

Product Details and Certifications

Cross Reference RA Part Number: PN-25568

 Product: **1606-XLS240-UPSC**

Description: Performance Power Supply w/ UPS, 22.25V DC,
240/360W, 24V DC Input Voltage



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

POWER SUPPLY DATA

Bulletin Number	1606 Switched Mode Power Supplies
Input Voltage	24V DC (22.5...30V DC)
Output Voltage	22.25V
Rated Output Watts	240 W
Operational Range	22.5...30V DC
Rated Input Current	Typ. 0.12A / 1.3 A Max
Power Boost	15 A
Special Features	Inhibit Replacement Battery Buffering
Rated Output Current	10 A

CERTIFICATIONS AND APPROVALS

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"> Low inrush current Wide range input; auto select input Superior overload design (continuous current, no hiccup) NEC Class 2 "Limited Power" Superior efficiency and temperature rating 	<ul style="list-style-type: none"> Low inrush current PFC Choke Wide range input; auto select input Superior overload design (continuous current, no hiccup) NEC Class 2 "Limited Power" Selectable operating mode (single/parallel) Superior efficiency and temperature rating Output signals 	<ul style="list-style-type: none"> Ultra-small size Extra-low inrush current Active Power Factor Correction Wide range AC/DC input; auto select input Superior reserve power (can support 150% rated power for 3...5 seconds) Superior efficiency and temperature rating DC OK and Overload LED 	<ul style="list-style-type: none"> Rugged industrial design DIN Rail or Back of Panel mountable Elevated temperature performance (up to 50°C) Comprehensive network management Remote monitoring/configuration "Dry contact" I/O Line interactive Pure sine wave output 	<ul style="list-style-type: none"> Wide VA range Enclosed construction 63...350 VA Terminal covers finger safe Optional fuse covers available Dual primary and secondary fuse block available to 500 VA Class B insulation (130°C) All welded construction
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"> Compact Redundancy Module for 10...60V DC 50 W Device with Removable Terminal Blocks Buffer Module for Extended Ride-Through Redundant Power Supplies Redundancy Modules 				
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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

† 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.

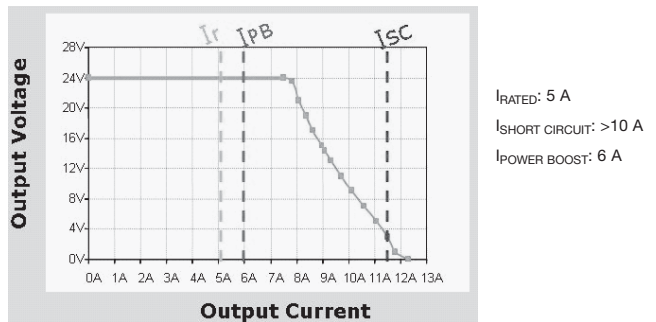
Notes:

- 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°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°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.

Catalog Number Explanation

Important: The following cat. no. breakdown is for explanation purposes only. It is not a product configurator. Not all combinations of fields are valid product cat. nos. First, select the desired power supply using the Product Selection tables. Then, use this breakdown for verification and explanation only.

➔ **1606** - XLS 240 - - - -

a *b* *c* *d* *e*

Note:
See next page for UPS option

a

Power Supply Type	
Code	Description
XLP	Compact family
XLS	Performance family
XLE	Essential family

b

Rated Output Watts	
Code	Description
15	15 W
25	25 W
30	30 W
36	36 W
40	40 W
50	50 W
60	60 W
72	72 W
80	80 W
90	90 W
95	95 W
100	100 W
120	120 W
180	180 W
240	240 W
480	480 W
720	720 W
960	960 W

c

Output Voltage	
Code	Description
A	5V DC
B	10...12V DC or 12...15 V DC
C	Dual +/- 12 and 15V DC
D	24V DC
E	24...28V DC
F	48...56V DC
G	36...43V DC
M	48V DC

e

Multi-Phase Variations	
Code	Description
	Can be left blank
-2	Two phase
-3	Three phase
-3C	Three phase, conformal coating
-3H	Three phase, input voltage 400V AC and 450...700V DC
-3N	Three phase, input voltage 480V AC
-D	360...900V - DC Only

d

Special Functions	
Code	Description
	Can be left blank
C	Conformal coating
R	Redundancy module
P	Power factor correction
Z	Removeable Terminations
X	Semi-Regulated
E	Regional voltage; 230V AC input only
N	Regional voltage; 120V AC input only
A	ATEX

Note: Special output signals are only available with the 960 W power supply.

Product Selection

1606-XLS Performance — Single- and Three-Phase

Single-Phase

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.		
100...240V AC, 110...300V DC	80	24...28	3.3	6 A Slow Blow Fuse or Cat. No. 1489-A1C060	1.41/0.82	Yes	—	1606-XLS80E		
	120	24...28	5		1.10/0.62	Yes	✓	1606-XLS120E		
	120	24...28	5		1.10/0.62	Yes	✓	* 1606-XLS120EA		
	180	12...15	15		1.65/0.93	Yes	✓	1606-XLS180B		
	240	24...28	10	6 A Slow Blow Fuse or Cat. No. 1489-A1C060	2.22/1.22	Yes	✓	1606-XLS240E		
	240	24...28	10		2.22/1.22	Yes	✓	* 1606-XLS240EA		
	240	24...28	10		2.22/1.22	Yes	✓	➤ 1606-XLS240EC		
	240	48...56	5		2.22/1.22	Yes	✓	1606-XLS240F		
	240	28...32	8		2.22/1.22	Yes	✓	1606-XLS240K		
	480	24...28	20		4.56/2.48	Yes	✓	1606-XLS480E		
	200...240V AC, 110...300V DC	480	24...28	20	10 A Slow Blow Fuse or Cat. No. 1489-A1C100	4.56/2.48	Yes	✓	➤ 1606-XLS480EC	
		480	24...48	20		4.56/2.48	Yes	✓	* 1606-XLS480EA	
200...240V AC		480	48...56	10		4.56/2.48	Yes	✓	1606-XLS480F	
100...240V AC, 110...300V DC		480	36...42	13.3		4.56/2.48	Yes	✓	1606-XLS480G	
200...240V AC, 220...300V DC		960	24...28	40			—/4.6	Yes	✓	1606-XLS960EE

* Unit has internal (not accessible/replaceable) input fuse. Additional protection is not required if used on branch circuits ≤ UL test levels. Consult local codes and regulations for installation.
 ➤ The **C** suffix in the Cat. No. indicates that the product has **conformal coating**.
 * The **A** suffix in the Cat. No. indicates that the product carries the **ATEX** rating.



	Input Voltage	Output Voltage [V DC]	Output Power [W]	Output Current [A]	Steady State Input Current			Bulletin 1489 Circuit Breaker (UL 489)	Surge Protection*		Cat. No.	
					120V AC	230V AC	400V AC – 480V AC		120V	230V		
Bulletin 1606 Special Modules	100...240V AC, 110...300V DC	24	91	3.8	1.02	0.48	-	1489-A1C030	4983-DS120-401	4983-DS230-401	⌘ ◆ 1606-XLSDNET4	
		24	192	8	2.13	1.00		1489-A1C040	4983-DS120-401	4983-DS230-401	⌘ ◆ 1606-XLSDNET8	
	100...120/200...240V AC	24...28	80	3.3	1.50	0.68		1489-A1C060	4983-DS120-401	4983-DS230-401	⌘ ◆ 1606-XLEDNET3	
	100...120/200...240V AC, 160...375V DC	24	60	2.5	1.30	0.70		1489-A1C100	4983-DS120-401	4983-DS230-401	⊕ ⌘ 1606-XL60DR	
	100...120/200...240V AC, 210...375V DC	24	120	5	2.60	1.40		1489-A1C100	4983-DS120-401	4983-DS230-401	⊕ ⌘ ◆ 1606-XL120DR	
	100...120/200...240V AC, 240...375V DC	24	240	10	6.00	2.60		1489-A1C100	4983-DS120-401	4983-DS230-401	⊕ ⌘ 1606-XL240DR	
	24V DC	V _m - 0.5V typ	720	30	-	-		-	-	-	-	● 1606-XL4RED20-30
		V _m - 0.6V typ	960	40								◆ 1606-XLRED40
	10...60V DC	V _m - 0.9V typ	384	16								1606-XLPRED
	24...60V DC		480	20								1606-XLSRED
18...36V DC	480		20	1606-XLERED								
14...32.4V DC	5.1	40	8	1606-XLDC40A								
22.5...30V DC	24	92	3.8	1606-XLDC92D								
Special Modules with UPS	22.5...30V DC	22.5	240	10			⊕ 1606-XLS240-UPS					
	22.5...30V DC	22.5	240	10			◆ 1606-XLS240-UPSC					
	24...28.8V DC	22.5...27.8	480	20			1606-XLSBUFFER24					
	48...56V DC	45...54	960	20	1606-XLSBUFFER48							



*For additional surge and filter protection, see Bulletin 4983 products.

- ⌘ The C suffix of the cat. no. indicates that the product has conformal coating.
- ◆ To be used alongside 20, 30 and 40 A power supplies.
- ◆ To be used alongside 40 A power supplies (or smaller).
- ⌘ Parallel operation (inclined characteristic).
- ⊕ Single/parallel operation (inclined characteristic) selectable via jumper.
- ◆ The cat. no. 1606-XLS240-UPS is a charging module, used alongside a power supply and a battery assembly, which must be ordered separately.
- * Parallel operation is for 1 + 1 redundancy only.
- ◆ Meets EN 61000-3-2 PFC harmonics.

Consult local codes and regulations for installation.

Accessories for UPS Modules

Description	Cat. No.
7 Ah/12V battery assembly with bracket, for use with DC UPS	1606-XLSBATASSY1
7 Ah/12V replacement battery	1606-XLSBAT1
26 Ah/12V battery assembly with bracket, for use with DC UPS	1606-XLSBATASSY2
26 Ah/12V replacement battery	1606-XLSBAT2

1606 Accessories

Description	Cat. No.
Back-of-panel bracket for XL	1606-XLA
Back-of-panel bracket for XLS or XLE	1606-XLB

1607-XT ArmorPower™ On-Machine™ Power Supplies

Bulletin 1607-XT ArmorPower On-Machine Power Supplies	Input Voltage	Output Voltage [V DC]	Output Power [W]	Output Current [A]	Inrush Current	Cat. No.	
	Single Output						
	100...240V AC, 100...353V DC	24 (+1%)	50.4	2.1	<25 A	1607-XT50D1A	
91.2			3.8	1607-XT100D1A			
192 (288 with bonus power)			8	1607-XT200D1A			
Dual Output							
100...240V AC, 100...353V DC	24 (+1%)	91.2 per output	3.8 per output	<25 A	1607-XT200D2A		

Bulletin 1606-XLS UPS



	UPS	UPS	UPS	UPS
	1606-XLS240-UPS	1606-XLS240-UPSC	1606-XLS240-UPSD	1606-XLS240-UPSE
Output Volts/Watts	22.5V...30V/240 W	22.25V/240 W	22.25V and 12V/240 W	
Input Voltage (47...63 Hz)	24V DC (22.5...30V DC)	24V DC (22.5...30V DC)	24V DC (22.5...30V DC)	
Rated Input Current Voltage stand-by mode/charging mode	typ. 0.12 A/ max. 1.3 A	typ. 0.12 A/ max. 1.3 A	—	typ. 0.12 A/ max. 1.3 A
Operational Range	22.5...30V DC	22.5...30V DC	22.5...30V DC	22.5...30V DC
Hold-up Time	battery dependent			
Output Voltage	22.4V	22.25V	22.25V	22.25V
Rated Output Current	10 A	10 A	10 A	10 A
Power Boost	15 A	15 A	15 A	15 A
Operating Temperature Range (T_{amb})	-25...+60 °C		-25...+40 °C	
Non-Operating Temperature Range	-40...+85 °C		-20...+50 °C	
MTBF^Δ	886 000 hours	886 000 hours	788 000 hours	886 000 hours
Dimensions (W x H x D)	49 x 124 x 117	123 x 124 x 119	49 x 124 x 117	49 x 124 x 117
Weight	530 g	2850 g	650 g	545 g
Certifications/Standards ★	1, 2, 3, 5, 6			
Special Features	Inhibit replacement battery buffering			

★ 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
 Δ MTBF determined by Siemens norm SN 29500 at full load current and 40 °C

Bulletin 1606-XLSBUFFER

	Buffer Module	Buffer Module
	1606-XLSBUFFER 24	1606-XLSBUFFER 48
Output Volts	22.5V DC	45V DC
Input Current	80 mA typ. 600 mA max.	40 mA typ. 500 mA max.
Hold-up Time	200 ms @ 20 A	100 ms @ 20 A
Output Voltage	V _{in} -1V: 22.5V fixed	V _{in} -2V: 45V fixed
Rated Output Current	20 A	20 A
Operating Temperature Range (T_{amb})	-25...+70 °C	
Non-Operating Temperature Range	-40...+85 °C	
Dimensions (W x H x D)	64 x 124 x 102 mm	64 x 124 x 102 mm
Weight	740 g	740 g
Certifications/Standards ★	1, 2, 3, 5, 6	
Special Features	Selectable buffered voltage; §	

★ 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

§ Low inrush current