdc	
Start up with Strong Load (capacitive load)		≤50.000µF	
Turn-On delay after applying mains voltage		1 sec. (max)	
Continuous Current at 24 V < 40°C (In)		4 A (permanent)	
Continuous Current at 24 V < 50°C (In)		3.5 A (permanent)	
Continuous Current at 24 V < 60°C (In)		3 A (permanent)	
Max current		5 A	
Hold-up Time (min. Vac) 24Vdc 5A		Typ. 40 msec	
Residual Ripple		≤ 80 mV _{pp}	
Efficiency		≥ 91 %	
Over temperature Protection		Yes. Shut-down output and automatic restart.	
Short-circuit protection options		1) Hiccup Mode	
		2) Fold Back	
		3) Restart After Main	
Dissipation power load max (W)	11		
Over Load protection	Yes		
Over Voltage Output protection	Yes (typ. 35 Vdc)		
Parallel connection	Yes		
Climatic Data	Ambient Temperature operation	-25 up to +70 °C (>60°derating 2.5% °C)	
	Ambient Temperature Storage	-40 up to +85 °C	
	Humidity at 25 °C, no condensation	95 % to 25 °C	
General Data	Isolation Voltage (In / Out)	3000 Vac	
	Isolation Voltage (In / PE)	1605 Vac	
	Isolation Voltage (Out / PE)	500 Vac	
	Protection Class (EN/IEC 60529)	IP 20	
	Reliability: MTBF IEC 61709	> 500.000 h	
	Pollution Degree Environment	2	
	Connection Terminal Blocks Screw Type	2,5 mm	
	Protection class	I with PE connected	
	Dimension (w-h-d)	55x110x105 mm	
	Weight	0.50 kg approx.	

Output derating Curve
Continuous Load



Output Voltage vs. Output Current, typ.



FLEX17024A

Input: single-phase **115 - 230 V AC**
 Output: One output **9 A @ 24 V DC**
180 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **120 to 180 W**
 Selectable Protection Mode:

Hiccup, Fold back & Restart after Main

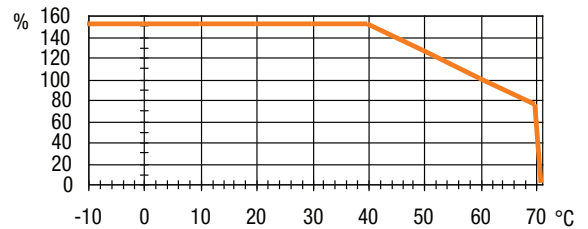
DIN Rail Mountable

Extremely small size

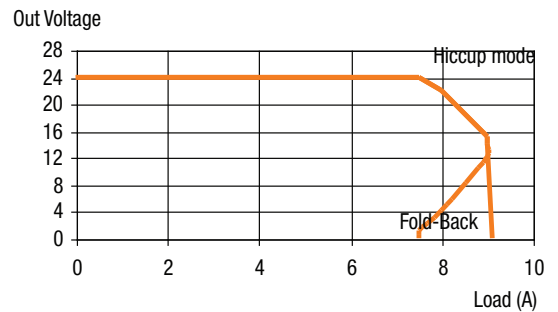


Input Data	Nominal Input Voltage (2 x Vac)		
	Manual select Input from 115 to 230	115 – 230 Vac	
	Input Voltage range (Vac)	90 – 135 (115)	
	180 – 264 (230)		
	Inrush Current (Vn and In Load) I _{pt}	≤ 11 A ≤ 5 msec.	
	Frequency	47 – 63 Hz ±6%	
	Input Current (115 – 230 Vac)	2.6 – 1.3 A	
	Internal Fuse	T 4 A	
	External Fuse (recommended)	4 A (curve B)	
	Output Data	Output Voltage (Vn) Factory Setting ±3%	
Adjustment range (Vadj)		22 – 27 Vdc	
Start up with Strong Load (capacitive load)		≤50.000µF	
Turn-On delay after applying mains voltage		1 sec. (max)	
Continuous Current at 24 V < 40°C (In)		7.5 A (permanent)	
Continuous Current at 24 V < 50°C (In)		6 A (permanent)	
Continuous Current at 24 V < 60°C (In)		5 A (permanent)	
Max current		9 A	
Hold-up Time (min. Vac) 24Vdc 5A		Typ. 40 msec	
Residual Ripple		≤ 80 mV _{pp}	
Efficiency		≥ 91 %	
Over temperature Protection		Yes. Shut-down output and automatic restart.	
Short-circuit protection options		1) Hiccup Mode	
		2) Fold Back	
		3) Restart After Main	
Dissipation power load max (W)	17		
Over Load protection	Yes		
Over Voltage Output protection	Yes (typ. 35 Vdc)		
Parallel connection	Yes		
Climatic Data	Ambient Temperature operation		
	-25 up to +70 °C (>60°derating 2.5% °C)		
	Ambient Temperature Storage		
-40 up to +85 °C			
Humidity at 25 °C, no condensation		95 % to 25 °C	
General Data	Isolation Voltage (In / Out)		
	3000 Vac		
	Isolation Voltage (In / PE)		
	1605 Vac		
	Isolation Voltage (Out / PE)		
	500 Vac		
	Protection Class (EN/IEC 60529)		
	IP 20		
	Reliability: MTBF IEC 61709		
	> 500.000 h		
Pollution Degree Environment			
2			
Connection Terminal Blocks Screw Type			
2,5 mm			
Protection class			
I with PE connected			
Dimension (w-h-d)			
55x110x105 mm			
Weight			
0.60 kg approx.			

Output derating Curve
Continuous Load



Output Voltage vs. Output Current, typ.



Available in 2009

FLEX28024A

Input: single-phase **115 - 230 V AC**
 Output: One output **16 A @ 24 V DC**
345 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **240 to 345 W**
 Selectable Protection Mode:

Hiccup, Fold back & Restart after Main

DIN Rail Mountable

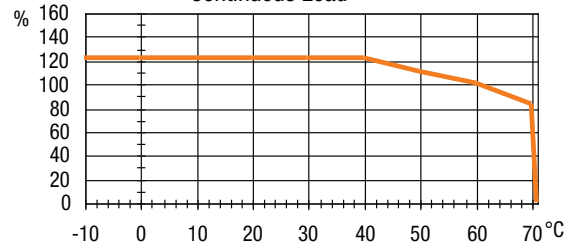
Extremely small size



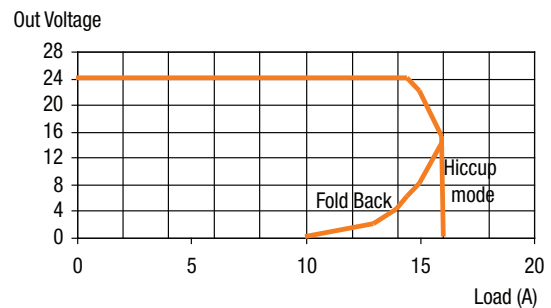
Power Supplies
FLEX

Input Data	Nominal Input Voltage (2 x Vac)		
	Manual select Input from 115 to 230	115 – 230 Vac	
	Input Voltage range (Vac)	90 – 135 (115)	
	180 – 264 (230)		
	Inrush Current (Vn and In Load) I ² t	≤ 11 A ≤ 5 msec.	
	Frequency	47 – 63 Hz ±6%	
	Input Current (115 – 230 Vac)	3.3 – 2.2 A	
	Internal Fuse	T 10 A	
	External Fuse (recommended)	16 A (curve B)	
	Output Data	Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)		22 – 27 Vdc	
Start up with Strong Load (capacitive load)		≤50.000µF	
Turn-On delay after applying mains voltage		2 sec. (max)	
Continuous Current at 24 V < 40°C (In)		14.5 A (permanent)	
Continuous Current at 24 V < 50°C (In)		12 A (permanent)	
Continuous Current at 24 V < 60°C (In)		10 A (permanent)	
Max current		16 A	
Hold-up Time (min. Vac) 24Vdc 5A		Typ. 40 msec	
Residual Ripple		≤ 80 mV _{pp}	
Efficiency		≥ 91 %	
Over temperature Protection		Yes. Shut-down output and automatic restart.	
Short-circuit protection options		1) Hiccup Mode	
		2) Fold Back	
		3) Restart After Main	
Dissipation power load max (W)	28		
Over Load protection	Yes		
Over Voltage Output protection	Yes (typ. 35 Vdc)		
Parallel connection	Yes		
Climatic Data	Ambient Temperature operation	-25 up to +70 °C (>60°derating 2.5% °C)	
	Ambient Temperature Storage	-40 up to +85 °C	
	Humidity at 25 °C, no condensation	95 % to 25 °C	
General Data	Isolation Voltage (In / Out)	3000 Vac	
	Isolation Voltage (In / PE)	1605 Vac	
	Isolation Voltage (Out / PE)	500 Vac	
	Protection Class (EN/IEC 60529)	IP 20	
	Reliability: MTBF IEC 61709	> 500.000 h	
	Pollution Degree Environment	2	
	Connection Terminal Blocks Screw Type	2,5 mm	
	Protection class	I with PE connected	
	Dimension (w-h-d)	65x115x135 mm	
	Weight	0.65 kg approx.	

Output derating Curve
Continuous Load



Output Voltage vs. Output Current, typ.



FLEX50024A

Input: single-phase **115 - 230 V AC**
 Output: One output **35 A @ 24 V DC**
600 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **480 to 600 W**
 Selectable Protection Mode:

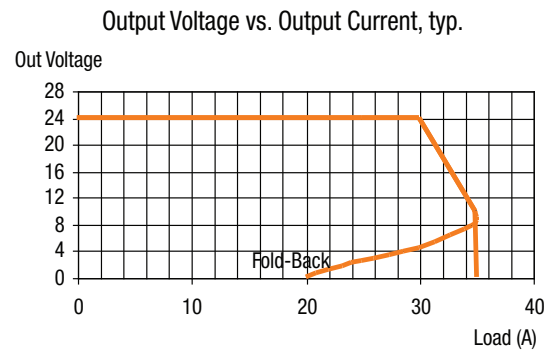
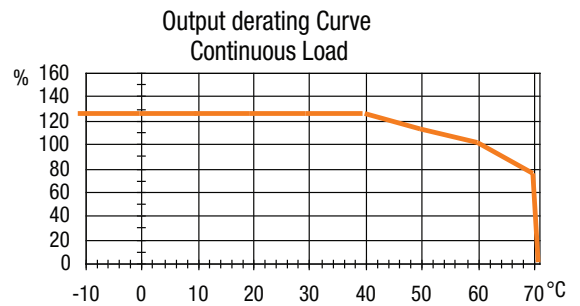
Hiccup, Fold back & Restart after Main

DIN Rail Mountable

Extremely small size



Input Data	Nominal Input Voltage (2 x Vac)		
	Manual select Input from 115 to 230	115 – 230 Vac	
	Input Voltage range (Vac)	90 – 135 (115)	
		180 – 264 (230)	
	Inrush Current (Vn and In Load) I _{pt}	≤ 11 A ≤ 5 msec.	
	Frequency	47 – 63 Hz ±6%	
	Input Current (115 – 230 Vac)	4.2 – 2.9 A	
	Internal Fuse	T 4 A	
	External Fuse (recommended)	4 A (curve B)	
	Output Data	Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)		22 – 27 Vdc	
Start up with Strong Load (capacitive load)		≤50.000µF	
Turn-On delay after applying mains voltage		1 sec. (max)	
Continuous Current at 24 V < 40°C (In)		25 A (permanent)	
Continuous Current at 24 V < 50°C (In)		22 A (permanent)	
Continuous Current at 24 V < 60°C (In)		20 A (permanent)	
Max current		35 A	
Hold-up Time (min. Vac) 24Vdc 5A		Typ. 40 msec	
Residual Ripple		≤ 80 mV _{pp}	
Efficiency		≥ 91 %	
Over temperature Protection		Yes. Shut-down output and automatic restart.	
Short-circuit protection options		1) Hiccup Mode	
		2) Fold Back	
		3) Restart After Main	
Dissipation power load max (W)	28		
Over Load protection	Yes		
Over Voltage Output protection	Yes (typ. 35 Vdc)		
Parallel connection	Yes		
Climatic Data	Ambient Temperature operation	-25 up to +70 °C (>60°derating 2.5% °C)	
	Ambient Temperature Storage	-40 up to +85 °C	
	Humidity at 25 °C, no condensation	95 % to 25 °C	
General Data	Isolation Voltage (In / Out)	3000 Vac	
	Isolation Voltage (In / PE)	1605 Vac	
	Isolation Voltage (Out / PE)	500 Vac	
	Protection Class (EN/IEC 60529)	IP 20	
	Reliability: MTBF IEC 61709	> 500.000 h	
	Pollution Degree Environment	2	
	Connection Terminal Blocks Screw Type	2,5 mm	
	Protection class	I with PE connected	
	Dimension (w-h-d)	100x115x135 mm	
	Weight	0.75 kg approx.	



Available in 2009

FLEX9024B

Input: two-phase **230 - 400 - 500 V AC**
 Output: One output **5 A @ 24 V DC**
120 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **72 to 120 W**
 Selectable Protection Mode:

Hiccup, Fold back & Restart after Main

DIN Rail Mountable

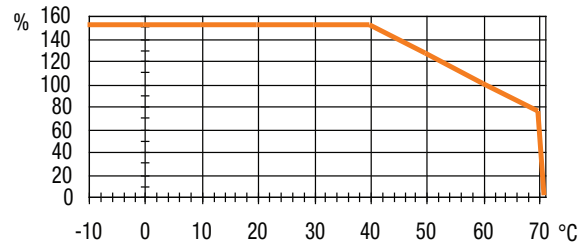
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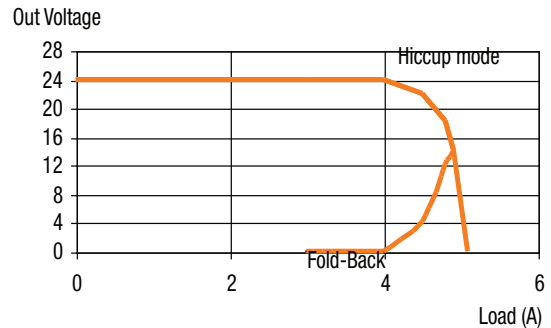
Power Supplies
FLEX

Input Data	Nominal Input Voltage (2 x Vac)		
	Manual select Input from 230 to 400-500	230 – 400 – 500 Vac	
	Input Voltage range (Vac)	187 - 264 (230)	
	330 – 550 (400 500)		
	Inrush Current (Vn and In Load) I ² t	≤ 11 A ≤ 5 msec.	
	Frequency	47 – 63 Hz ±6%	
	Input Current (230 – 400 – 500 Vac)	1.0 - 0.7 – 0.6 A	
	Internal Fuse	T 4 A	
	External Fuse (recommended)	4 A (curve B)	
	Output Data	Output Voltage (Vn) Factory Setting ±3%	24 Vdc
Adjustment range (Vadj)		22 – 27 Vdc	
Start up with Strong Load (capacitive load)		≤50.000µF	
Turn-On delay after applying mains voltage		1 sec. (max)	
Continuous Current at 24 V < 40°C (In)		4 A (permanent)	
Continuous Current at 24 V < 50°C (In)		3.5 A (permanent)	
Continuous Current at 24 V < 60°C (In)		3 A (permanent)	
Max current		5 A	
Hold-up Time (min. Vac) 24Vdc 5A		Typ. 40 msec	
Residual Ripple		≤ 80 mV _{pp}	
Efficiency		≥ 91 %	
Over temperature Protection		Yes. Shut-down output and automatic restart.	
Short-circuit protection options		1) Hiccup Mode	
		2) Fold Back	
		3) Restart After Main	
Dissipation power load max (W)	11		
Over Load protection	Yes		
Over Voltage Output protection	Yes (typ. 35 Vdc)		
Parallel connection	Yes		
Climatic Data	Ambient Temperature operation	-25 up to +70 °C	
	Ambient Temperature Storage	-40 up to +85 °C	
	Humidity at 25 °C, no condensation	95 % to 25 °C	
General Data	Isolation Voltage (In / Out)	3000 Vac	
	Isolation Voltage (In / PE)	1605 Vac	
	Isolation Voltage (Out / PE)	500 Vac	
	Protection Class (EN/IEC 60529)	IP 20	
	Reliability: MTBF IEC 61709	> 500.000 h	
	Pollution Degree Environment	2	
	Connection Terminal Blocks Screw Type	2,5 mm	
	Protection class	I with PE connected	
	Dimension (w-h-d)	55x110x105 mm	
	Weight	0.50 kg approx.	

Output derating Curve
Continuous Load



Output Voltage vs. Output Current, typ.



FLEX17024B

Input: two-phase **230 - 400 - 500 V AC**
 Output: One output **9 A @ 24 V DC**
180 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **120 to 180 W**
 Selectable Protection Mode:

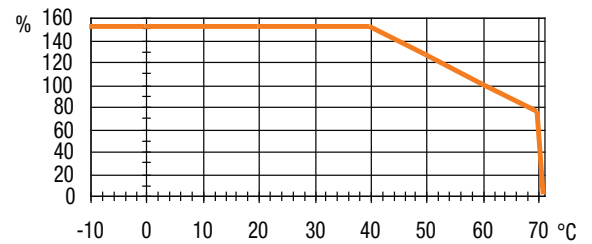
Hiccup, Fold back & Restart after Main

DIN Rail Mountable
 Extremely small size

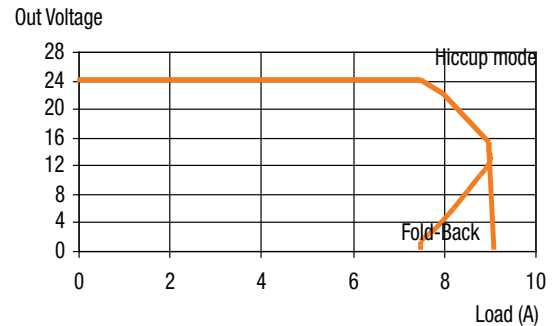


Input Data	Nominal Input Voltage (2 x Vac)
Manual select Input from 230 to 400-500	230 – 400 – 500 Vac
Input Voltage range (Vac)	187 - 264 (230)
330 – 550 (400 500)	
Inrush Current (Vn and In Load) I ² t	≤ 11 A ≤ 5 msec.
Frequency	47 – 63 Hz ±6%
Input Current (230 – 400 – 500 Vac)	1.3 – 0.7 – 0.6 A
Internal Fuse	T 4 A
External Fuse (recommended)	4 A (curve B)
Output Data	Output Voltage (Vn) Factory Setting ±3%
	24 Vdc
Adjustment range (Vadj)	22 – 27 Vdc
Start up with Strong Load (capacitive load)	≤50.000µF
Turn-On delay after applying mains voltage	1 sec. (max)
Continuous Current at 24 V < 40°C (In)	7.5 A (permanent)
Continuous Current at 24 V < 50°C (In)	6 A (permanent)
Continuous Current at 24 V < 60°C (In)	5 A (permanent)
Max current	9 A
Hold-up Time (min. Vac) 24Vdc 5A	Typ. 40 msec
Residual Ripple	≤ 80 mV _{pp}
Efficiency	≥ 91 %
Over temperature Protection	Yes. Shut-down output and automatic restart.
Short-circuit protection options	1) Hiccup Mode 2) Fold Back 3) Restart After Main
Dissipation power load max (W)	14
Over Load protection	Yes
Over Voltage Output protection	Yes (typ. 35 Vdc)
Parallel connection	Yes
Relay Power good	no
Climatic Data	Ambient Temperature operation
	-25 up to +70 °C
	(>60°derating 2.5% °C)
	Ambient Temperature Storage
	-40 up to +85 °C
	Humidity at 25 °C, no condensation
	95 % to 25 °C
General Data	Isolation Voltage (In / Out)
	3000 Vac
	Isolation Voltage (In / PE)
	1605 Vac
	Isolation Voltage (Out / PE)
	500 Vac
	Protection Class (EN/IEC 60529)
	IP 20
	Reliability: MTBF IEC 61709
	> 500.000 h
	Pollution Degree Environment
	2
	Connection Terminal Blocks Screw Type
	2,5 mm
	Protection class
	I with PE connected
	Dimension (w-h-d)
	55x110x105 mm
	Weight
	0.60 kg approx.

Output derating Curve
 Continuous Load



Output Voltage vs. Output Current, typ.



Available in 2009

FLEX28024B

Input: selectable two-phase **230 to 400-500 V AC**

Output: One output **5 A @ 24 V DC**

345 Watts

Efficiency up to **91%**

Strong overload without switch-off, up to **45%**

Flexible power continuity: **240 to 345 W**

Selectable Protection Mode:

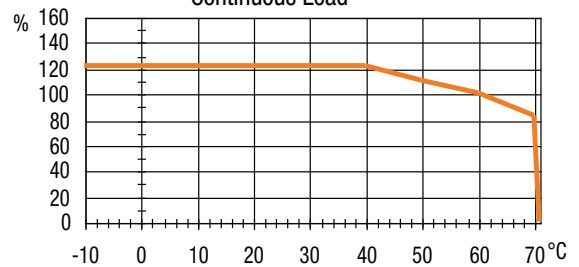
Hiccup, Fold back & Restart after Main

DIN Rail Mountable

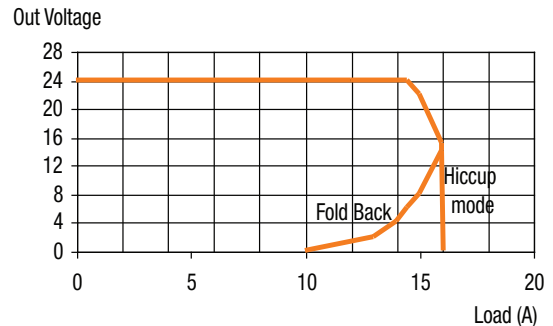
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Output derating Curve
Continuous Load



Output Voltage vs. Output Current, typ.



Input Data	Nominal Input Voltage (2 x Vac)	
	Manual select Input from 230 to 400-500	230 – 400 – 500 Vac
	Input Voltage range (Vac)	187 - 264 (230)
	330 – 550 (400 500)	
	Inrush Current (Vn and In Load) I ² t	≤ 11 A ≤ 5 msec.
	Frequency	47 – 63 Hz ±6%
	Input Current (230 – 400 – 500 Vac)	2.2 – 1.4 – 1.0 A
	Internal Fuse	T 6 A
	External Fuse (recommended)	10 A (curve B)
	Output Data	Output Voltage (Vn) Factory Setting ±3%
Adjustment range (Vadj)		22 – 27 Vdc
Start up with Strong Load (capacitive load)		≤50.000µF
Turn-On delay after applying mains voltage		2 sec. (max)
Continuous Current at 24 V < 40°C (In)		14.5 A (permanent)
Continuous Current at 24 V < 50°C (In)		12 A (permanent)
Continuous Current at 24 V < 60°C (In)		10 A (permanent)
Max current		16 A
Hold-up Time (min. Vac) 24Vdc 5A		Typ. 40 msec
Residual Ripple		≤ 80 mV _{pp}
Efficiency		≥ 91 %
Over temperature Protection		Yes. Shut-down output and automatic restart.
Short-circuit protection options		1) Hiccup Mode 2) Fold Back 3) Restart After Main
Dissipation power load max (W)		28
Over Load protection	Yes	
Over Voltage Output protection	Yes (typ. 35 Vdc)	
Parallel connection	Yes	
Climatic Data	Ambient Temperature operation	-25 up to +70 °C (>60°derating 2.5% °C)
	Ambient Temperature Storage	-40 up to +85 °C
	Humidity at 25 °C, no condensation	95 % to 25 °C
General Data	Isolation Voltage (In / Out)	3000 Vac
	Isolation Voltage (In / PE)	1605 Vac
	Isolation Voltage (Out / PE)	500 Vac
	Protection Class (EN/IEC 60529)	IP 20
	Reliability: MTBF IEC 61709	> 500.000 h
	Pollution Degree Environment	2
	Connection Terminal Blocks Screw Type	2,5 mm
	Protection class	I with PE connected
	Dimension (w-h-d)	65x115x135 mm
	Weight	0.65 kg approx.

FLEX50024B

Input: three-phase **400 - 500 V AC**
 Output: One output **35 A @ 24 V DC**
600 Watts

Efficiency up to **91%**
 Strong overload without switch-off, up to **45%**
 Flexible power continuity: **480 to 600 W**
 Selectable Protection Mode:

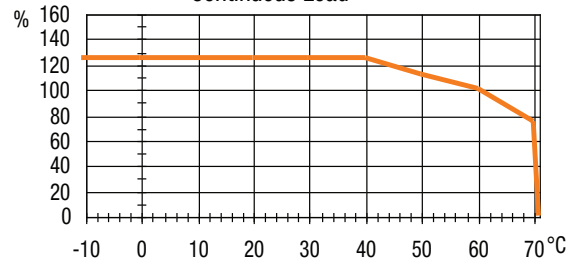
Hiccup, Fold back & Restart after Main

DIN Rail Mountable
 Extremely small size

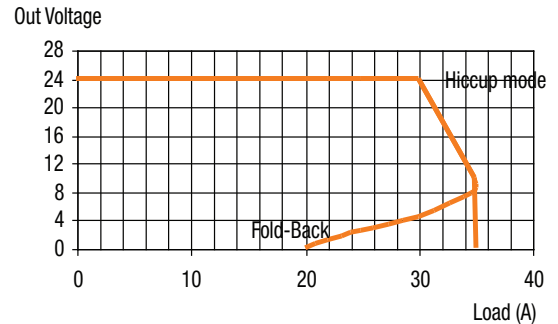


Input Data	Nominal Input Voltage (3 x Vac)	400 – 500 Vac	
	Input Voltage range (Vac)	330 – 550	
	Inrush Current (Vn and In Load) I ² t	≤ 11 A ≤ 5 msec.	
	Frequency	47 – 63 Hz ±6%	
	Input Current (115 – 230 Vac)	0.95 – 0.85 A	
	Internal Fuse	T 6.3 A	
	External Fuse (recommended)	16 A (curve B)	
Output Data	Output Voltage (Vn) Factory Setting ±3%	24 Vdc	
	Adjustment range (Vadj)	22 – 27 Vdc	
	Start up with Strong Load (capacitive load)	≤50.000µF	
	Turn-On delay after applying mains voltage	1 sec. (max)	
	Continuous Current at 24 V < 40°C (In)	25 A (permanent)	
	Continuous Current at 24 V < 50°C (In)	22 A (permanent)	
	Continuous Current at 24 V < 60°C (In)	20 A (permanent)	
	Max current	35 A	
	Hold-up Time (min. Vac) 24Vdc 5A	Typ. 40 msec	
	Residual Ripple	≤ 80 mV _{pp}	
	Efficiency	≥ 91 %	
	Over temperature Protection	Yes. Shut-down output and automatic restart.	
	Short-circuit protection options	1) Hiccup Mode	
		2) Fold Back	
		3) Restart After Main	
Dissipation power load max (W)	28		
Over Load protection	Yes		
Over Voltage Output protection	Yes (typ. 35 Vdc)		
Parallel connection	Yes		
Climatic Data	Ambient Temperature operation	-25 up to +70 °C (>60°derating 2.5% °C)	
	Ambient Temperature Storage	-40 up to +85 °C	
	Humidity at 25 °C, no condensation	95 % to 25 °C	
General Data	Isolation Voltage (In / Out)	3000 Vac	
	Isolation Voltage (In / PE)	1605 Vac	
	Isolation Voltage (Out / PE)	500 Vac	
	Protection Class (EN/IEC 60529)	IP 20	
	Reliability: MTBF IEC 61709	> 500.000 h	
	Pollution Degree Environment	2	
	Connection Terminal Blocks Screw Type	2,5 mm	
	Protection class	I with PE connected	
	Dimension (w-h-d)	100x115x135 mm	
	Weight	0.75 kg approx.	

Output derating Curve
 Continuous Load



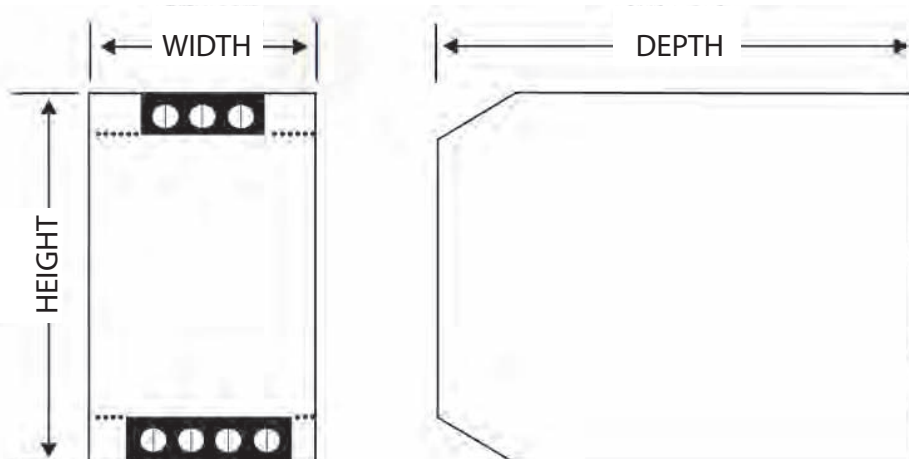
Output Voltage vs. Output Current, typ.



Available in 2009

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

FLEX Power Supplies



FLEX	WIDTH	HEIGHT	DEPTH
FLEX6024A	50	120	50
FLEX9024A, 17024A FLEX9024B, 17024B	55	110	105
FLEX28024A & B	65	115	135
FLEX50024A & B	100	115	135

