




Bulletin	1609-S	1609-U	1609-P
			
Features	<ul style="list-style-type: none"> • Rugged industrial design • DIN Rail or back-of-panel mountable • Line interactive • Pure sine wave output • Optional "dry contact" I/O, Din Rail clips, high-temperature battery 	<ul style="list-style-type: none"> • Rugged industrial design • Comprehensive network management • Remote monitoring/configuration • "Dry contact" I/O • Line interactive • Pure sine wave output • Output power sizes of 500 W • DIN Rail or back-of-panel mountable • Elevated temperature performance (up to 50 °C) 	<ul style="list-style-type: none"> • Tower or rack convertible • Battery management system • Extended runtime • Comprehensive network management • Double conversion on-line • Pure sine wave output
Output Power	350VA/280 W	500VA/325 W	3...10 kVA
Input Voltage/Primary Voltage	120, 208/230V AC		
Efficiency	96%	96%	86%
Output Voltage/Secondary Voltage	120, 208/230V AC	120, 208/230V AC	
Rated Output Current	2.9 A	4.12 A	11...48 A
Operating Temperature Range (Tamb)	0...40 °C	0...40 °C 0...50 °C (500 W version only)	0...40 °C
Non-Operating Temperature Range	-20...+60 °C	-20...+60 °C	
Insulation	—		
Certifications	UL, CSA, CE		UL, CSA, CE
Standards	EN 50091-1-1, EN 50091-2 (Class 2) UL 1778 CSA C22.2 No. 107.3	EN 50091-1-1, EN 50091-2 (Class 2) UL 1778 CSA C22.2 No. 107.3	
Product Selection	Page 8-24	Page 8-28	Page 8-31

Industrial Uninterruptible Power Supply

Catalog Number Explanation/Product Selection/Accessories



Bulletin 1609-S Series — Industrial Uninterruptible Power Supply

- DIN Rail or back-of-panel mountable
- Line interactive
- Pure sine wave output
- Intelligent battery management system
- Serial communication
- High power capacity

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Standards Compliance

UL 1778
 CE
 CSA C22.2, No. 107
 FCC

Certifications

UL Listed (File No. E190749, Guide YEDU)
 CSA Certified (File LR1234)

Catalog Number Explanation

1609 – S 350 N
 a *b* *c*

a

Power Supply Type	
Code	Description
S	Line Interactive, Panel Mount Uninterruptible Power Supply

b

Rated Output Power	
Code	Description
350	350VA (280 W)

c

Output Voltage	
Code	Description
N	120V AC
E	208/230V AC

d

Battery Type	
Code	Description
S	40 °C Battery

Product Selection

Output Power	Input Voltage	Cat. No.
350VA (280 W)	120V AC	1609-S350NS
350VA (280 W)	208/230V AC	1609-S350ES

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Accessories

Description	Output Power	Cat. No.
40 °C replacement battery	500VA (325 W)	1609-500SBAT
Remote start cable		1609-RSC
DIN Rail kit		1609-SDK1
Dry contact I/O communication cable		1609-SDC1

Bulletin 1609-S
Industrial Uninterruptible Power Supply
Specifications

	1609-S350NS	1609-S350ES	
Input	Wiring	Touch-proof terminal block	
	Nominal Voltage	120V	208/230V
	Voltage Range, Default	81...143V	160...287V
	Voltage Range, Widest, On Line	75...153V	150...300V
	Nominal Current	2.9 A	1.5 A
	Capacity	350VA/280 W	
	Frequency	47...63 Hz	
	PFC	None, load power factor is reflected in the input line current	
On Line Output	Wiring	Touch-proof terminal block	
	Nominal Voltage	120V	208/230V
	Voltage Range, Default	106...127V	208...253V
	Voltage Range, Widest, On Line	97...136V	196...265V
	Transfer Point Accuracy	+/- (2% of transfer voltage + 1.3)	+/- (2% of transfer voltage + 2.6)
	Overload Protection	Alarm at 107% of rated load input circuit breaker	Alarm at 107% of rated load Premises branch protection 10 A or less
	Efficiency	96% @ 100% resistive load	
	Surge Protection	Per EN50091-2	
On Battery Output	Frequency	Nominal +/- 3 Hz (Locked), Nominal +/- 0.5 Hz (Free-running)	
	THD	< 5% at full (linear) load	
	Voltage Regulation	+/- 5%, + 5...-15% after low battery warning	
	Crest Factor	2.5:1	
	Efficiency	77% @ 100% resistive load	
	Overload Protection	Overload indication and shutdown @ 107% of rate load or electronic current limit and shutdown under short circuit condition	
Battery Pack	Run Time	12 minutes (full load) 24 minutes (50% full load)	
	Type	Sealed lead acid, valve-regulated hot-swappable, user-replaceable	
	Voltage	24V	
	Charger	Temperature-compensated, current-limited, float charger	
	Recharge Time	Less than 3 hours to 90% capacity	
	Lifetime	3...5 years @ 25 °C ambient Lifetime cut in half for every 10 °C above 25 °C	
Environment	Temperature	0...40 °C (operating), -15...45 °C (short-term storage)	
	Altitude	10 000 ft (operating)	
	Humidity	0...95% non-condensing (operating)	
	Heat Output	On line, full load: 137 BTU per hour On line, full load, charging: 190 BTU per hour On battery, full load: 1706 BTU per hour	
	Audible Noise	<45 dB @ 1 m (full load)	
Communication	Serial	Serial RS232 DB-9	
	Options	Dry contact I/O communication cable	
Indicators and Controls	Status LEDs	On line (green) AVR low line (yellow) AVR high line (yellow) On battery (yellow) Overload and fault (red) Bad battery (red) Load percentage of full rating bar graph (green) Battery state of charge bar graph (green) Measured input voltage indicated by load bar graph when recessed switch is held	
	Control Buttons	On/self-test/alarm silence/cold start Output off	
	Audible Alarms	On Battery: 4 short beeps repeats about 20 seconds (mute capability) Low Battery: persistent 0.5 second beep every 1 second (mute capability) Disconnected Battery: continual chirping Failure: continuous tone Replace Battery: occasional On/off change: single beep	

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ATTENTION

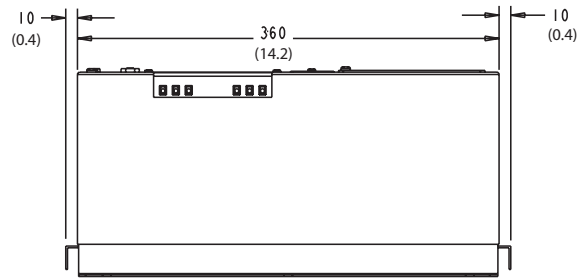
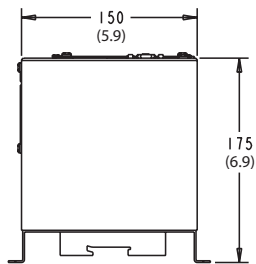
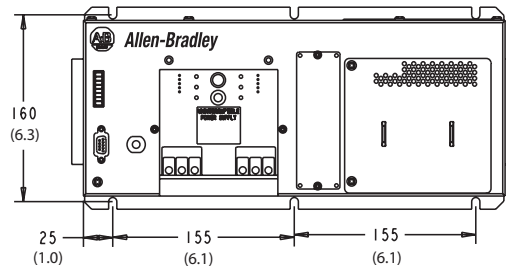
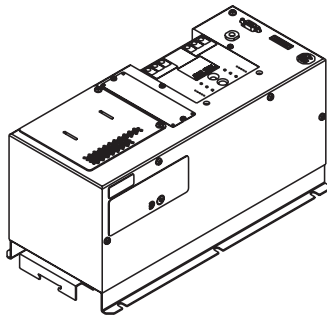


- Wiring of the UPS should be performed by a qualified electrician. Use appropriate size wires.
- In 230V AC applications, the UPS must be protected with a circuit breaker that complies with European standards for branch rated protection per the country of installation.
- In 208V AC applications, the UPS must be protected by a dual-pole, 10 A branch rated, UL 489 circuit breaker.
- The 120V AC 1609-S350NS has supplementary circuit breaker protection. The unit should be protected by a single-pole, 15 A branch rated, UL 489 circuit breaker. Allen-Bradley part number 1492-MCAA115 is suggested.
- **The branch circuit breaker must be off prior to wiring the unit.**

Industrial Uninterruptible Power Supply

Approximate Dimensions

Approximate dimensions are shown in millimeters (in.) unless otherwise indicated. Dimensions are not to be used for manufacturing purposes.



Approximate Shipping Weights

Cat. No.	Approx. Shipping Weight [kg (lb)]
1609-S350NS	13.15 (29)
1609-S350ES	13.15 (29)



Bulletin 1609-U — Industrial Uninterruptible Power Supply

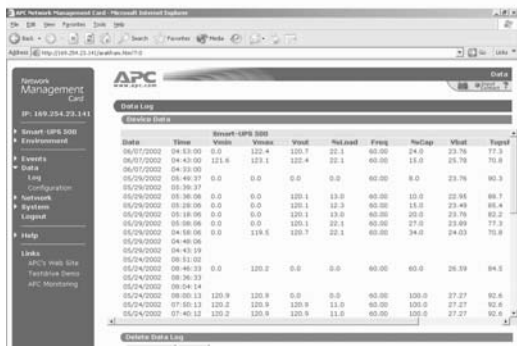
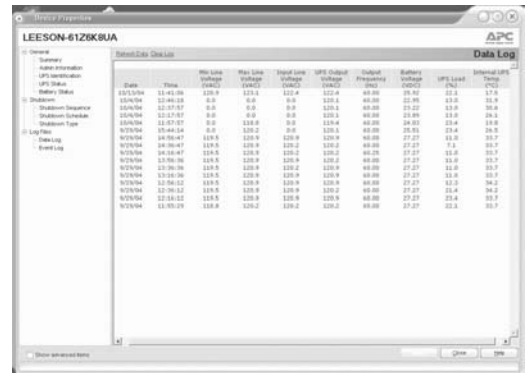
- Rugged industrial design
- DIN Rail mountable or back-of-panel mountable
- Elevated temperature performance (up to 50 °C)
- Comprehensive network management
- Remote monitoring/configuration
- "Dry Contact" I/O
- Line interactive
- Pure sine wave output

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- Standards Compliance**
- UL 1778
- CE
- CSA C22.2, No. 107
- FCC
- Certifications**
- UL Listed (File No. E190749, Guide YEDU)
- CSA Certified (File LR1234)

The Bulletin 1609-U has multiple options for remote management. The device is shipped with a DB9 serial cable for serial communication. The product can be configured with the optional 1609-NMC Network Management Card for Ethernet communications. The serial connection utilizes the APC PowerChute® software, the 1609-NMC has an integrated web browser tool. The Network Management Tools allow the user to:

- Log data
- Fault notification
- Customization output relays
- Remote device management
- Log events
- Customize input contacts
- Monitor temperature
- Operating system shutdown
- Can be viewed through RSView® with generic SNMP/OPC server



Electrical Ratings		1609-U500N . . .	1609-U500E . . .	Notes
Input	V nom.	120V	230V	—
	Capacity	500VA (325 W)		Transfer points adjustable via software. Low transfer points for the 120V/230V are: 106V, 103V, 100V, 97V and 208V, 200V, 192V respectively. High transfer points for the 120V/230V are: 127V, 130V, 133V, 136V and 253V, 257V, 261V, 265V respectively.
	Voltage Range, default	81...143V	160...287V	Transfer points adjustable via software.
	Voltage Range, widest, on line	75...153V	150...300V	—
	Current nom.	4.12 A	2.20 A	—
	Capacity Frequency	47...63 Hz		Auto-adjusting
Output	PFC	Load power factor is reflected in the input line current		—
	V nom.	120V	208/230V	—
On Line	Capacity	500VA (325 W)		—
	Output Range, default	106...127V	208...253V	This voltage range is the default, controlled by transfer points coded in the UPS
	Output Voltage Range, widest	97...136V	196...265V	By setting the highest, high transfer point and the lowest, low transfer point with software
On Battery	Transfer Point Accuracy	+/- (2% of the transfer voltage + 1.3)	+/- (2% of the transfer voltage + 2.6)	In volts AC
	Frequency	Nominal +/- 3 Hz (Locked), Nominal +/- 0.5 Hz (Free-running) +/- 2%		Typical
	THD	<5% at full (linear) load +/- 2%		Typical
	Crest Factor	3:1		—
Efficiency	On Battery	77%		Typical with resistive load
	On Line	96%		Typical with resistive load
Protection	Surge	EN50091-2		—
	Overload	On Line: alarm at 107%, limited by breakers On Battery: shutdown at 107%		—
	Output Short On Line	Input circuit breakers and/or premises branch protection		—
	Output Short On Battery	Electric current limit, shutdown outputs, and latch off		—
	Thermal Protection	None		—
	Bypass	N/A		—
Regulatory	Safety	UL 1778, CSA, IEC 60950	UL 1778, CSA, IEC 60950-1, EN50091-1-1	—
	EMC	FCC (Class A)	EN50091-2 (Class A)	—
	Markings	UL, CSA, FCC, CE	UL, CSA, FCC, CE	—
Battery Pack	Run Time	9.0 minutes (0.67 p.f.)		325 W full load
		18 minutes (0.67 p.f.)		163 W half load
	Type	Standard: Sealed Lead Acid, valve regulated High Temp.: Sealed Lead Battery		Hot swappable, user replaceable
	Voltage	24V		—
	Charger	Temperature compensated current limited, float charger		—
	Recharge Time	Less than 3 hours to 90% capacity		—
Environment	Lifetime	2...4 years @ 25 °C ambient		—
	Temperature	0...40 °C (operating), 0...50 °C (operating - high temp. option) -20...60 °C (short-term storage)		—
	Altitude	10 000 ft (operating)		Maximum power is derated at higher altitudes
	Humidity	0...95% non-condensing (operating)		—
	Heat Output	On Line, Full Load: 137 BTU per hour On Line, Full Load, Charging: 190 BTU per hour On Battery, Full Load: 1706 BTU per hour		—
	Audible Noise	<45 dB @ 1 meter (full load)		Typical
Communication	DB9	Serial and Contact Closures		Serial communication only when USB is unused
	Dry Contact	Low battery, on battery		N.O., N.C. options for both
	EPO	Via Dry Contact Closure		—
	Network	Via optional Smart-Slot Card (1609-NMC)		—

ATTENTION



- Wiring of the UPS should be performed by a qualified electrician. Use appropriate size wires.
- In 230V AC applications, the UPS must be protected with a circuit breaker that complies with European standards for branch rated protection per the country of installation.
- In 208V AC applications, the 1609-U500E must be protected by a dual-pole, 10 A branch rated, UL 489 circuit breaker.
- The 120V AC 1609-U500N has supplementary circuit breaker protection. The unit should be protected by a single-pole, 15 A branch rated, UL 489 circuit breaker.
- Allen-Bradley part number 1492-MCAA115 is suggested.
- **The branch circuit breaker must be off prior to wiring the unit.**

Note

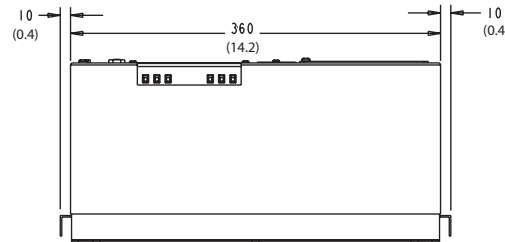
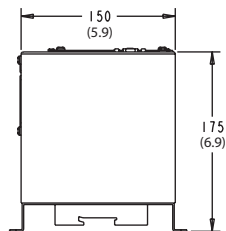
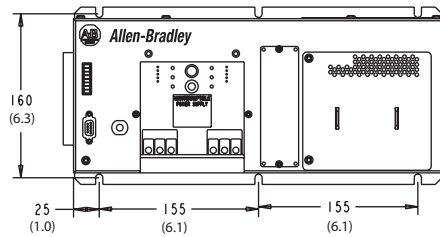
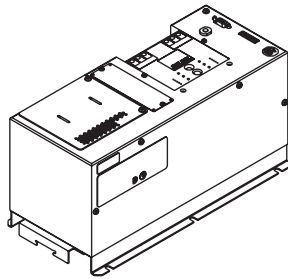
208V AC applications: The 1609-U500E ships ready for 230V AC sources. When operating the UPS in 208V AC applications, the UPS low transfer voltage settings are adjusted through the PowerChute® software or the Network Management Card.

Refer to the PowerChute® User Guide or the Network Management Card instructions for details.

Industrial Uninterruptible Power Supply

Approximate Dimensions

Approximate dimensions are shown in millimeters (in.) unless otherwise indicated. Dimensions are not to be used for manufacturing purposes.



Approximate Shipping Weights

Output Power	Input Voltage	Cat. No.	Approx. Shipping Weight [kg (lb)]	Cat. No.	Approx. Shipping Weight [kg (lb)]
		Without Network Management Card		With Network Management Card	
500 VA (325 W)	120V AC	1609-U500NS	14.5 (31.9)	1609-U500NSC	15 (33)
		1609-U500NH	13.4 (29.5)	1609-U500NHC	13.9 (30.6)
	208/230V AC	1609-U500ES	14.5 (31.9)	1609-U500ESC	15 (33)
		1609-U500EH	13.4 (29.5)	1609-U500EHC	13.9 (30.6)



Bulletin 1609-P Series — Industrial Uninterruptible Power Supply

- Rugged industrial design
- Tower/rack compatible
- Extended runtime
- Battery management system
- Hot-swappable batteries
- Comprehensive network management
- Remote monitoring/configuration
- Double conversion online
- Pure sine wave output
- Frequency and voltage regulation
- Automatic internal bypass

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 UL 1778
 CE
 CSA C22.2, No. 107
 FCC
Certifications
 UL Listed (File No. E190749,
 Guide YEDU)
 CSA Certified (File LR1234)

The Bulletin 1609-P has multiple options for remote management. Please see page 8-27 for details.

Catalog Number Explanation

1609 – P 3000 N
 a b c

a

Power Supply Type	
Code	Description
P	Double Conversion Online Uninterruptible Power Supply

b

Rated Output Power	
Code	Description
3000	3000VA (2100 W)
5000	5000VA (3500 W)
8000	8000VA (6400 W)
10000	10000VA (8000 W)

c

Input/Output Voltage	
Code	Description
N	120V AC
E	208/230V AC
A	230V AC

Product Selection

Output Power	Input Voltage	Cat. No.
3000VA (2100 W)	120V AC	1609-P3000N
3000VA (2100 W)	230V AC	1609-P3000A
5000VA (3500 W)	208/230V AC	1609-P5000E
8000VA (6400 W)	208/230V AC	1609-P8000E
10000VA (8000 W)	208/230V AC	1609-P10000E

Accessories

Description	Cat. No.
Network management card (Standard on units 5 kVA and larger)	1609-NMC
Remote start cable	1609-RSC
Replacement battery	1609-PBAT
External battery pack	1609-PXBP
5000VA CCT (120V step down transformer)	1609-5000CCT
Rail kit	1609-PRK1
Hardwire kit (for 3 and 5 kVA units)	1609-HDK1
Service bypass switch (16 kVA)	1609-PSB1

Industrial Uninterruptible Power Supply Specifications

Electrical Ratings		1609-P3000N	1609-P3000A	1609-P5000E	1609-P8000E	1609-P10000E
Input	V nom. (V AC)	120	230	208/230	208/230	208/230
	Voltage Range, default (V AC)	90...150V	160...280V			
	Current (A)	20 nom., 28 max.	11 nom., 14 max.	19 nom., 24 max.	30 nom., 40 max.	39 nom., 48 max.
	Capacity	3000VA (2100 W)		5000VA (3500 W)	8000VA (6400 W)	10 000VA (8000 W)
	Frequency	45...65 Hz (self sensing)				
	PFC	> 0.95				
	Protection	N/A	N/A	N/A	70 A input circuit breaker	
Output	V nom.	120V	208V			
	Capacity	3000VA (2100 W)		5000VA (3500 W)	8000VA (6400 W)	10 000VA (8000 W)
	Protection	3...15 A circuit breaker			N/A	N/A
On Battery	Frequency	Nominal +/- 3 Hz				
	Reg.	+/- 2% static +/- 5% dynamic	+/- 1% static, +/- 5% dynamic			
	THD	<5% at full load				
	Crest Factor	3:01				
Efficiency	On Battery	86%				
	On Line	88%				
Protection	Surge	IEC 1000-4-4				
	Overload	125% : 1 minute, 150% : 30 seconds				
	Output Short	Input circuit breakers and/or premises branch protection				
	Thermal Protection	Yes				
	Bypass	N/A			70 A input circuit breaker	
Regulatory	Safety	UL 1778, cULus, IEC 60950	EN 61000-3-2	UL 1778, cULus, IEC 60950		
	EMC	FCC (Class A)	EN50091-2	FCC (Class A), EN50091-2		
	Markings	cULus, CSA	CE	cULus, CSA, CE		
Battery Pack	Run Time	14 minutes @ full load, 34 minutes @ half load		5...7 minutes @ full load, 13...18 minutes @ half load		
	Type	Sealed Lead Acid, valve regulated, hot swappable, user replaceable				
	Voltage	192V				
	Charger	Temperature compensated current limited, float charger				
	Recharge Time	Less than 3 hours to 90% capacity	Less than 3 hours to 85% capacity			
	Lifetime	2...4 years @ 25 °C ambient				
Environment	Temperature	0...40 °C (operating), -20...60 °C (short term storage)				
	Altitude	10 000 ft (operating)				
	Humidity	0...95% non-condensing (operating)				
	Heat Output (Full Load)	655 BTU/hour		1040 BTU/hour	1536 BTU/hour	2216 BTU/hour
	Audible Noise	<50 dB @ 1 meter (full load)	<55 dB @ 1 meter (full load)			
Rear Panel	AC Outlets	(6) NEMA 5...15 (2) NEMA 5...20	(8) IEC C13 (2) IEC C19	(12) IEC C13 (2) IEC C19		
	AC Inlets	NEMA L5...30	IEC C14	IEC C20	3 position terminal blocks	
Communication	DB9	Serial and Contact Closures				
	EPO	Via Contact Closure				
	Network	Via Network Management Card (1609-NMC, provided as standard with units >3 KVA)				
Indicators and Controls	LED Status	On-line, In Bypass Mode, On Battery, Overload and Replace Battery, Fault, Bar graph for Load, Bar graph for Battery Fuel Gauge, Bar graph for Measured Input Voltage when recessed switch is held				
	Control	(Front panel) On/self-test/alarm silence/cold start/load off				
	Audible	On Battery: 4 short beeps repeats about 20 seconds (mutable), Low Battery: persistent 0.5 second beep every 1 second (mutable), In Bypass: continuous beeping, Failure: continuous tone, Replace Battery: occasional on/off change - single beep				

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ATTENTION



- Wiring of the UPS should be performed by a qualified electrician. Use appropriate size wires.
- In 230V AC applications, the UPS must be protected with a circuit breaker that complies with European standards for branch rated protection per the country of installation.
- In 208V AC applications, the UPS must be protected by a dual-pole, 10 A branch rated, UL 489 circuit breaker.
- The 120V AC 1609-P3000N has supplementary circuit breaker protection. The unit should be protected by a single-pole, 15 A branch rated, UL 489 circuit breaker. Allen-Bradley part number 1492-MCAA115 is suggested.
- **The branch circuit breaker must be off prior to wiring the unit.**

Notes

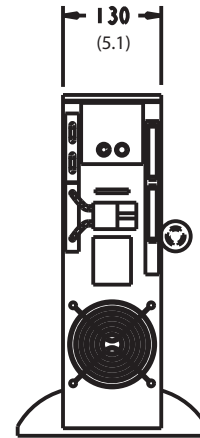
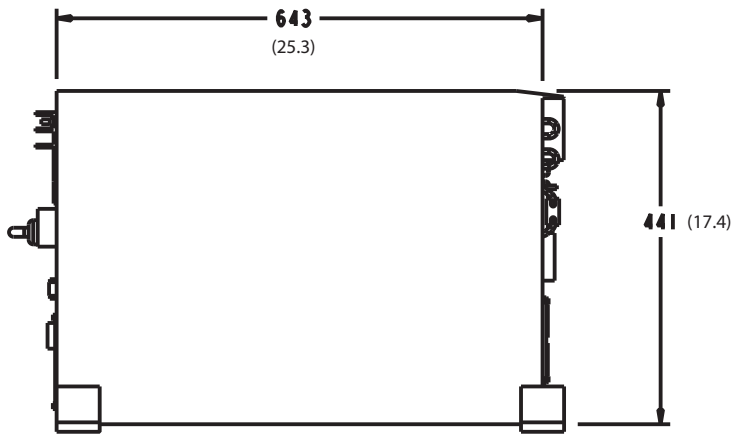
208V AC applications: The 1609-P5000E, 1609-P8000E, and 1609-P10000E, ship ready for 230V AC sources. When operating one of these in 208V AC applications, the UPS low transfer voltage settings are adjusted through the PowerChute® software or the Network Management Card.

Refer to the PowerChute® User Guide or the Network Management Card instructions for details.

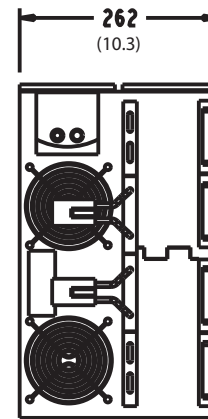
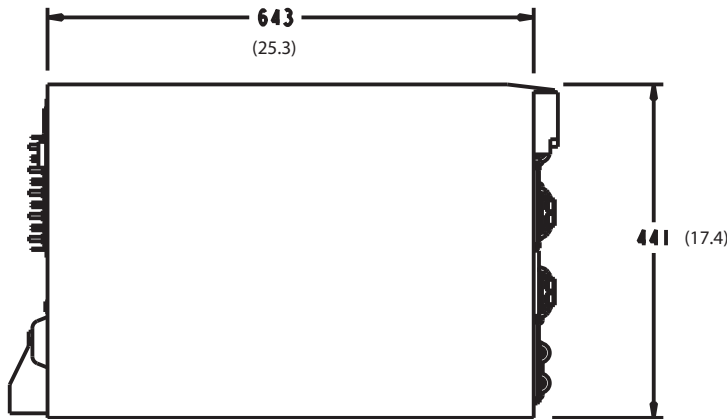
Industrial Uninterruptible Power Supply

Approximate Dimensions

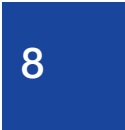
Approximate dimensions are shown in millimeters (in.) unless otherwise indicated. Dimensions are not to be used for manufacturing purposes.



1609-P3000N
1609-P3000H
1609-P3000A
1609-P5000E



1609-P8000E
1609-P10000E

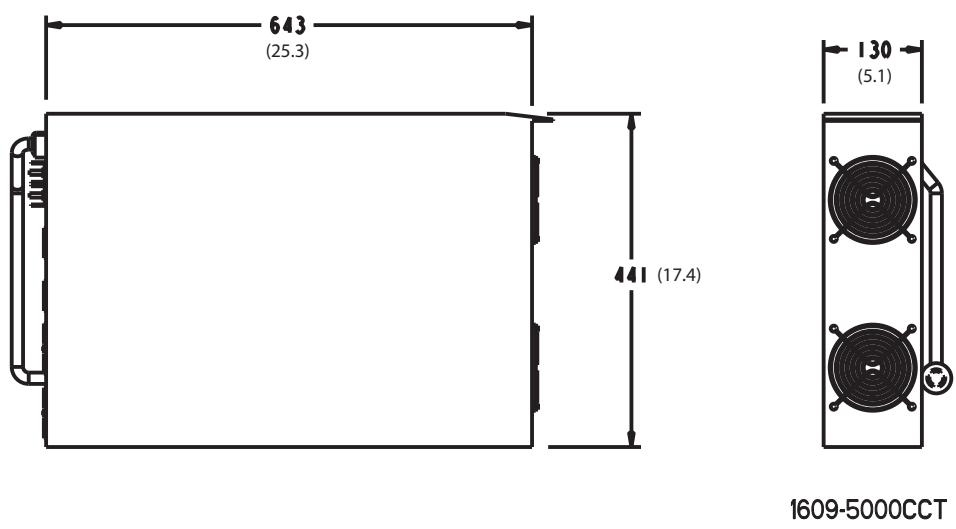
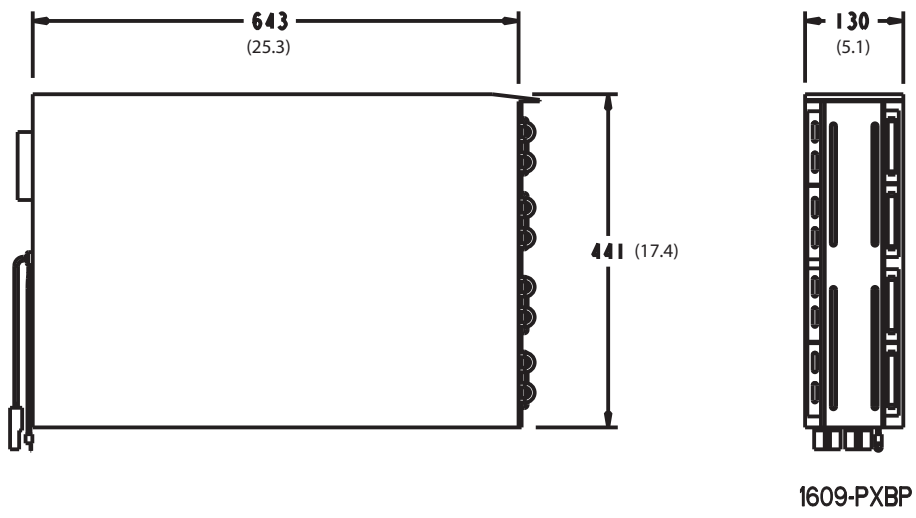
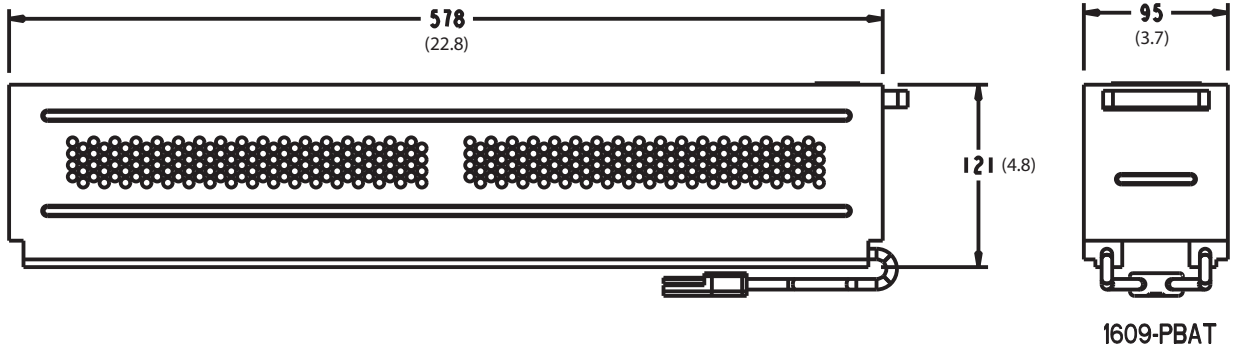


Approximate Shipping Weights

Output Power	Input Voltage	Cat. No.	Approx. Shipping Weight [kg (lb)]
3000VA (2100 W)	120V AC	1609-P3000N	63.5 (140)
3000VA (2100 W)	230V AC	1609-P3000A	63.5 (140)
5000VA (3500 W)	208/230V AC	1609-P5000E	63.5 (140)
8000VA (6400 W)	208/230V AC	1609-P8000E	128.8 (284)
10000VA (8000 W)	208/230V AC	1609-P10000E	128.8 (284)

Bulletin 1609-P
Industrial Uninterruptible Power Supply
 Approximate Dimensions, Continued

Approximate dimensions are shown in millimeters (in.) unless otherwise indicated. Dimensions are not to be used for manufacturing purposes.



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Approximate Shipping Weights

Description	Cat. No.	Approx. Shipping Weight [kg (lb)]
Replacement battery	1609-PBAT	37.2 (82)
External battery pack	1609-PXBP	101.2 (223)
5000VA CCT (120V step down transformer)	1609-5000CCT	63.5 (140)
Rail kit	1609-PRK1	3.6 (8)