XTREME POWER CONVERSION **AX8-110 Series**

For more information, visit www.xpcc.com/ax8

800 VDC 110 kW Power Shelf // Capacitor Load Smoothing with BBU Battery Backup

110 kW 800 VDC Power and Ride-Through for AI Infrastructure

The AX8-110 converts three-phase AC into a tightly regulated 800 VDC bus, delivering 110 kW from six 18.5 kW hot-swappable PSU modules. Each PSU carries 1570 J of bulk capacitance; 1200 J of it absorbs GPU step loads well above nominal output, verified across the OCP Part 9.3.3 dynamic and pulse profiles without engaging the battery.

AX8-110 is the 3U PSU-only shelf. AX8E-110 adds a battery section of four 27.5 kW LFP modules in 7U, carrying 110 kW for 90 seconds or more at a regulated 800 VDC.

Two AC inputs connect directly to facility tap-boxes, each feeding three PSU positions at 55 kW; both are needed for full output, from shared or independent sources. A removable AX8-PMC controller coordinates the modules, one per section. Each shelf feeds one DX8-90.

PRODUCT SNAPSHOT

› 800 VDC power shelf: 110 kW from six PSU8-185 hot-swappable PSU modules
› Two configs: AX8-110 (3U, PSU only) and AX8E-110 (7U, PSU + BBU)
› AX8E-110 adds four BBU8-275 LFP BBU modules — 110 kW for 90+ seconds, regulated 800 VDC throughout
› 1570 J integrated PSU capacitance — absorbs GPU step loads to 160% and bridges outage transfer
› Removable AX8-PMC controllers, hot-pluggable — one in the AX8-110, two in the AX8E-110
› Two AC inputs, 55 kW each, both required for full output; N+0 / N+1 / N+N module redundancy (110 / 92 / 55 kW)
› Interlocked output to one DX8-90; 19-inch rack

FEATURES

110 kW in 3U
Six PSU modules deliver high-density 800 VDC power for AI and GPU racks

PSU Capacitor Load Smoothing
1570 J per module: 1200 J absorbs GPU step loads to 160% without waking the battery; 370 J holds the bus through outage transfer

Regulated 800 VDC on Battery
Integrated DC-DC converter holds the bus at 800 VDC for the full discharge — no rail droop as the pack depletes

Hot-Swappable PSU and BBU
Both module types serviced from the front without shelf downtime

Ride-Through Held to End of Life
Full 110 kW for 90 seconds or more, sustained across the rated service life as cells age

Interlocked Output
Shuts down in microseconds if the connector is unmated

COMPLETES THE SYSTEM

DX8-90 DC Power Shelf

Steps the 800 VDC bus down to 54 VDC at the rack. 90 kW, six 15 kW PSU modules.

www.xpcc.com/dx8

XTREME Power Conversion®

Protect your business.

PRELIMINARY

MODEL SELECTION GUIDE

For more information, visit www.xpcc.com/ax8

	MODEL NUMBER	AX8-110	AX8E-110
CONFIGURATION	Rack Height	3U	7U
	Composition	6 × PSU8-185 + 1 × AX8-PMC	6 × PSU8-185 + 4 × BBU8-275 + 2 × AX8-PMC
	Population Options	2, 4 or 6 PSU	2, 4 or 6 PSU with 2 or 4 BBU; installed BBU capacity meets or exceeds installed PSU capacity
CAPACITY	System Capacity	110 kW (N+0) / 92 kW (N+1) / 55 kW (N+N)	
	Output Configuration	One output per shelf, feeding one 90 kW DX8-90; N+1 (92 kW) covers it with one PSU out	
INPUT	AC Input	400 to 480 VAC, 3-phase wye, 3W + G; full output at 415 VAC and above, derating linearly below to hold 80 A per input. Two AC inputs, each feeding three PSU positions at 55 kW; both must be powered for full output. Feeds may share a source or be independent	
	Input Connector	BizLink 117G0-168530-R1, 5-pin, 125 A rated. 100 A input cable set; 80 A working per input at 80% derating	
	Input Power Factor	>0.99 across all tested dynamic and pulse load profiles	
	Input Current THD	Below 8.5% worst case, typically under 6%, measured under dynamic load	
OUTPUT	Output Voltage	800 VDC (810 V no-load to 800 V at 100% load; 10 V droop, extending to 15 V at 150%)	
	Ripple & Noise	8 Vpp maximum (20 MHz bandwidth)	
	Current Sharing	Active and droop; 137.5 A maximum shelf output	
	Dynamic Load Response	Within ±3% (776 to 824 VDC), 3 ms settling — verified per OCP Part 9.3.3 dynamic and pulse load profiles	
	Grounding / Protection	Floating, insulated from PE. JFET short-circuit disconnect plus PSU and BBU fuses	
POWER MODULE (PSU)	Model	PSU8-185 — 18.5 kW AC-to-800 VDC PSU module, hot-swappable.	
	Efficiency	Peak efficiency exceeds 97.5%	
	Integrated Capacitance	1570 J per module: 1200 J for load smoothing plus 370 J for ≥20 ms hold-up	
	Pulse Load Capability	160% for a 400 µs moving average; 136% for a 50 ms moving average; 100% for a 1 s moving average. Absorbed by PSU bulk capacitance, within regulation and without initiating BBU discharge	
	Verified Step Loads	10 to 150% steps at 20 Hz, 100 Hz, 500 Hz and 4 kHz, 1 A/µs slew; pulse profiles to 175% peak. Battery not triggered on any profile	
	Module Weight	8.9 kg (19.6 lbs) per PSU8-185, estimated	
BATTERY BACKUP (BBU)	Model	Not included	BBU8-275 — 27.5 kW LFP BBU module, 2U, hot-swappable
	Backup Power	—	110 kW
	Backup Time	—	≥90 seconds at 110 kW (full load, from full charge, 25°C)
	Delivered Energy	—	≥2,750 Wh at 110 kW (four modules, derived)
	Chemistry	—	LFP, 160S1P 21700, 1280 Wh per module
	Battery Voltage (internal pack)	—	368 to 576 VDC (2.3 to 3.6 V/cell, 512 V typical)
	BBU Output Voltage	—	807 to 800 VDC (0 to 100% load; 7 V droop, 10.5 V at 150%)
	Output Regulation	—	776 to 824 VDC including load transient (±3% dynamic, balanced load); 760 V minimum under any dynamic condition, including a 20 to 150% step at 1 A/µs
	Output Ripple	—	8 V peak-to-peak maximum
	DC-DC Converter	—	Integrated; boosts pack to regulated 800 VDC bus. 98% typical discharge efficiency
	Startup Time	—	≤10 ms from discharger activation to full output, including 150% peak load condition. Less than the PSU hold-up time
	Transfer Initiation	—	All BBU modules enter discharge mode on assertion of AC_LOSS_L or Sync_Start_L. The BBU target voltage sits below the PSU output, so the battery supplies current only if the bus falls; PSU modules still powered continue to carry the load
	Pulse Capability	—	150% of rated output (41.25 kW per BBU, 165 kW per shelf); 1 A/µs slew; pulse width per derating curve. Average output including peaks must not exceed 100%
	Charging	—	720 W charge power; 1.25 A CC / 576 V CV; ≥95% efficiency; 2 h from 0 to 100% SOC
	Design Life	—	≥90 s at 110 kW held through 6 yr @ 25°C, ≥4 yr @ 35°C; DC-DC board 10 yr
	Module Weight	—	19 kg (41.9 lbs) per module, estimated

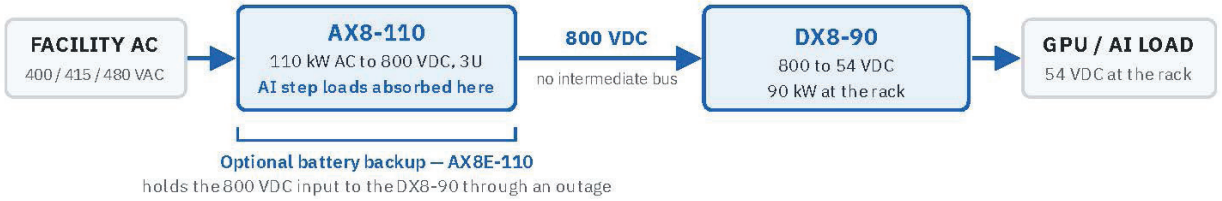
PRELIMINARY

MODEL SELECTION GUIDE (continued)

For more information, visit www.xpcc.com/ax8

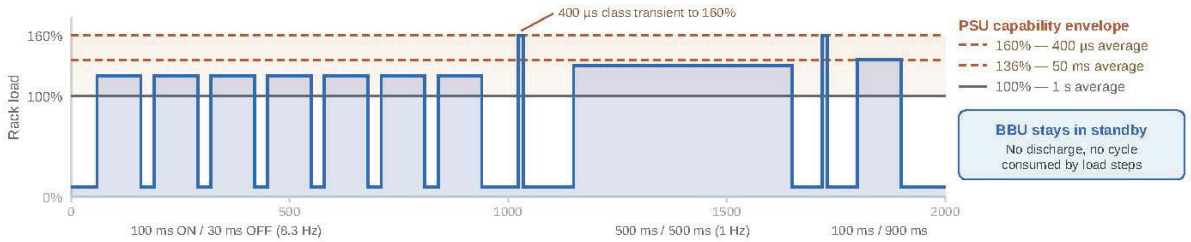
MODEL NUMBER		AX8-110	AX8E-110
COMMUNICATION & CONTROL	Controller	AX8-PMC Power Monitoring Controller, removable, hot-pluggable. One in the AX8-110; two in the AX8E-110, one for the PSU section and one for the BBU section	
	Management	1 × gigabit Ethernet RJ45 per PMC to the top-of-rack switch; DMTF Redfish over HTTPS	
	Auxiliary Output	50 VDC / 4 A	
	AC Loss Signaling	Each PSU asserts AC_LOSS_L after a 4 to 5 ms validation delay, when bulk capacitor energy falls to a 5 ms reserve, or on UVP / OVP / UFP / OFP fault. Each BBU accepts two AC_LOSS_L inputs	
	Transfer Coordination	—	Active AC_LOSS_L pulls Sync_Start_L low for immediate shelf-wide BBU discharge; PSU revalidates 500 ms before handback.
	BBU Self-Test	—	Automatic state-of-health test every 90 days by forced partial discharge; boost to 840 V max
	BBU Status Signaling	—	PLS power-loss siren after ≥45 s discharge (configurable); ALERT ready/not-ready; shelf redundancy status; black-box fault logging
ENVIRONMENTAL	Operating Temperature	5 to +40°C	5 to +40°C (BBU-limited)
	Long-Term Operating Temperature	—	+15 to +35°C (BBU, for rated service life)
	Operating Altitude	3050 m (10,000 ft)	3000 m (9,840 ft) (BBU-limited)
	Acoustic Noise	Target not to exceed 98 dBA with fans at full speed (design target, not a measured figure)	
MECHANICAL	Chassis Dimensions (D × W × H)	832 × 438 × 129.9 mm (3U)	963 × 438 × 308 mm (7U)
	Overall Depth	963 mm for the 7U includes the chassis; confirm rear connector and front handle projection	
	Weight, Empty Chassis	18.2 kg (40.1 lbs)	43.8 kg (96.6 lbs)
	Weight, Fully Configured	71.6 kg (157.9 lbs) (6 PSU, estimated)	173.2 kg (381.8 lbs) (6 PSU + 4 BBU, estimated)
	BBU Module Dimensions (D × W × H)	—	931.6 × 175 × 84.7 mm (2U)
	Rack Compatibility	19-inch EIA-310	
	Output Connection	125 A interlocked connector; mates with the DX8-90 input	
COMPLIANCE	EMC	FCC / ICES-003, EN 55032, EN 55035, EN 61000-3-11/-12, EN 61000-4-2/3/4/5/6/8/11 (Class A)	
	Environmental	RoHS, REACH, Halogen-Free (IEC 61249-2-21), WEEE	
SAFETY	Standards	UL / IEC / EN 62368-1, CE, CB (both configs); battery adds UL 1973, IEC 62133, UL 9540A, UN 38.3 / 3480/3481 (AX8E-110)	

800 VDC POWER CHAIN



The AX8-110 connects directly to the DX8-90 — no intermediate PDU or bus. With the AX8E-110 the DX8-90 keeps a regulated 800 VDC input through an outage, so the 54 VDC rail at the load is unaffected. One AX8 shelf feeds one DX8-90.

AI STEP LOAD RESPONSE — HANDLED WITHOUT THE BATTERY



Peaks above nominal are absorbed by the 1200 J smoothing reserve in each PSU

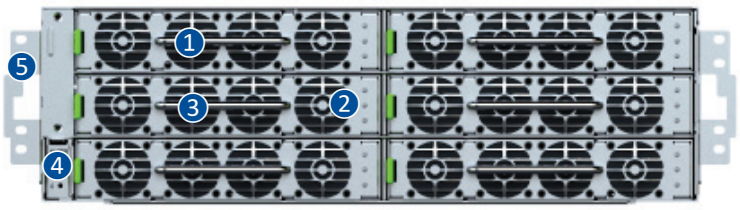
Time in milliseconds, idle ~10%. Duty cycles per published AI load test practice; transient widths not to scale. One-second moving average stays below 100% throughout.

Why this matters: AI racks swing from near-idle to peak and back in milliseconds, thousands of times an hour. Conventional double-conversion UPS designs are typically validated to a 100% step without engaging batteries — beyond nominal is where battery involvement begins. The AX8-110 holds 160% for a 400 µs average and 136% for a 50 ms average within regulation, absorbed in bulk capacitance and passed neither upstream to the mains nor downstream to the battery. Verified across 24 OCP Part 9.3.3 dynamic and pulse profiles — including 10 to 150% steps at up to 4 kHz — with the battery not triggered on any of them. The BBU's rated life stays reserved for outages, not routine compute transients.

PRELIMINARY

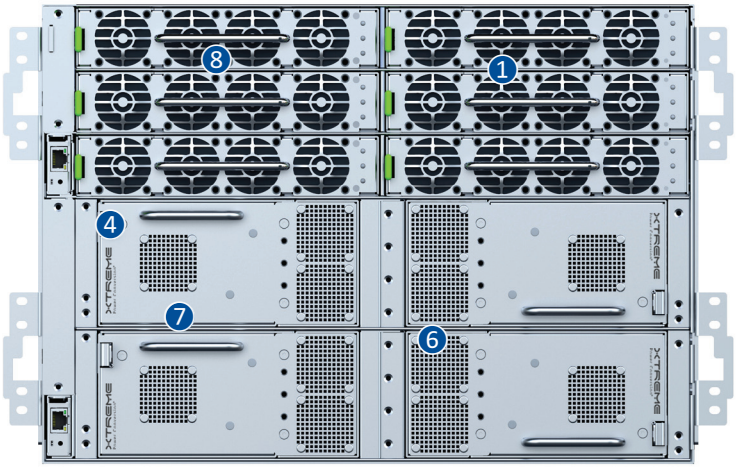
MECHANICAL DETAIL

AX8-110 — 110 kW, 3U PSU shelf, front view. Front views shown at matched scale.



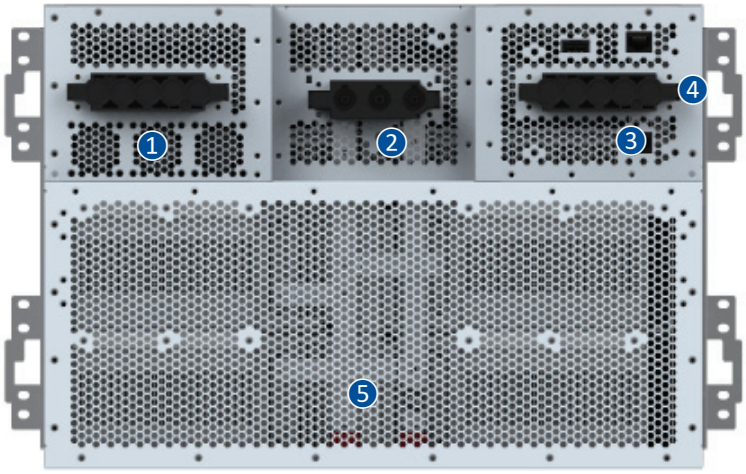
1. Six PSU8-185 18.5 kW PSU modules, hot-swappable and front-serviceable (N+0 / N+1 / N+N)
2. PSU status LEDs — green for input and output state, yellow for alarm or current limit
3. PSU handle with front latch; each module removes independently without shelf downtime
4. AX8-PMC controller slot — removable, hot-pluggable, blind-mate card edge
5. 19-inch EIA-310 front mounting flange; front-to-back airflow intake

AX8E-110 — 110 kW, 7U PSU + BBU shelf, front view



1. PSU section (3U) — six PSU8-185 PSU modules, identical to AX8-110
4. AX8-PMC controllers — two in the AX8E-110, one for the PSU section and one for the BBU section
6. BBU section (4U) — four BBU8-275 27.5 kW LFP BBU modules, hot-swappable. Left and right pairs are mirrored so rear terminals form a service cavity for PSU-to-BBU connection
7. BBU status and state-of-charge indicators; integral BMS per module
8. Internal speed-controlled cooling fans, front-to-back airflow

Rear view — AX8E-110 (7U) shown; PSU-section connections common to both configurations



1. AC input connector (left) — BizLink 117G0-168530-R1, 5-pin, 3-phase wye, 3W + G, 125 A rated
2. 800 VDC output — 125 A interlocked connector; mates with the DX8-90 input
3. AC input connector (right) — second AC input, direct tap-box connection with no PDU
4. RJ45 signal ports (Cat5+) and 50 VDC / 4 A auxiliary output — PSU-to-BBU signaling
5. BBU section (AX8E-110 only) — four BBU8-275; mirrored pairs form the rear terminal service cavity

Power Conversion®

Protect your business.

XPC USA / Denver, CO / sales@xpcc.com

www.xpcc.com

PRELIMINARY

©2026 Xtreme Power Conversion Corporation. All Rights Reserved. ax8110.15U (Rev 11/9/26)