

AC 800M and S800 IO

Power supplies and voters

SD822Z, SD83x, SD85x, SS822Z, SS823 and SS832 is a range of space saving power supplies intended for the AC 800M and S800 I/O product lines. Output current can be selected in the range of 3-20 A and the input range is wide. Relevant voters for redundant configurations are available.



The range also supports power supply configurations of the AC 800M and S800 I/O based IEC 61508-SIL2 and SIL3 rated solutions. A Mains Breaker Kit for DIN Rail is also available for our power supplies and voters.

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Power Supplies

The SD83x and SD85x Power Supply Units are designed to meet all the applicable electrical safety data stated by the EN 50178 harmonized European Standard Publication and the additional safety and function data required by EN 61131-2 and UL 508. The secondary output circuitry is accepted for SELV or PELV applications.

They are switch-mode Power Supply Units which convert the mains voltage to 24 volts d.c. These power supplies can be utilized for non-redundant and redundant applications. Redundant applications require diode voting units SS823 or SS832.

With the type SD83x series Power Supply Units, there is no requirement for the installation of a mains filter. They provide a soft start feature; power-on of an SD83x will not trip fuses or earth-fault circuit breakers. The SD822Z is also G3 compliant.

Key Features

- Simple DIN-rail mounting
- Class I Equipment, (when connected to Protective Earth, (PE))
- Over-voltage Category III for connection to primary main TN network
- Protective separation of secondary circuit from primary circuit
- Accepted for SELV and PELV applications
- The output of the units is protected against over current (current limit) and over voltage (OVP)
- SD834 can be connected in parallel to increase output power
- Both a.c. and d.c. input at SD831 and SD834
- Floating DC-OK relay contact at SD834

Voting Units

The Voting Units SS822Z, SS823 and SS833 have been specifically designed to be employed as a control unit within a redundant power supply configuration. The output connections from two Power Supply Units are connected to the Voting Unit. The Voting Unit separates the redundant Power Supply Units, supervises the voltage supplied, and generates supervision signals to be connected to the power consumer.

Green LED's, mounted on the front panel of the voting unit, provide a visual indication that the correct output voltage is being delivered. Simultaneously with the green LED illuminating, a voltage free contact closes the path to the corresponding "OK connector". Voting Unit trip levels, are factory preset.

High Integrity

The AC 800M High Integrity and the connected S880 High Integrity I/O system (including field power) shall be supplied from a SELV or PELV power supply (e.g. SD83x) connected through the power voter SS823. The SS823 Voting Unit has double overvoltage protection circuit, limiting the output voltage to max 30 VDC. It is also able to detect both short and open circuit in the voting element.

The SS822Z and SS823 units is also G3 compliant.

Feature	SD822Z	SD831	SD832	SD833	SD834
Article number	3BSC610054R1	3BSC610064R1	3BSC610065R1	3BSC610066R1	3BSC610067R1
Rated output current	5 A	3 A	5 A	10 A	20 A
Rated output power	120 W	72 W	120 W	240 W	480 W
Rated output voltage	d.c. 24 V	d.c. 24 V	d.c. 24 V	d.c. 24 V	d.c. 24 V
Rated input power	280 VA 135 W	134/143 VA	240/283 VA	447/514 VA	547/568 VA
Mains/ input voltage, nominal	115/230 V a.c. 225-250 V d.c.	100-240 V a.c. 110-300 V d.c.	100-120 V a.c. 200-240 V a.c. Auto-select input	100-120 V a.c. 200-240 V a.c. Auto-select input	100-240 V a.c. 110-150 V d.c.
Mains voltage variation allowed	85-132 V a.c. 176-264 V a.c. 210-375 V d.c	100-240 V a.c. +10 %. 110-300 V d.c. -20 % / +25 %	100-120 V a.c. +10 %, 200-240 V a.c. +10 %	100-120 V a.c. +10 %, 200-240 V a.c. +10 %	85-276 V a.c. 88-187 V d.c.
Mains frequency	47-63 Hz	50-60 Hz +-6 %	50-60 Hz +-6 %	50-60 Hz +- 6%	50-60 Hz +- 6%
Primary peak inrush current at power on	Typ 15 A	<28/<54 A	<10 A	<10 A	<13 A
Applications	SELV and PELV	SELV and PELV	SELV and PELV	SELV and PELV	SELV and PELV
Load sharing	Two in parallell	-	-	-	Parallell connection
Power Factor (at rated output power)	-	0.61/0.56	0.56/0.47	0.59/0.51	0.95/0.90
Heat dissipation	13.3 W	10/8 W	14/13 W	24/22 W	40/32 W
Efficiency factor	88 %	88/89.8 %	89.4/90.2 %	91/91.6 %	92.4/93.9 %
Output voltage regulation at max. current	+/- 2%	< 50 mV / < 100 mV	< 70 mV / < 100 mV s	< 70 mV / < 100 mV	< 10 mV / < 100 mV
Ripple (peak to peak)	< 50 mV	< 50 mV	< 50 mV	< 50 mV	< 100 mV
Secondary voltage holdup time at mains blackout	> 20 ms	29/120 ms	80/78 ms	46/47 ms	230V/10A min 77ms 230V/10A typ 100ms 230V/20A min 36ms 230V/20A typ 51ms 120V/10A min 51ms 120V/10A typ 62ms 120V/20A min 22ms 120V/20A typ 32 ms
Maximum output current (min)	10 A	3.3 A	6 A At ambient temp < 45 °C	12 A At ambient temp < 45 °C	30 A < 4 s
Maximum ambient temperature	60 °C	60 °C	60 °C	60 °C	60 °C
Primary: Recommended external fuse ⁽¹⁾	10 A	10-20 A	10-20 A	10-20 A	10-20 A
Secondary: Short circuit	< 10 A	< 8 A	< 14 A	< 18 A	< 40 A
Secondary: Over-Voltage protection	29 V	< 39 V	< 39 V	< 39 V	< 37 V
Class of protection	I PE (Protective Earth) connection required				
Protection rating	IP20 according to IEC60529				
Width	65 mm (2.56 in.)	32 mm (1.26 in.)	32 mm (1.26 in.)	60 mm (2.36 in.)	82 mm (3.23 in.)
Depth	110 mm (4.3 in.)	102 mm (4.02 in.)	117 mm (4.61 in.)	117 mm (4.61 in.)	127 mm (5.0 in.)
Height	125 mm (4.9 in.)	124 mm (4.88 in.)	124 mm (4.88 in.)	124 mm (4.88 in.)	124 mm (4.88 in.)

(1) Microcircuit Breaker (MCB), Characteristic B

Feature	SD822Z	SD831	SD832	SD833	SD834
Mounting spacing Width mm	15 mm (0.59 in.)	15 mm (0.59 in.)	15 mm (0.59 in.)	15 mm (0.59 in.)	15 mm (0.59 in.)
Mounting spacing Height mm	25 mm (1 in.)	40 mm (1.57 in.)	40 mm (1.57 in.)	40 mm (1.57 in.)	40 mm (1.57 in.)
Weight (lbs.)	620 g (1.4 lbs)	430 g (0.9 lbs.)	500 g (1.1 lbs.)	700 g (1.5 lbs.)	1200 g (2.6 lbs.)
Corrosive atmosphere ISA-S71.04	G3	G2	G2	G2	G2
CE mark	Yes	Yes	Yes	Yes	Yes
El. safety, Haz loc, C1 Zone 2	No	No	No	No	No
El. safety, Haz loc, C1 Div 2	No	No	No	No	Yes
Electrical safety	IEC 61131-2, UL 508, EN 50178 (Note! UL 508 not valid for SS823)				
Pollution degree	Degree 2, IEC 60664-1				
Mechanical operating conditions	EN 61131-2				
EMC	EN 61000-6-4 and EN 61000-6-2				
Overvoltage Categories	Over-voltage Category III (IEC/EN 60664-1)				
RoHS compliance ⁽²⁾	EN 50581:2012				
WEEE compliance ⁽²⁾	DIRECTIVE/2012/19/EU				

(2) For detailed information on each module, please visit:

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Feature	SD853	SD854	SS822Z	SS832	SS823
Article number	3BSE088188R1	3BSE088189R1	3BSC610055R1	3BSC610068R1	3BSE038226R1
Rated output current	10 A	20 A	20 A	10 A (20 A in parallell operation)	20 A
Rated output power	240 W	480 W	-	-	-
Rated output voltage	24 V d.c.	24 V d.c.	-	-	-
Rated input power			500 W	240 W (480 W in parallell operation)	500 W
Mains/input voltage, nominal	100-240 V a.c. 110-150 V d.c.	100-240 V a.c. 110-150 V d.c.	2x24 V d.c.	2x24 V d.c (1x24 V d.c in parallell operation)	1x24 V d.c
Mains voltage variation allowed	85-264 V a.c / 88 -180 V d.c.	85-264 V a.c / 88 -180 V d.c.	-	-	-
Mains frequency	50-60 HZ (+ - 6%)	50-60 HZ +- 6%	-	-	-
Primary peak inrush current at power on	< 11 A	< 10 A	-	-	-
Applications	SELV and PELV	SELV and PELV	-	-	-
Load sharing	-	Parallell connection (1) See instruction	Two in parallell	Two in parallell	Yes
Power Factor (at rated output power)	0.99/0.97	0.99/0.95	-	-	-
Heat dissipation	16.4 W / 12.1 W, 120/230 V a.c.	29.6 W / 22.1 W, 120/230 V a.c.	10 W at 20 A and 2,5 W at 5 A	9 W (18 W)	24 W at 20 A and 6 W at 5 A
Efficiency factor	93.6/95.2 % @ 120/230 V a.c.	92.4/95.6 % @120/230 V a.c.	-	-	-
Output voltage regulation at max. current	max 50 mV 0 - 12 A	100 mV	0,5 V lower than input	0.85 V lower than input	1.2 V lower than input
Ripple (peak to peak)	< 50 mV	50 mV	-	-	-
Secondary voltage holdup time at mains blackout	37 ms	32 ms	-	-	-
Maximum output current (min)	12 A At ambient temp < 45 °C	24 A At ambient temp < 45 °C	35 A (Overload)	25 A (Overload)	35 A (Overload)
Maximum ambient temperature	60 °C	60 °C	60 °C	60 °C	55 °C

Feature	SD853	SD854	SS822Z	SS832	SS823
Primary: Recommended external fuse ⁽¹⁾	10-20 A	10-20 A	-	-	-
Secondary: Short circuit	30 A for < 12 ms	60 A for < 12 ms	-	-	-
Secondary: Over-Voltage protection	Max 32 V	Max 32 V	-	-	< 30 V
Class of protection	I PE (Protective Earth) connection required		-	-	-
Protection rating	IP20 according to IEC60529				
Height	124 mm (4.88 in.)	124 mm (4.88 in.)	125 mm (4.9 in.)	125 mm (4.9 in.)	132 mm (5.3 in.)
Width	39 mm (1.53 in.)	48 mm (1.88 in.)	50 mm (1.97 in.)	32 mm (1.26 in.)	116 mm (4.6 in.)
Depth	117 mm (4.60 in.)	127 mm (5.00 in.)	110 mm (4.3 in.)	117 mm (4.61 in.)	145 mm (5.8 in.)
Mounting spacing Width mm	15 mm (0.59 in.)	15 mm (0.59 in.)	15 mm (0.59 in.)	15 mm (0.59 in.)	15 mm (0.6 in.)
Mounting spacing Height mm	40 mm (1.57 in.)	40 mm (1.57 in.)	25 mm (1 in.)	25 mm (1 in.)	25 mm (1.2 in.)
Weight (lbs.)	600 g (1.32 lbs)	830 g (1.83 lbs)	630 g (1.4 lbs)	350 g (0.77 lbs.)	870 g (1.9 lbs.)
Corrosive atmosphere ISA-S71.04	G3	G3	G3	G2	G3
CE mark	Yes	Yes	Yes	Yes	Yes
El. safety, Haz loc, C1 Zone 2	ATEX: EN 60079-0, EN60079-15; IECEx: IEC60079-0, IEC 60079-15; ANSI/ISA 12.12.01-2015, Class 1 Div 2		No	No	No
El. safety, Haz loc, C1 Div 2	UL: Class 1, Div2, Groups A, B, C, D T4		No	No	No
Electrical safety	IEC 60950-1		IEC 61131-2, UL 508, EN 50178 (Note! UL 508 not valid for SS823)		
Pollution degree	Degree 2, IEC 62477-1		Degree 2, IEC 60664-1		
Mechanical operating conditions	EN 61131-2				
EMC	EN 61000-6-4 and EN 61000-6-2				
Overvoltage Categories	Over-voltage Category III (IEC/EN 60664-1)				
RoHS compliance ⁽²⁾	EN 50581:2012				
WEEE compliance ⁽²⁾	DIRECTIVE/2012/19/EU				

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