

1606 POWER SUPPLIES

FROM ROCKWELL AUTOMATION

The Rockwell Automation, Allen-Bradley family of 1606 power supplies is the broadest line of power supplies in the industry. Offering several solutions to help increase the reliability and safety of your application, these products lead the industry in performance and reliability.

XL | XLP | XLS | XLE

This comprehensive line of switched mode power supplies accepts wide ranges of both AC and DC input voltages and has global certifications to meet most worldwide single-phase and three-phase application requirements. The 1606 family of power supplies leads the industry in efficiency and features one of the smallest per watt profiles in the world. The industry-leading service life is obtained through a design incorporating long-life electrolytic capacitors in combination with a very low-thermal loss circuit concept. The units have also been designed with power boost to provide up to 50% additional power reserve without any reduction in output voltage.

The 1606 family meets many requirements for special applications such as semiconductor sag immunity, Class 1 Div. 2 for hazardous locations, ODVA, marine ratings, and conformal coating for reliable operation in high humidity/moisture environments.

From our standard XL line that covers a broad spectrum of applications to our more niche products in the performance XLS and our latest essential XLE line, you'll find a solution that best fits your application needs.



1606-XL THE STANDARD

power supply is designed for excellent performance and superior efficiency. This "standard" line of products is your starting

point when looking for a reliable power supply. The XL line covers the entire power range of the family along with a feature set to meet most application demands. The XL carries approvals of CE, cULus and cURus, meeting the most stringent EMC standards. These devices can operate at full load with no de-rating necessary up to 60° C. Special redundancy modules as well as extended hold up/back-up power devices are available for applications that demand flawless reliability.

- Rated between 60 and 960 watts for global applications (2.5 A to 40 A at 24V DC)
- Multiple output voltages
- Single and three phase applications
- Versatility for almost any application



1606-XLP THE COMPACT

is designed with many of the same performance advantages as the 1606-XL, but the XLP product supports

smaller power requirements in a smaller package size. The "Compact" products carry similar approvals to the 1606-XL line. The 1606-XLP is an excellent alternative for customers that are looking for reliable performance in a small package at a competitive cost.

- Rated between 25 and 100 watts for global applications (1.3 A to 4.2 A at 24V DC)
- Multiple voltages available
- Single and two phase applications
- Smaller, cost effective solution for low power applications

performance

- Intelligent circuit design resulting in minimal ripple and noise
- Product protect against short and open circuits
- High reserve power and load response
- No need to oversize your system
- Overload design delivers up to 180% of nominal current continuously at a reduced voltage with no negative thermal effects

compact

efficient





EXCELLENT PERFORMANCE... SUPERIOR EFFICIENCY



1606-XLS THE PERFORMANCE

has taken the solid design and performance characteristics of its predecessors and coupled them with new technology

that has significantly reduced the size of the product. The "performance" products operate with an efficiency exceeding 92% and have significant reserve current available to start very stubborn loads. These power supplies have 150% of rated power available for up to 5 seconds. The 1606-XLS series boasts a 50% reduction in size over the 1606-XL products and is rated to handle special applications, i.e., meets the Semi F47 Specification, Class 1, Div 2 for Hazardous Locations, and ODVA certifications on 4/8A DeviceNet devices.

- Rated between 80 and 480 watts for global applications (3.4 A to 20 A at 24V DC)
- Single and three phase applications
- Small size for panel space savings
- "Elite" performance for special applications



1606-XLE THE ESSENTIAL

offers a high-performing, ultra slim power supply with a "basic" feature set compared to the rest of the XL family.

This line is intended for customers looking for a cost effective solution, where a product with a "basic", feature set will sufficiently do the job. The "Essential" series maintains the high reliability and long life as the entire 1606 product line.

- Rated between 120 and 240 watts for global applications (5 A to 10 A at 24V DC)
- Regional voltages available
- Multiple output voltages available
- Cost effective solution for single phase applications

Leading Edge Technology

1606 POWER RANGE

1606-XL THE STANDARD	Single-phase 60...480W				
	3-phase 120...960W				
1606-XLP THE COMPACT	Single-phase 25...100W				
	2-phase 90...100W				
1606-XLS THE PERFORMANCE	Single-phase 80...480W				
	3-phase 480W				
1606-XLE THE ESSENTIAL	Single-phase 120...240W				

0w 200 400 600 800 1000W



Power Supply Quick Guide											
	1606-XL THE STANDARD				1606-XLP THE COMPACT		1606-XLS THE PERFORMANCE		1606-XLE THE ESSENTIAL		
	30...40 W	50 W	60 W	72...80 W	90...100 W	120 W	180 W	240 W	480 W	720 W	960 W
5...5.5V	XLP25A	—	—	—	—	—	—	—	—	—	—
10...12V	XLP30B	—	—	—	—	—	—	—	—	—	—
12...15V	—	XLP50B	—	—	XLP90B	—	XL180B	—	—	—	—
(+/-)12 and 15V	XLP36C	—	—	—	—	—	—	—	—	—	—
24...28V 1-Ph	XLP30E	XLP50E XLP50EZ	XL60D	XLP72E	XLP95E XLP100E	XLS120E	—	XLS240E XLS240EC	XL480E XL480EP XL480EPT	—	—
				XLS80E XLE72E		XL120D XLE120E XLE120EC		XL240E XL240EP XLE240E XLE240EP			
				—		—		—			
24...28V 2, 3-Ph	—	—	—	—	XLP90E-2 XLP100E-2	XL120E-3	—	XL240E-3 XL240E-3C	XLS480E-3 XLS480E-3C XL480E-3 XL480E-3W	XL720E-3	XL960E-3 XL960E-3S
36...43V	—	—	—	—	—	—	—	—	XL480GP	—	—
48...56V 1-Ph	—	XLP50F	—	—	XLP100F	—	—	XL240FP XLE240F	XL480F	—	—
48...56V 3-Ph	—	—	XL60DR	—	—	—	—	—	XL480F-3H	—	—
24V Redundant	—	—	—	—	—	XL120DR	—	XL240DR XLPRED	XLSRED XLRED20-30	XLRED20-30	XLRED40
DeviceNet	—	—	—	—	XLSNET4 XLDNET4	—	—	XLSNET8 XLDNET8	—	—	—

* To make a catalog number for example: 24...28 Volt, 3-Phase, 120 Watt power supply, the Catalog Number would be 1606-XL120E-3.

24V DC UPS FOR WHEN YOU NEED MINUTES

The DC UPS is a supplementary device for a 24V power supply. It provides back-up power to bridge dips, sags or brief losses of power using a 12V battery. Based on the battery you select, you can achieve hold-up times anywhere from a few minutes to several hours.

In times when the power supply provides sufficient voltage, the DC UPS charges the 12V battery. When input power fails, the battery voltage will be boosted to a 24V level thru a boost converter and the energy will be released in a regulated process to the load.

Integrated in the DC UPS is a sophisticated battery management system. This system incorporates a battery charger, deep discharge protection, and overload protection which together increase the service life of the battery. The modular design of the DC UPS allows for flexible battery options, enabling you to match the battery with your application requirements. In addition, there are extensive protective features that self-protect the unit from damage along with diagnostic and monitoring functions that aid in troubleshooting.

1606 Feature Comparisons

	XL	XLP	XLS	XLE
Single Phase	X	X	X	X
Multi-Phase	X	X	X	
Multiple Output Voltages	X	X		X
Parallel Compatibility	X	X	X	X
Spring-Clamp Terminations		X	X	
Screw Terminations	X			X
Auto Select Input		X	X	X
DC OK Relay			X	
DC OK LED	X	X	X	X
Redundant Modules	X	X	X	X

Bulletin 1606 Product Selection Table

1606 Special Modules		Output Power	Output Voltage	Output Current	Input Circuit Protection/ UL Test Level	Inrush Current	Parallel Operation	Meets EN 61000-3-2 (PFC Harmonics)	Input Voltage Selector Auto/Man	DC OK Relay	Catalog Number
	XL Standard Single Phase	60 W	24V DC	2.5 A	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A ⚡	<18 A	Yes	Yes	Man	—	1606-XL60D
		120 W	24V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A ⚡	<11 A	Yes	Yes	Man	—	1606-XL120D
		180 W	12...15V DC	15 A	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A ⚡	<21 A	Yes	No	Man	—	1606-XL180B
		240 W	24...28V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A ⚡	<21 A	Yes	No	Man	—	1606-XL240E
		240 W	24...28V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A ⚡	<21 A	Yes	Yes	Man	—	1606-XL240EP
		240 W	48...56V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A ⚡	<21 A	Yes	Yes	Man	—	1606-XL240FP
		480 W	24...28V DC	20 A	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A ⚡	<23 A	Yes*	No	—	—	1606-XL480E
		480 W	24...28V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100	<18 A @ 25°C	Yes*	Yes	Auto	—	1606-XL480EP
		480 W	24...28V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100	<18 A @ 25°C	Yes*	Yes	Auto	—	1606-XL480EPT
		480 W	36...43V DC	13.3 A	10 A SLOW BLOW FUSE OR 1489-A1C100	<18 A @ 25°C	Yes*	Yes	Auto	—	1606-XL480GP
		480 W	48...56V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100	<18 A @ 25°C	Yes*	No	Auto	—	1606-XL480F
	XL Standard Three Phase	120 W	24...28V DC	5.0 A	10 A (X3) SLOW BLOW FUSE OR 1492-SP3C100	<25 A	Yes	Yes	—	—	1606-XL120E-3
		240 W	24...28V DC	10 A	6 A (X3) SLOW BLOW FUSE OR 1492-SP3C060/15 A ⚡	<17 A	Yes*	Yes	—	—	1606-XL240E-3
		480 W	24...28V DC	20 A	10 A (X3) SLOW BLOW FUSE OR 1492-SP3C100	<11 A	Yes*	Yes	—	—	1606-XL480E-3
		480 W	24...28V DC	20 A	6 A (X3) SLOW BLOW FUSE OR 1492-SP3C060/16 A ⚡	<7 A	Yes*	Yes	—	—	1606-XL480E-3W
		480 W	48...56V DC	10 A	10 A (X3) SLOW BLOW FUSE OR 1492-SP3C100	<15 A	Yes*	Yes	—	—	1606-XL480F-3H
		720 W	24...28V DC	30 A	10 A (X3) SLOW BLOW FUSE OR 1492-SP3C100	<17 A	Yes*	Yes	—	—	1606-XL720E-3
		960 W	24...28V DC	40 A	10 A (X3) SLOW BLOW FUSE OR 1492-SP3C100	<30 A	Yes*	Yes	—	—	1606-XL960E-3
		960 W	24...28V DC	40 A	10 A (X3) SLOW BLOW FUSE OR 1492-SP3C100	<30 A	Yes*	Yes	—	—	1606-XL960E-3S
	XLP Compact Single and Two Phase	25 W	5...5.5V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	—	1606-XLP25A
		30 W	10...12V DC	3.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	—	1606-XLP30B
		30 W	24...28V DC	1.3 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	—	1606-XLP30E
		36 W	+/- 12/15V DC	2.8 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	—	1606-XLP36C
		50 W	12...15V DC	4.2 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	—	1606-XLP50B
		50 W	24...28V DC	2.1 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	✓	1606-XLP50E
		50 W	24...28V DC	2.1 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	✓	1606-XLP50EZ
		50 W	48...56V DC	1.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<18 A	Yes	N/A	Auto	—	1606-XLP50F
		72 W	24...28V DC	3.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<30 A	Yes	N/A	Man	—	1606-XLP72E
		90 W	12...15V DC	7.5 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<30 A	Yes*	Yes	Auto	—	1606-XLP90B
		90 W	24...28V DC	3.7 A	10 A (x2) SLOW BLOW FUSE OR 1489-A2 C100/20 A ⚡	<35 A	Yes	Yes	—	—	1606-XLP90E-2
		95 W	24...28V DC	3.9 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<30 A	Yes	Yes	Auto	—	1606-XLP95E
		100 W	24...28V DC	4.2 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<30 A	Yes*	Yes	Auto	—	1606-XLP100E
		100 W	48...56V DC	2.1 A	10 A SLOW BLOW FUSE OR 1489-A1C100/15 A ⚡	<30 A	Yes*	Yes	Auto	—	1606-XLP100F
		100 W	24...28V DC	4.2 A	10 A (x2) SLOW BLOW FUSE OR 1489-A2 C100/20 A ⚡	<35 A	Yes	Yes	—	—	1606-XLP100E-2
	XLS Performance Single and Three Phase	80 W	24...28V DC	3.4 A	6 A SLOW BLOW FUSE OR 1489-A1C060/20 A ⚡	<7.0 A	Yes	Yes	Auto	—	1606-XLS80E
		120 W	24...28V DC	5.0 A	6 A SLOW BLOW FUSE OR 1489-A1C060/20 A ⚡	<4.9 A	Yes	Yes	Auto	✓	1606-XLS120E
		240 W	24...28V DC	10 A	6 A SLOW BLOW FUSE OR 1489-A1C060/20 A ⚡	<7.6 A	Yes	Yes	Auto	✓	1606-XLS240E
		480 W	24...28V DC	20 A	6 A (X3) SLOW BLOW FUSE OR 1492-SP3C060	<4.0 A	Yes	Yes	Auto	✓	1606-XLS480E-3
	XLE Essential Single Phase	120 W	24...28V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<3 A	Yes*	No	Auto	—	1606-XLE120E
		240 W	24...28V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<3 A	Yes*	No	Auto	—	1606-XLE240E
		240 W	24...28V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<3 A	Yes*	Yes	Auto	—	1606-XLE240EP
		240 W	48...52V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<3 A	Yes*	No	Auto	—	1606-XLE240F
	DC UPS/ Buffer Modules	480 W	23...27.8V DC	20 A	N/A	—	—	N/A	—	—	1606-XLBUFFER
		240 W	22.5...30V DC	10 A	N/A	—	—	N/A	—	—	1606-XLS240-UPS
	DC/DC Converters	40 W	5.1V DC	8.0 A	N/A	<5 A	—	No	—	—	1606-XLDC40A
	DeviceNet Power Supplies	96 W	24V DC	4.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A ⚡	<11 A	—	Yes	Man	—	1606-XLDNET4
		192 W	24V DC	8.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A ⚡	<21 A	—	No	Man	✓	1606-XLDNET8
		91 W	24V DC	3.8 A	6 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<4.9 A	Yes*	Yes	Auto	✓	1606-XLSDNET4
		192 W	24V DC	8.0 A	6 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<7.6 A	Yes*	Yes	Auto	✓	1606-XLSDNET8
	Redundant Modules	60 W	24V DC	2.5 A	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A ⚡	<18 A	Yes*	N/A	Man	✓	1606-XL60DR
		120 W	24V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/16 A ⚡	<11 A	Yes*	Yes	Man	✓	1606-XL120DR
		240 W	24V DC	10 A	10 A SLOW BLOW FUSE OR 1489-A1C100/10 A ⚡	<21 A	Yes*	No	Man	✓	1606-XL240DR
		720 W	Vin -5V typ	30 A	N/A	N/A	—	N/A	—	—	1606-XLRED20-30
		960 W	Vin -6V typ	40 A	N/A	N/A	—	N/A	—	—	1606-XLRED40
		384 W	Vin 1 -9V typ	16 A	N/A	N/A	—	N/A	—	—	1606-XLPRED
		480 W	Vin 1 -9V typ	20 A	N/A	N/A	—	N/A	—	—	1606-XLSRED
	Conformal Coated Power Supplies	120 W	24...28V DC	5.0 A	10 A SLOW BLOW FUSE OR 1489-A1C100/20 A ⚡	<3 A	No	No	Auto	—	1606-XLE120EC
		240 W	24...28V DC	10 A	6 A SLOW BLOW FUSE OR 1489-A1C060/20 A ⚡	<7.6 A	Yes*	Yes	Auto	✓	1606-XLS240EC
		240 W	24...28V DC	10 A	6 A (X3) SLOW BLOW FUSE OR 1492-SP3C060/15 A ⚡	<17 A	Yes*	Yes	—	—	1606-XL240E-3C
		480 W	24...28V DC	20 A	6 A (X3) SLOW BLOW FUSE OR 1492-SP3C060	<4.0 A	Yes*	Yes	Auto	✓	1606-XLS480E-3C

* This product utilizes the inductance characteristic which enables power supplies wired in parallel to equally distribute the load among the connected power supplies. This is done without any additional hardware devices thru a patented algorithm.

⚡ DC OK output provided thru a 24V DC signal

⚡ Parallel use for 1+1 redundancy only.