

# Product Details and Certifications

Cross Reference RA Part Number: PN-107542

 Product: **1606-XLSRED40**

Description: Redundancy Module, Input Voltage 24-28V DC, Output 40 Amps



Representative Photo Only (actual product may vary based on configuration sections)

## **POWER SUPPLY DATA**

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Bulletin Number	1606 Switched Mode Power Supplies
Input Voltage	24...28V DC
Output Voltage	Vin -2.15V Typ.
Rated Output Watts	960 W
Operational Range	24...28V DC
Rated Input Current	Single Input: 20 A Max. / Dual Input: 40 A Max. Total
Special Features	Redundant for DC 24...28V applications; Class 1 Div. 2 / N+1 Redundancy
Rated Output Current	0...40 A

## **CERTIFICATIONS AND APPROVALS**

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UL  
CE  
IEC/EN  
EMC  
For UL Certifications Directory: <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>



Bulletin	1606-XLP	1606-XL	1606-XLS	1609	1497
Type	Switched Mode Power Supply Single Phase	Switched Mode Power Supply Single/Three Phase	Switched Mode Power Supply Single/Three Phase	Uninterruptible Power Supply	Control Circuit Transformer
Features	<ul style="list-style-type: none"> <li>Low inrush current</li> <li>Wide range input; auto select input</li> <li>Superior overload design (continuous current, no hiccup)</li> <li>NEC Class 2 "Limited Power"</li> <li>Superior efficiency and temperature rating</li> </ul>	<ul style="list-style-type: none"> <li>Low inrush current</li> <li>PFC Choke</li> <li>Wide range input; auto select input</li> <li>Superior overload design (continuous current, no hiccup)</li> <li>NEC Class 2 "Limited Power"</li> <li>Selectable operating mode (single/parallel)</li> <li>Superior efficiency and temperature rating</li> <li>Output signals</li> </ul>	<ul style="list-style-type: none"> <li>Ultra-small size</li> <li>Extra-low inrush current</li> <li>Active Power Factor Correction</li> <li>Wide range AC/DC input; auto select input</li> <li>Superior reserve power (can support 150% rated power for 3...5 seconds)</li> <li>Superior efficiency and temperature rating</li> <li>DC OK and Overload LED</li> </ul>	<ul style="list-style-type: none"> <li>Rugged industrial design</li> <li>DIN Rail or Back of Panel mountable</li> <li>Elevated temperature performance (up to 50°C)</li> <li>Comprehensive network management</li> <li>Remote monitoring/configuration</li> <li>"Dry contact" I/O</li> <li>Line interactive</li> <li>Pure sine wave output</li> </ul>	<ul style="list-style-type: none"> <li>Wide VA range</li> <li>Enclosed construction 63...350 VA</li> <li>Terminal covers finger safe</li> <li>Optional fuse covers available</li> <li>Dual primary and secondary fuse block available to 500 VA</li> <li>Class B insulation (130°C)</li> <li>All welded construction</li> </ul>
Output Power (Watts/VA)	25...100 W	60...960 W	80...480 W	325 W/500 VA	63...2000 VA
Input Voltage / Primary Voltage	85...264V AC 85...375V DC	85...132/176...264/340...576V AC 160...375/450...820V DC	85...276/323...552V AC 88...375/450...780V DC	120, 208/230V AC	208...600V
Efficiency	80...90%	87...93%	91.6...95%	96%	—
Output Voltage / Secondary Voltage	5, 10...12, 15, 24, 48V DC	24, 36, 48V DC	24V DC	120, 208/230V AC	24...120V Multi-tap 115...230V (50 Hz)
Rated Output Current	1.3...4.2 A	2.5...40 A	3.4...20 A	4.2 A	—
Operating Temperature Range (Tamb)	-10...+70°C >60°C with derating	-10...+70°C >60°C with derating	-25...+70°C >60°C with derating	0...50°C	—
Non-Operating Temperature Range	-40...+85°C			-20...+60°C	—
Insulation	—	—	—	—	Class B 130°C
Certifications	cULs, CE	cULs, CE	cULs, CE	UL, CSA, CE	cULs, CE
Standards	EN 50081-1, EN 61000-6-2, EN 61000-3-2 (A14) UL 508 UL 1950	EN 55011 (Class B), EN 55022 (Class B), EN 61000-6-2, EN 61000-3-2 (A14), EN 50081-1 UL 508 UL 1950	EN 55011 (Class B), EN 55022 (Class B), EN 61000-6-2, EN 61000-3-2 (A14), EN 50081-1 UL 508 UL 1950	EN 50091-1-1, EN 50091-2 (Class 2) UL 1778	EN 60529
Special Application Products	<ul style="list-style-type: none"> <li>Compact Redundancy Module for 10...60V DC</li> <li>50 W Device with Removable Terminal Blocks</li> <li>Buffer Module for Extended Ride-Through</li> <li>Redundant Power Supplies</li> <li>Redundancy Modules</li> </ul>				
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# Switched Mode Power Supplies

## Product Overview/Product Sizing



### Bulletin 1606 — Power Supplies ❄️

- Quick mounting and connecting, innovative DIN-Rail mount, smallest in class
- Low inrush current limiting
- PFC Active or Passive
- Wide range input; auto select input
- Superior overload design (continuous current, no hiccup)
- NEC Class 2 'Limited Power' options
- Selectable operating mode (single/parallel)
- Superior efficiency and temperature rating

### Special Modules

- Brownout buffer, DC to DC converter, N+1 redundancy

### Standards Compliance

- World-wide Certifications‡
- NEC Class 2
- Class 1 Div. 2 (T3A)
- cULus, CE, C-Tick
- SEMI F47 Compatible
- ABS/GL/RINA (Marine)

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### Certifications



\* Not all features apply to all power supplies; see individual power supply descriptions for specifics

❄️ A more detailed list of performance specifications can be found at the Allen-Bradley web site

[http://www.ab.com/industrialcontrols/products/power\\_supplies/index.html](http://www.ab.com/industrialcontrols/products/power_supplies/index.html)

‡ Dual UL rating with cURus 60950 relating to certified use in information technology.

### How to Select a Bulletin 1606 Power Supply

The Bulletin 1606 line of Power Supplies is designed with "reserve power" thereby eliminating the need to oversize your power supply to start high inrush loads.

#### Steps to size a Power Supply

1. Determine the "Average" continuous current of the load and the typical inrush current.
2. Select a power supply where the rated load is at/or below the current of the device and the Peak Current is less than the short-circuit rating of the power supply.

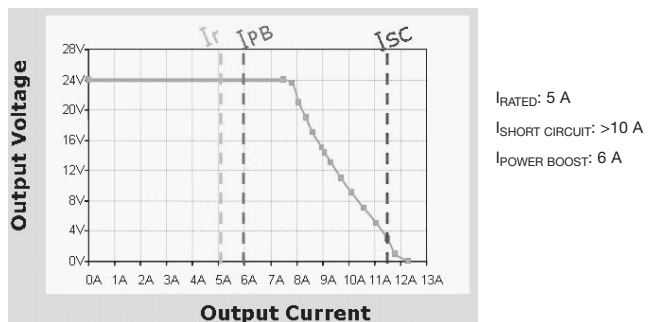
#### Notes:

- PowerBoost will deliver up to 25% additional current continuously at 40 deg C or less.
- ReservePower will deliver 150% of rated current for up to 4 sec.

#### Example:

**Application:** Single Phase 120V input, 24V output, 6 A continuous current @ 35 °C, with 9 A inrush current **Solution:** 1606-XL120D

#### Output Characteristic for XL120D (5 A) Power Supply



Cat. No.	$I_{RATED}$	$I_{SHORT\ CIRCUIT\ (25^{\circ}C)}$	$I_{POWER\ BOOST\ OF\ I_{RESERVEPOWER}}$
1606-XLS80E	3.4 A	5.2 A	5.4 A§
1606-XLS120E	5.0 A	9.0 A	7.5 A§
1606-XLS240E	10 A	21 A	15 A§
1606-XLS480E-3	20 A	29 A	30 A§
1606-XLSDNET4	3.8 A	4.0 A	—
1606-XLSDNET8	8.0 A	7.0 A	—
1606-XLP25A	5.0 A	5.0 A	—
1606-XLP30B	3.0 A	4.0 A	—
1606-XLP30E	1.3 A	1.9 A	—
1606-XLP36C	2.8 A	2.0 A	—
1606-XLP50B	4.2 A	4.3 A	—
1606-XLP50E	2.1 A	3.1 A	—
1606-XLP50EZ	2.1 A	3.1 A	—
1606-XLP50F	1.0 A	1.7 A	—
1606-XLP72E	3.0 A	4.5 A	—
1606-XLP90B	8.0 A	8.0 A	—
1606-XLP95E	3.9 A	7.0 A	—
1606-XLP100E	4.2 A	7.1 A	—
1606-XLP100F	2.1 A	3.6 A	—
1606-XL60D	2.5 A	4.5 A*	—
1606-XL120D	5.0 A	10 A*	6.0 A
1606-XL180B	15 A	21 A*	—

Cat. No.	$I_{RATED}$	$I_{SHORT\ CIRCUIT\ (25^{\circ}C)}$	$I_{POWER\ BOOST\ OF\ I_{RESERVEPOWER}}$
1606-XL240E	10 A	18 A*	12 A
1606-XL240EP	10 A	18 A*	12 A
1606-XL240FP	5.0 A	10 A*	6.0 A
1606-XL480E	20 A	N/A>	25 A
1606-XL480EP	20 A	22 A	25 A
1606-XL480EPT	20 A	22 A	25 A
1606-XL480GP	13.3 A	12 A	16.6 A
1606-XL480F	10 A	24 A	12.5 A
1606-XL120E-3	5.0 A	11 A*	6.0 A
1606-XL240E-3	10 A	22 A*	12 A
1606-XL480E-3	20 A	N/A>	25 A
1606-XL480E-3W	20 A	25 A	25 A
1606-XL480F-3H	10 A	N/A>	12.5 A
1606-XL720E-3	30 A	N/A>	33 A
1606-XL960E-3	40 A	44 A	45 A
1606-XL960E-3S	40 A	44 A	45 A
1606-XLDNET4	4.0 A	3.8 A*	—
1606-XLDNET8	8.0 A	6.0 A*	—
1606-XL60DR	2.5 A	4.5 A*	—
1606-XL120DR	5.0 A	10 A*	6.0 A
1606-XL240DR	10 A	18 A*	12 A

§ Products with ReservePower.

\* Short circuit current values are temperature dependent for the selected product; i.e., the higher the ambient temperature, the lower the short circuit current.

> Hiccup Overload design.

## 1606 Special Modules

Input Voltage	Output Power [W]	Output Voltage	Output Current [A]	Input Circuit Protection	Steady State Input Current 120/230 [V AC]	Parallel Operation	DC OK Relay	Cat. No.
18...36V DC	40	5.1	8	N/A	N/A	Yes	—	1606-XLDC40A
14...32.4V DC	92	24	3.8	N/A	N/A	—	—	1606-XLDC92D
100...240V AC, 110...300V DC	91	24	3.8	6 A SLOW BLOW FUSE OR 1489-A1C060/20 A*	1.02/0.48	Yes	✓	1606-XLSDNET4
100...240V AC, 110...300V DC	192	24	8	6 A SLOW BLOW FUSE OR 1489-A1C060/20 A*	2.13/1.00	Yes	✓	1606-XLSDNET8
100...120/200...240V AC	80	24...28	3.3	10 A SLOW BLOW FUSE OR 1489-A1C100/20 A*	1.50/0.68	No	—	1606-XLEDNET3
100...120/200...240V AC, 160...375V DC	60	24	2.5	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A*	1.30/0.70	Yes‡	✓	1606-XL60DR
100...120/200...240V AC, 210...375V DC	120		5	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A*	2.60/1.40	Yes‡	✓	1606-XL120DR
100...120/200...240V AC, 240...375V DC	240		10	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A*	6.00/2.60	Yes‡	✓	1606-XL240DR
24V DC	720	V <sub>in</sub> -5V typ	30	N/A	N/A*	—	—	1606-XLRED20-30
24V DC	960	V <sub>in</sub> -6V typ	40	N/A	N/A§	—	—	1606-XLRED40
10...60V DC	384	V <sub>in</sub> 1 -.9V typ	16➤	N/A	N/A	—	—	1606-XLPRED
10...60V DC	480	V <sub>in</sub> 1 -.9V typ	20➤	N/A	N/A	—	—	1606-XLSRED
24...28	960	V <sub>in</sub> 2.15 typ.	40	N/A	N/A	—	—	1606-XLSRED40
24...28	1920	V <sub>in</sub> 2.7 typ.	80	N/A	N/A	—	—	1606-XLSRED80
24...60V DC	480	V <sub>in</sub> 1 -.9V typ	20➤	N/A	N/A	—	✓	1606-XLERED

## 1606 Special Modules with UPS

Input Voltage	Output Power [W]	Output Voltage	Output Current [A]	Cat. No.
22.5...30V DC	240	22.5	10	⌘ 1606-XLS240-UPS
22.5...30V DC	240	22.5	10	1606-XLS240-UPSC
22.5...30V DC	240	12/22.5	5/10	1606-XLS240-UPSD
22.5...30V DC	240	22.5	10	1606-XLS240-UPSE
24...28.8V DC	480	22.5...27.8	20	1606-XLSBUFFER24
48...56V DC	960	45...54	10	1606-XLSBUFFER48

## Bulletin 1606 Special Module Accessories

Description	Cat. No.
7 Ah/12V Battery Assembly with Bracket, for use with DC UPS	1606-XLSBATASSY1
7 Ah/12V Battery	1606-XLSBAT1
Battery bracket for 7 Ah/12V battery	1606-XLSBATBR1
26 Ah/12V Battery Assembly with Bracket, for use with DC UPS	1606-XLSBATASSY2
26 Ah/12V Battery	1606-XLSBAT2
Battery bracket for 26 Ah/12V battery	1606-XLSBATBR2

\* To be used alongside 20, 30, and 40 A power supplies.

‡ Single/parallel operation (inclined characteristic) selectable (jumper).

§ To be used alongside 40 A power supplies (or smaller).

\* Unit has internal (not accessible/replaceable) input fuse. Additional protection is not required if used on branch circuits ≤ UL test levels.

➤ See product specifications for proper use.

⌘ **Cat. No. 1606-XLS240-UPS** is a charging module, used along side a power supply and a battery assembly. **The battery assembly must be ordered separately.** Order **Cat. No. 1606-XLSBATASSY1** for 7 Ah/ 12V battery assembly or **Cat. No. 1606-XLSBATASSY2** for 26 Ah/ 12V battery assembly. Consult local codes and regulations for installation.

**Bulletin 1606 Redundancy Module**

	N+1 Redundancy		N+1 Redundancy		N+1 Redundancy		N+1 Redundancy	
	1606-XLRED20-30	1606-XLRED40	1606-XLPRED	1606-XLSRED	1606-XLERE	1606-XLSRED40	1606-XLSRED80	
<b>Output Volts/Watts</b>	30 A Dual redundancy module	40 A Single redundancy module	8 A Dual redundancy	10 A Dual redundancy		20 A Dual redundancy	40 A Dual redundancy	
<b>Input Voltage (47...63 Hz)</b>	DC 24V (max. 35V)		DC 10...60V	DC 10...60V		24...28 V DC	24...28 V DC	
<b>Operational Range</b>	18...36 V DC		10...60V DC	10...60V DC		24...28 V DC	24...28 V DC	
<b>Rated Input Current</b>	20...30 A (max. 35 A)	0...40 A (max. 50 A)	Single input: 8 A max. Dual input: 16 A max. total	Single input: 10 A max. Dual input: 20 A max. total		Single input: 20 A max. Dual input: 40 A max. total	Single input: 40 A max. Dual input: 80 A max. total	
<b>Output Voltage</b>	Vin -0.5V typ.	Vin -0.6V typ.	Vin -0.9V typ.	Vin -0.9V typ.		Vin -2.15V typ.	Vin -2.7V typ.	
<b>Rated Output Current</b>	20...30 A (max. 35 A)	0...40 A (max. 50 A)	0...10 A	0...20 A		0...40 A	0...80 A	
<b>Operating Temperature Range (T<sub>amb</sub>)</b>	-10 °C...+70 °C		-40 °C...+70 °C >60 °C with derating	-25 °C...+70 °C >60 °C with derating		-25 °C...+70 °C >60 °C with derating	-25 °C...+70 °C >60 °C with derating	
<b>Dimensions (W x H x D)</b>	48 x 124 x 102 mm	48 x 124 x 117 mm	45 x 75 x 91 mm	32 x 124 x 102 mm	32 x 124 x 117 mm	36 x 124 x 127 mm	46 x 124 x 127 mm	
<b>Weight</b>	625 g	646 g	136 g	290 g	350 g	340 g	440 g	
<b>Certifications/Standards*</b>	1, 2, 3, 6		1, 2, 3, 6	1, 2, 3, 6		1, 2, 3, 6	1, 2, 3, 6	
<b>Special Features</b>	Dual redundancy module for 2x35 A; N+1 redundancy	Single redundancy module for 2.5-50 A; N+1 redundancy	Redundancy for DC 10...60V applications; ABS/GL/RINA (Marine); Class 1 Div. 2	Redundancy for DC 10...60V applications; Class 1 Div. 2	Redundancy for DC 10...60V applications; Class 1 Div. 2; DC OK	Redundancy for DC 24...28V applications; Class 1 Div. 2	Redundancy for DC 24...28V applications; Class 1 Div. 2	

\* 1) = CE, 2) = UL 508 (cULus LISTED), 3) = UL 1950 (cURus), 4) = CSA C22.2, No. 60950, 5) Safety standards = IEC/EN 60950, EN 50178, 6) EMC standards = EN 55011 (Class B), EN 55022 (Class B), EN 61000-6-2, 7) EMC standards = EN 61000-3-2 (A14), EN 50081-1  
 † MTBF determined by Siemens norm SN 29500 at full load current and 40 °C