

Power Supplies Q.PS

Power supplies with 24 VDC output

- ▶ Short-circuit protection
- ▶ Overload protection
- ▶ Strong overload without switch-off
- ▶ IP20
- ▶ Mounting on DIN rail
- ▶ Extremely small size

Advantages of the new Q.PS-AD2-24xxF

- ▶ Saves space with even more compact design
- ▶ Power boost: +40% extra output current up to 60 °C for at least 3 minutes
- ▶ 3 different short-circuit modes available
- ▶ «Power good» relay for status display
- ▶ Simple parallel connection to increase max. output current
- ▶ In serial mode, output voltage up to 150 VDC possible



from left to right:
Q.PS-ADB, Q.PS-AD2, Q.PS-AD1

Picture	Input	Output	Order number	Protection	Features
<p>Q.PS-AD1</p>	Single phase 24 VAC / 40 VDC	24 VDC, 3 A 24 VDC, 5 A	Q.PS-AD1-2403 Q.PS-AD1-2405	Short circuit Overload	—
<p>Q.PS-AD2-24xxF</p>	Single phase 110...240 VAC	24 VDC, 1.5...3 A 24 VDC, 5...7.5 A 24 VDC, 10...14 A	Q.PS-AD2-2402F Q.PS-AD2-2405F Q.PS-AD2-2410F	Short circuit Overload Overvoltage	Adjustable output voltage 22...27 VDC
<p>Q.PS-AD3</p>	Single phase or Double-phase 230 / 400...500 VAC	24 VDC, 5...7.5 A	Q.PS-AD3-2405F	Short circuit Overload Overvoltage	Adjustable output voltage 22...27 VDC
<p>Q.PS-ADB</p>	Single phase 110...230 VAC / 24 VDC UPS with intelligent Battery Charger	24 VDC, 5 A	Q.PS-ADB-2405-1	Short circuit Overload Overvoltage	Adjustable charging current 1...5 A, battery diagnostic and different charging modes

Applications

Control panels, where 24 VDC is required to supply PLCs, actors, sensors etc. Also high-output loads such as magnetic valves, motors, lamps etc. Can be used for applications in:

- ▶ Building automation
- ▶ Industrial automation
- ▶ Infrastructure plants, such as water or sewage treatment
- ▶ Machineries
- ▶ Material handling
- ▶ etc.

Certifications

- ▶ The CE mark according to 2004/108/EC Electromagnetic Compatibility and low voltage directive 2006/95/EC
- ▶ cULus LISTED 508 Industrial Control Equipment
- ▶ EAC Mark of Conformity for Machinery Exports to Russia, Kazakhstan or Belarus

Electrical safety standards

- ▶ According to IEC/EN60950 (VDE0805) and EN50178 (VDE0160) for assembling devices. The unit must be installed according to IEC/EN60950.

EMC Generic standards

- ▶ Immunity according to EN61000-6-2
- ▶ Emission according to EN61000-6-4

Saia Power: Technical data

Input data	Q.PS-AD2-2402F	Q.PS-AD2-2405F	Q.PS-AD2-2410F
Input voltage	115...230 VAC		
Permitted voltage range:	90...264 VAC	90...135 / 180...264 VAC	
Inrush current (at V_n and I_n)	$\leq 7 \text{ A} \leq 5 \text{ ms}$	$\leq 11 \text{ A} \leq 5 \text{ ms}$	$\leq 16 \text{ A} \leq 5 \text{ ms}$
Frequency range	47...63 Hz ($\pm 6\%$)		
Input current (for operating voltage 110 / 230 VAC)	1.0 / 0.7 A	2.8 / 1.0 A	3.3 / 2.2 A
Internal input fuse	4 A		6.3 A
External preliminary fuse recommended	Fast-acting 6 A	Fast-acting 10 A	Fast-acting 14 A

Output data	Q.PS-AD2-2402F	Q.PS-AD2-2405F	Q.PS-AD2-2410F
Output voltage (V_n) / nominal current (I_n)	24 VDC $\pm 3\%$ / 2.5 A	24 VDC $\pm 3\%$ / 5 A	24 VDC $\pm 3\%$ / 10 A
Adjustment range (V_{adj})	22...27 VDC		
Switch-on delay	2 s (max.)	1 s (max.)	
Startup with capacitive load	$\leq 50,000 \mu\text{F}$		
Continuous running at $\leq 40^\circ\text{C}$	3 A (230 VAC)/2 A (115 VAC)	7.5 A	14 A
Continuous running at $\leq 50^\circ\text{C}$	2.5 A (230 VAC)/1.5 A (115 VAC)	6.0 A	12 A
Continuous running at $\leq 60^\circ\text{C}$	---	5.0 A	10 A
Maximum continuous current	---	---	---
Reserve out current (within 3 minutes at $\leq 60^\circ\text{C}$)	3.5 A	7.5 A	14 A
Short-circuit current (I_{sc})	7 A	16 A	30 A
Residual ripple	$\leq 80 \text{ mVpp}$		
Efficiency (at 50% I_n)	$\geq 88\%$	$\geq 91\%$	
Short-circuit protection	Yes	Yes + 3 modes	
Overload protection	Yes		
Overvoltage output protection	Yes (max. 35 VDC)		
Parallel connection	Yes	Yes – simple	

Signal output (floating switch contacts)

Switching capacity	---	1 A / 30 VDC
Voltage drop > 10%	---	Yes

Climate data

Ambient temperature (operation)	-25...+70 °C (load reduction >50 °C, 2.5%/°C)	-25...+70 °C (load reduction >60 °C, 2.5%/°C)
Ambient temperature (storage)	-40...+85 °C	
Permissible humidity	95% at +25 °C; no moisture condensation permitted	

Overload protection

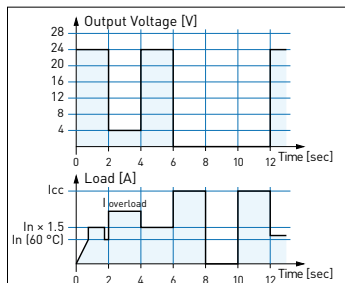
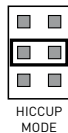
Mode

Jumper

Characteristics

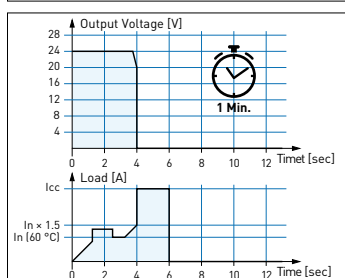
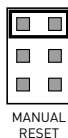
Hiccup mode

Automatic restart (default setting)
Attempts to switch on the output voltage again every 2 seconds.



Manual reset mode

For a restart, it is necessary to switch off the input voltage for approx. 1 minute.



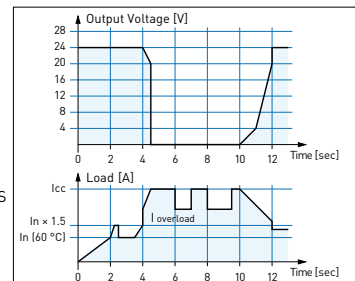
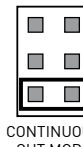
Mode

Jumper

Characteristics

Continuous out mode

The output current remains at a high value and the output voltage is almost 0 volts.

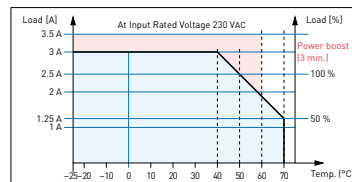


	Q.PS-AD3-2405F	Q.PS-ADB-2405-1 Battery type	Q.PS-AD1-2403	Q.PS-AD1-2405
	230 VAC / 400...500 VAC	115...230 VAC	24 VAC / 40 VDC	
	187...264 VAC / 330...550 VAC	93...264 VAC	24...32 VAC / 33...45 VDC	
	≤ 17 A ≤ 5 ms	≤ 14 A ≤ 5 ms		
	47...63 Hz (± 6%)			
	1.5 / 0.8 A	1.5 / 0.9 A		
	4 A		---	
	Fast-acting 10 A	Fast-acting 6 A	Fast-acting 4 A	Fast-acting 6 A
	24 VDC ± 3% / 5 A	24 VDC / 5 A	24 VDC ± 2% / 3 A	24 VDC ± 2% / 5 A
	22...27 VDC		---	
	1 s (max.)	2.5 s (max.)	≤ 100 ms	
	≤ 50,000 μF	≤ 30,000 μF	≤ 30,000 μF / 1.5 A	≤ 30,000 μF / 2 A
	7.5 A		---	
	6.0 A	---	3 A	3.5 A
	5.0 A		---	
	---	1.1 × I _n ± 5%	1.05 × I _n ± 7%	
	7.5 A		---	
	16 A		---	
	≤ 80 mVpp		≤ 60 mVpp	
	≥ 91%	≥ 81%	≥ 88%	
	Yes + 3 modes		Yes	
	Yes			
	Yes (max. 35 VDC)	Yes	---	
	Yes		---	
	1 A / 30 VDC	1 A / 30 VDC		
	Yes		---	
	-25...+70 °C (load reduction >60 °C, 2.5%/°C)	-25...+70 °C (load reduction >50 °C, 2.5%/°C)	-0...+50 °C	
	-40...+85 °C		-25...+85 °C	
	95% at +25 °C; no moisture condensation permitted			

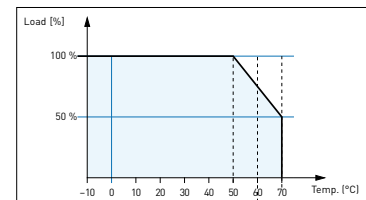
Battery output (battery type 3 ... 50 Ah)	
Boost charge (25 °C) (at I _n)	28.8 VDC
Trickle charge (25 °C) (at I _n)	27.5 VDC
Output 2: Battery charging current max. I _{batt}	5 A ± 5%
Setting range of charging current	20...100% of I _n
Recovery charge after deep discharge	Yes
Configuration jumper: Battery type	Yes
Reverse polarity protection	Yes
Monitoring of the sulfation of the battery cells	Yes
Detection of an element in short-circuit	Yes
Load output	
Output voltage (at I _n)	22...28.8 VDC
Max. nominal current I _n = I _{load} + I _{batt} (120 W)	1.1 × 5 A ± 5%
Output 1: Load current (main) I _{load}	15 A max.
Output 1: Load current (backup) I _{load}	10 A max.
Signal output (floating switch contacts)	
Switching capacity	1 A / 30 VDC
Main or backup power unit	Yes
Defective battery/low battery	Yes

Output characteristics

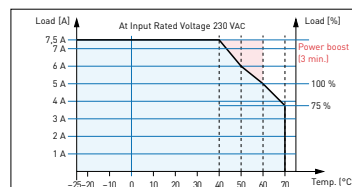
Output derating curve
Q.PS-AD2-2402F



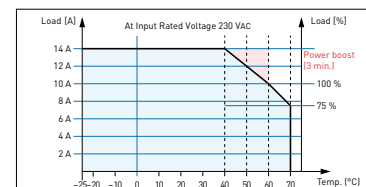
Output derating curve
Q.PS-ADB-2405-1



Output derating curve
Q.PS-AD2-2405F
Q.PS-AD3-2405F



Output derating curve
Q.PS-AD2-2410F



Dimensions

	Q,PS-AD1-2403	Q,PS-AD1-2405	Q,PS-AD2-2402F	Q,PS-AD2-2405F	Q,PS-AD2-2410F	Q,PS-AD3-2405F	Q,PS-ADB-2405-1
Width (w)	50 mm	50 mm	50 mm	55 mm	72 mm	55 mm	65 mm
Height (h)	95 mm	95 mm	120 mm	110 mm	115 mm	110 mm	115 mm
Depth (d)	61 mm	61 mm	50 mm	105 mm	135 mm	105 mm	135 mm
Weight	0,2 kg	0,2 kg	0,3 kg approx	0,6 kg approx	0,65 kg approx	0,6 kg approx	0,6 kg

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