

Introducing the AZX Series

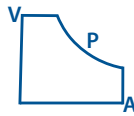
The Industry's Most Flexible,
Comprehensive, and Intelligent
All-in-1 Regenerative AC/DC
Source, Load, and PHIL Interface



Regenerative



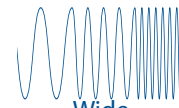
PHIL
Interface



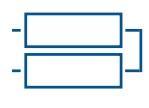
Constant
Power



High
Current



Wide
Frequency
Range



Scalable
Power

Key Features

- All-in-1 AC/DC Source, Current Source & Load
 - » 4-Quadrant AC & DC Power Source
 - » Programmable Current Source
 - » AC/DC Electronic Load Mode
 - » High Speed Analog I/O for PHIL Amplifier Mode
- Available Models 30kW, 45kW & 55kW per unit; parallel up to 550kW; Contact us for applications that require higher power.
- Single, Split, and Three Phase Output Modes
- AC, DC, AC+DC or AC+DC Output Capability
- Dual Constant Power Voltage with Wide Operating Range
 - » AC: 0-240 V L-N / 0-415 V L-L, and 0-480 V-LN / 0-830 V-LL
 - » DC: 0-340 Vdc and 0-680 Vdc
- Frequency: 15 - 1000Hz; Extended Mode: 1Hz - 10kHz
- Phase Angle Programming, Output Transient Programming
- Precise Output Voltage and Load Regulation
- Metering of Volts, RMS Current, Peak Current, Apparent Power & True Power on All Phases
- Harmonic Measurements
- Scope Function to Capture Voltage & Current Waveforms
- Sine, Square, Triangle, Clipped Sine and Arbitrary Waveforms
- Programmable Output Impedance
- **SmartSource Suite** Remote Control Platform
- Pre-Written Test Sequence Options : IEC 61000-4, IEEE1547.1, Airbus, Boeing, MIL-STD, RTCA-Do, Semi-F47, and more.

AZX Series

All-in-1 Regen AC & DC Source up to 550kW

The AZX Series is an All-in-1 regenerative 4-quadrant AC and DC power source that can function as an AC voltage source, DC power supply, current source, AC/DC load, and PHIL Interface.

This comprehensive, high performance platform is optimized for PHIL, has three powerful DSPs to cover advanced applications, and eliminates the need for add-on equipment. It has highly versatile channel outputs for dynamic applications, and advanced control and programming capabilities.

Our unique built-in SmartSource Suite web-based control platform makes testing easy. Pre-written test sequence options further simplify compliance testing to **IEC 61000, IEEE1547, MIL-STD** standards, and more.

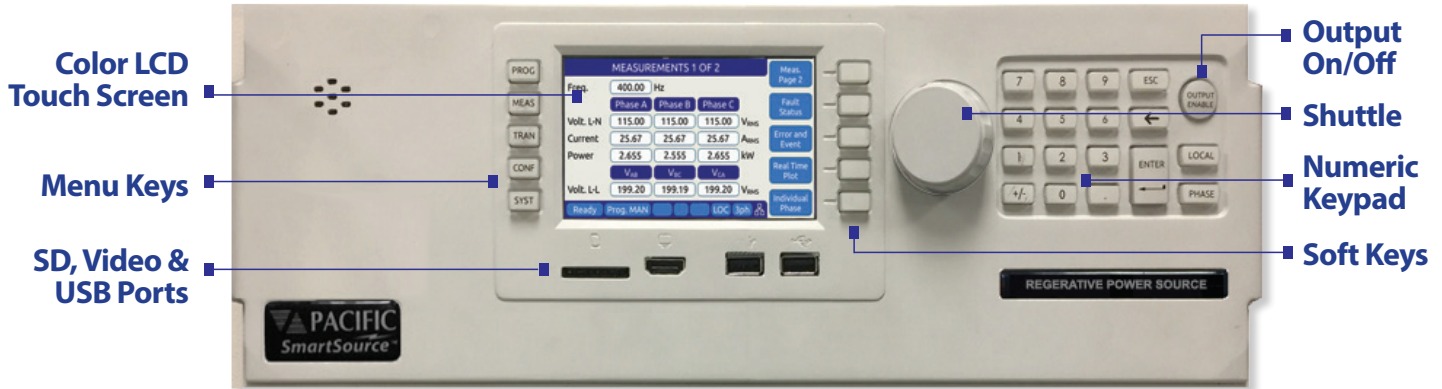
Application Examples:

- Aerospace & Defense Power and Compliance Testing
- EV Charging, On Board Chargers (OBC), V2G, V2H and V2X
- Solar PV/Grid-Tied Inverters
- Energy Storage Systems (ESS), Home ESS
- Smart-Grid Simulation
- AI Power Servers
- Power Hardware in the Loop (PHIL)
- EMC Compliance Testing



Flexible Control

Front Panel Operation



Programming

PROGRAM				Apply All
Freq.	400.00	Hz		
	Phase A	Phase B	Phase C	
Phase	0.00	120.0	240.0	Deg
Volt. AC	115.00	115.00	115.00	V _{RMS}
Volt. DC	0.00	0.00	0.00	V _{DC}
Curr. lim.	130.00	130.00	130.00	A _{RMS}
Pow. lim.	16.67	16.67	16.67	kW
kVA lim.	16.67	16.67	16.67	kVA
Ready Prog. MAN				LOC 3ph

Unlink Phases, Protection, Peak Control, Waveform

Metering

MEASUREMENTS 1 OF 2				Meas. Page 2
Freq.	400.00	Hz		
	Phase A	Phase B	Phase C	
Volt. L-N	115.00	115.00	115.00	V _{RMS}
Current	112.26	112.02	111.98	A _{RMS}
Power	12.26	12.24	12.23	kW
	V _{AB}	V _{BC}	V _{CA}	
Volt. L-L	199.20	199.19	199.20	V _{RMS}
Ready Prog. MAN				LOC 3ph

Fault Status, Error and Event, Real Time Plot, Individual Phase

Regenerative Grid Simulation Applications



Rising demand for renewable energy drives the need for rigorous testing of AC/DC systems capable of energy recycling. The AZX Series delivers precise grid simulation with full control over voltage, current, frequency, phase angles, and transients, supporting testing of PV inverters, energy storage systems, EV batteries and traction systems, and online UPS equipment with bidirectional source and sink capabilities.

Avionics & Defense Test Applications

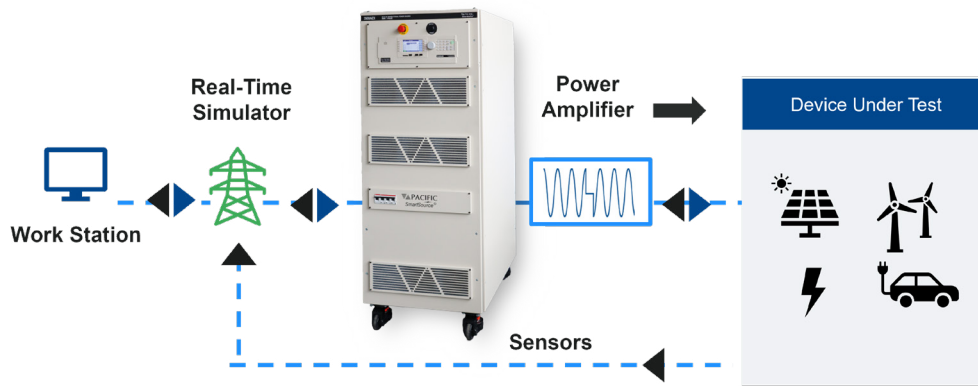
The wide output frequency range of the AZX Series Power Source allows its application to avionics and defense power applications requiring either 400Hz fixed or 360Hz to 800Hz wild frequency output. For emerging battery backed DC avionics power systems, multiple 270Vdc outputs can be used to simulate a split 540Vdc aviation DC power bus.

High power, three-phase configurations are available to meet regenerative or conventional power test demands. As needs change over time, additional units can be added easily to keep up with your test needs while protecting your original investment.

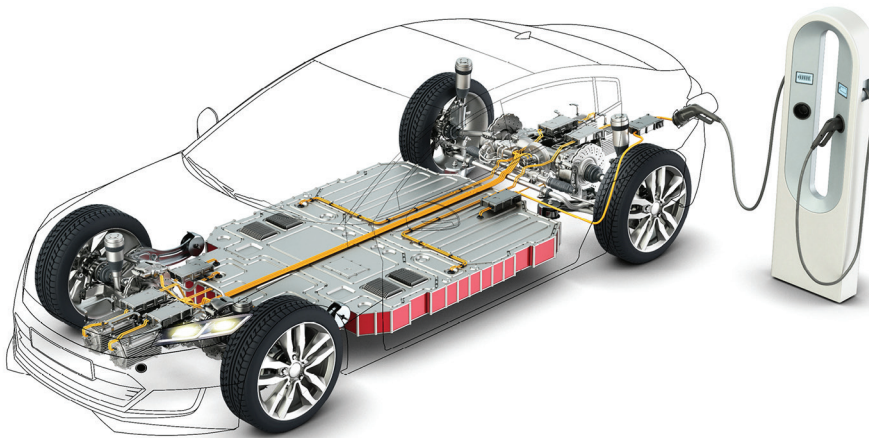


Power Hardware in the Loop

Optimized for Power Hardware in the Loop (HIL) simulation applications, the AZX offers a high speed set of analog inputs and outputs with fast output response. This analog interface provides high speed input for controlling frequency, voltage or current and waveshape. Voltage and Current output capture signals are returned to the Real Time Simulation System.



Electric Vehicle Charger Test



The AZX can play a key role in both testing EV chargers, EVSE, On Boards Chargers, Vehicle to Grid (V2G), and more.

The AC and DC capability of the AZX Series accommodates testing of a wide range of EV Charging solutions.

Regulatory Compliance Test Systems

The AZX Based EMC Compliance Test Systems from Pacific Power Source provide full compliance testing of product to IEC 61000-3 Emissions and IEC 61000-4 Immunity test standards for CE Compliance certification.

For bidirectional products, AZX based ECTS2 EMC test systems combine the benefits of the AZX Series with the Harmonics and Flicker measurements capabilities and immunity test software.

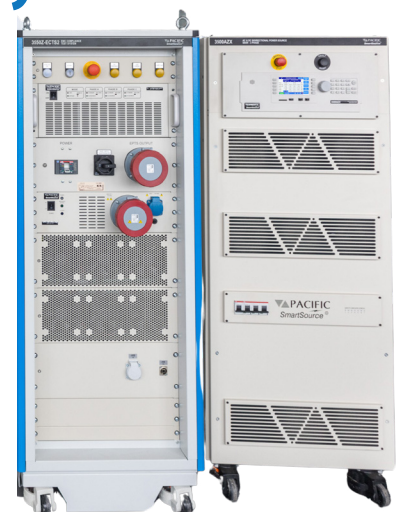
The full suite of ECTS2 Windows 10 EMC Test Software is compatible with the AZX Series. Supported standards include:

Emissions Tests:

IEC 61000-3-2, IEC 61000-3-3, IEC 61000-3-11, IEC 61000-3-12

Immunity Tests:

IEC 61000-4-11p, IEC 61000-4-14, IEC 61000-4-17, IEC 61000-4-27p, IEC 61000-4-28, IEC 61000-29p, IEC 61000-4-34p, Korean std KS_C_9610-4-11 and KS_C_9610-4-29

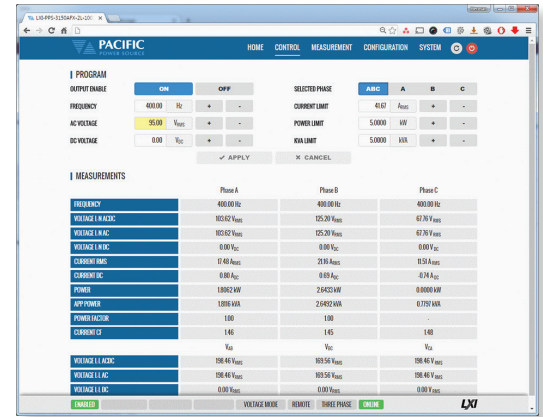


SmartSource Suite Web Browser Control

Although AZX Series sources offer a wide range of operating modes and features, they are easy to operate through a front panel full color LCD display and soft key driven menus.

Top level menus are always available directly by pressing any of the five menu keys on the left of the display. Entering setup data is accomplished using the numeric keypad or the shuttle. Operating status is shown on screen using various colors to distinguish between setting, measurements and operator warnings, or error messages. Selectable language are **ENGLISH** or **SIMPLIFIED CHINESE**.

The unique built-in **SmartSource Suite** web browser control function provides an advanced user interface for complete control over all AZX Functions and features without the need for any special software or drivers.



Dual Constant Power Voltage & Current Ranges

The AZX series supports both low and high voltage ranges for either AC or DC mode. In AC mode, constant power is available from 52% of full scale voltage to 100% of full scale voltage as shown in **Figure 1 & 3** below.

This allows higher currents to or from the EUT at lower than full scale voltage than would otherwise be possible. For voltage settings below 52% of full scale, current remains at max. rated current.

On 3550AXX models, both high and low voltage ranges support 75A rms load current at up to 240Vac. This supports Harmonics & Flicker testing to the maximum required EUT current per IEC 61000-3-11 & IEC 61000-3-12 standards.

In DC mode, constant power is available from 50% of full scale voltage to 100% of full scale shown in **Figure 2 & 4** below.

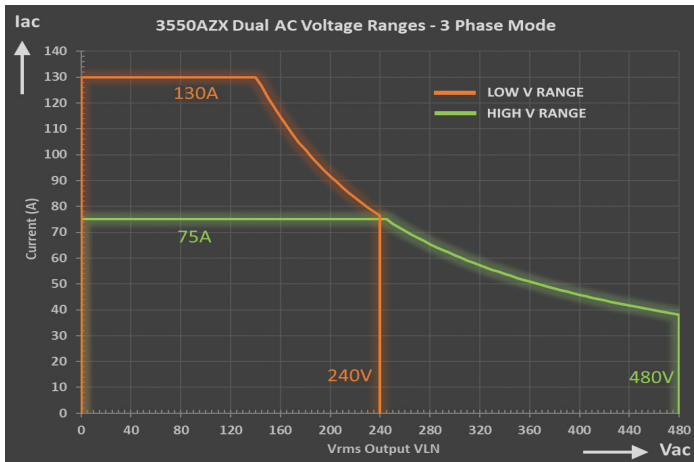


Figure 1: High and Low AC Voltage Ranges - Current vs. Voltage - 55kW

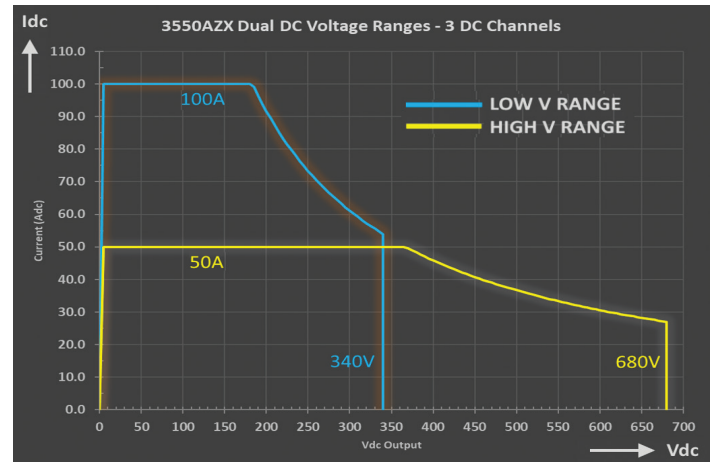


Figure 2: High and Low DC Voltage Ranges - Current vs. Voltage - 55kW

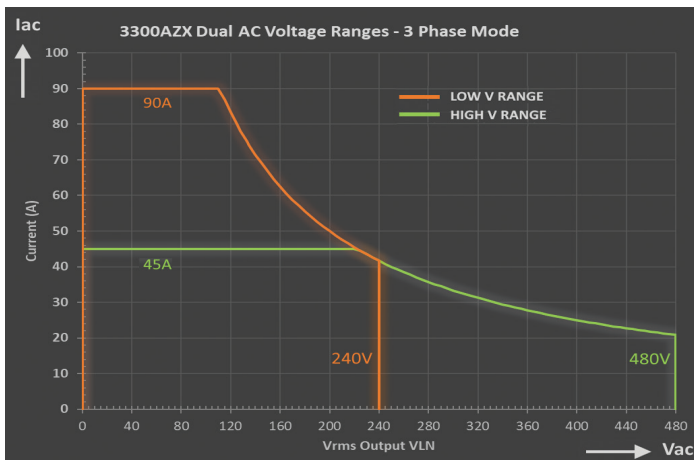


Figure 3: High and Low AC Voltage Ranges - Current vs. Voltage - 30kW

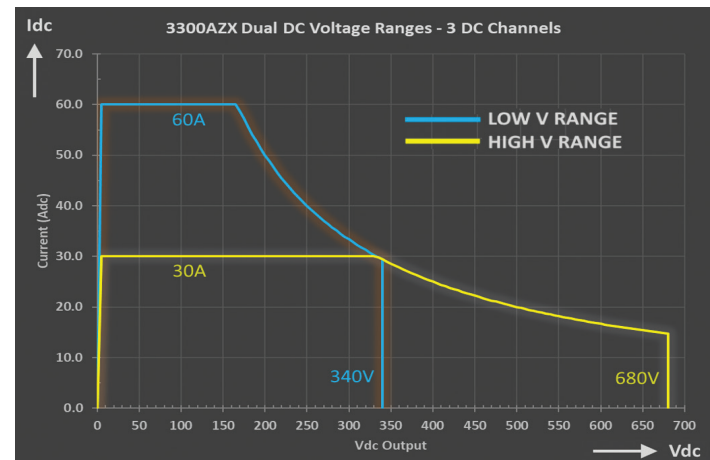
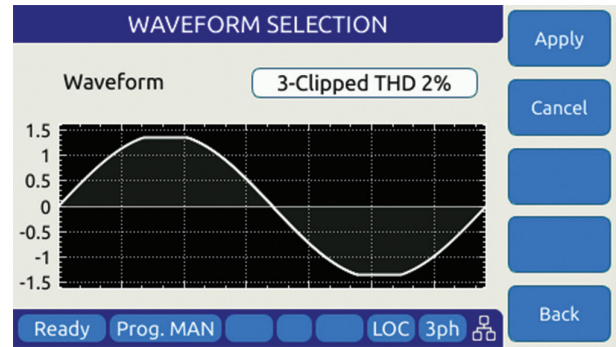


Figure 4: High and Low DC Voltage Ranges - Current vs. Voltage - 30kW

200 Selectable Arbitrary Waveforms

The AZX Series offers multiple selectable AC waveforms such as clipped sine wave at various distortion levels, square, triangle and stepped squares.

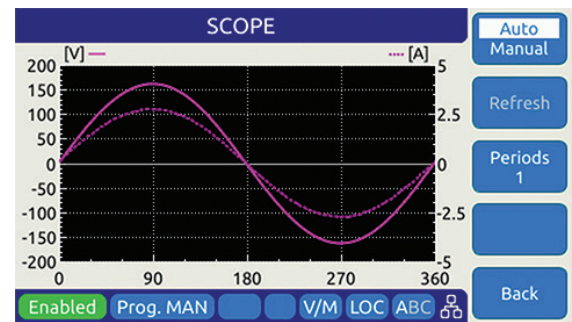
The operator can create arbitrary waveforms using Pacific Power's **SmartSource Suite** web browser interface and download these to the power source. A graphical representation (preview) of each waveform is shown on screen and a waveform name alias can be assigned to each so the operator can be sure the correct waveform is applied to the unit under test.



Clipped Sine Waveform Selection - Vthd = 2%

Voltage & Current Waveform Captures

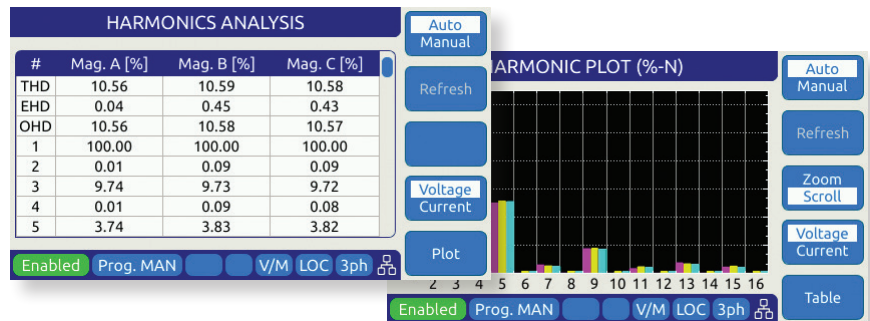
Built-in digital scope function captures voltage and current time domain signals, perfectly synchronized to the output frequency. Voltage and current displayed with accurate phase relationship. Display output waveforms on front panel or in Web browser.



Voltage & Current Harmonic Measurements

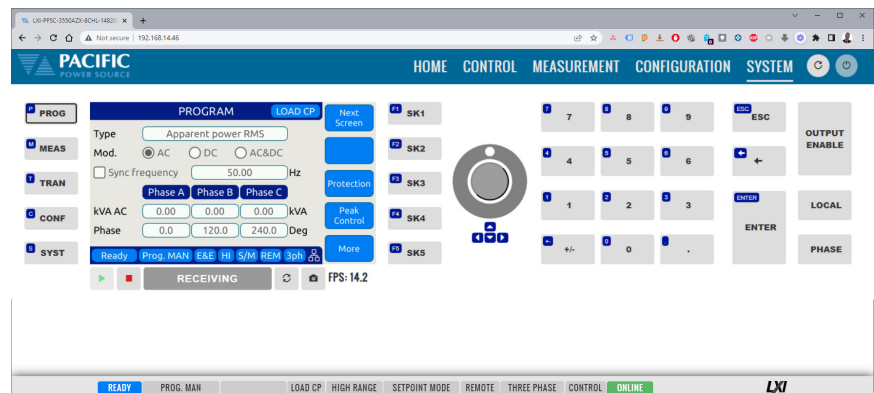
Eliminate the need for an external power analyzer by measuring voltage and current harmonics. Harmonics information is displayed in either bar charts or detailed table format for easy viewing and analysis.

Data is displayed for each phase or all three phase simultaneously.



Web Browser Control

The standard LAN interface allows remote control and monitoring from any web browser capable smart phone, tablet or PC. The built in web server includes a virtual front panel mimicking the actual front panel layout so any operator familiar with the AZX front panel will be familiar with the browser interface instantly.



AC Voltage or Current Transient Programming

Voltage, Waveform and Frequency output transients are easily created from the front panel using an intuitive spreadsheet style data entry method. Data may be entered for a specific phase or for all three phases at the same time.

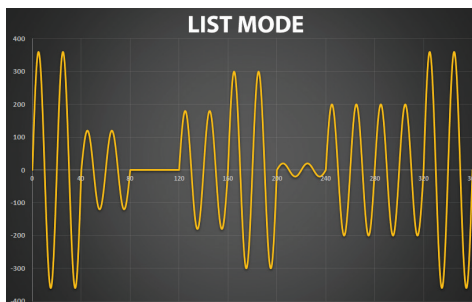
The AZX Series supports LIST, PULSE and STEP Mode Transient Types. The user can select the most appropriate type from the front panel or the web server interface. The image below illustrates the three modes graphically. Transients can be stored in non-volatile memory and easily edited as needed on screen.

If preferred, transient programming and execution can be also be accomplished using the available Windows control software.

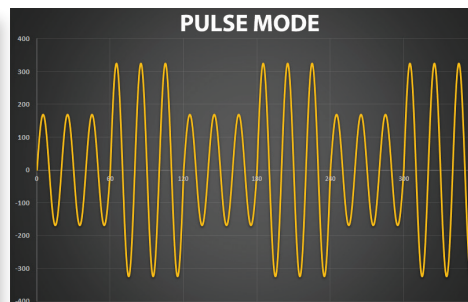
TRANSIENT VIEW					Run
#	Freq	Volt AC	Volt DC	Dwell	Step
1	400.00	115.00	0.00	100.0	Step Mode
2	400.00	100.00	0.00	10.0	Edit Mode
3	400.00	115.00	0.00	100.0	Run Screen
4	400.00	100.00	0.00	10.0	
5	400.00	115.00	0.00	100.0	
6	400.00	100.00	0.00	10.0	
7	400.00	115.00	0.00	100.0	
8	400.00	100.00	0.00	10.0	

Ready Prog. MAN LOC 3ph

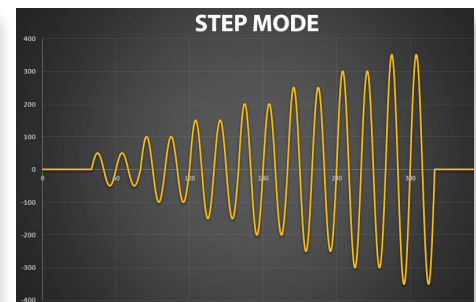
Transient Executing in View Mode



TRANSIENT LIST MODE



TRANSIENT PULSE MODE

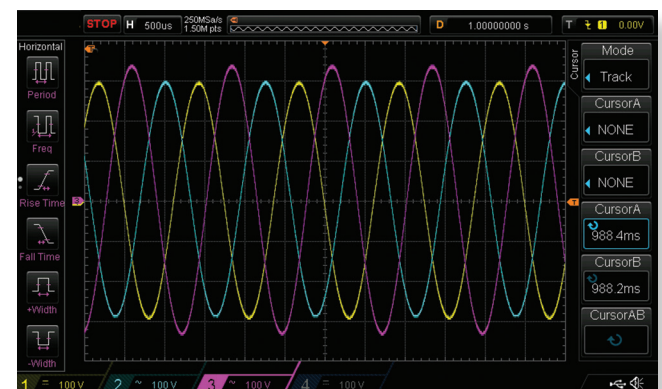


TRANSIENT STEP MODE

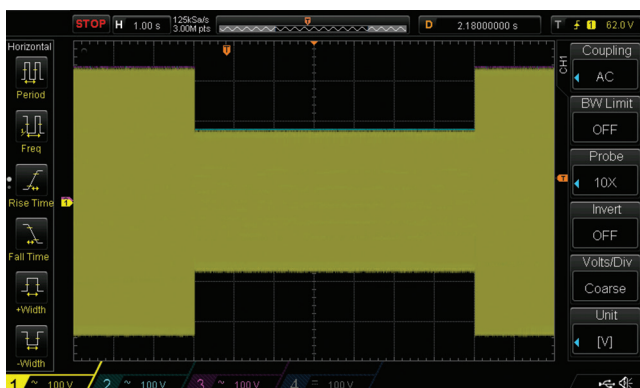
The AZX Series delivers flexible AC power testing with full control of voltage, current, frequency, power, slew rates, and phase angles—covering compliance, EV charging, renewable energy, transformer, appliance, UPS, and more.

Scalable configurations let you expand power as needed later without replacing existing systems.

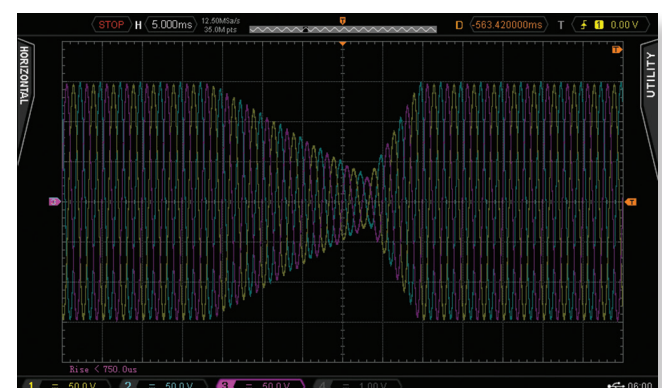
Scope images highlight wide range of waveform examples generated by the AZX.



Three Phase Unbalance Voltage Test Captured



Three Phase Voltage Drop Test Captured



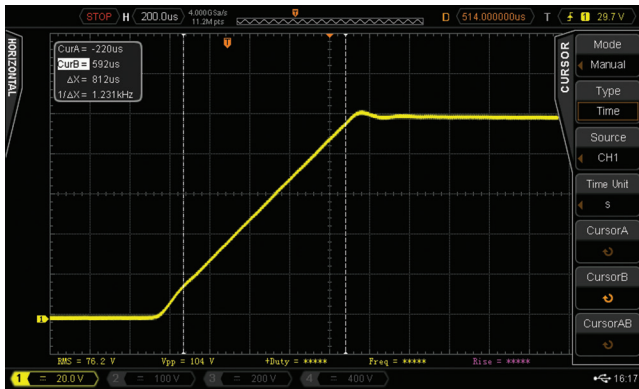
AC Transient Output Captured on Digital Scope

DC Voltage or Current Transient Programming

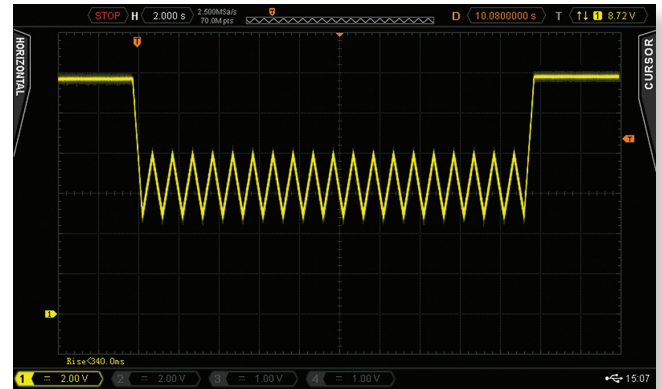
The AZX Series doubles as a DC power supply with either a single DC output (FORM1) or up to three individual bipolar (4-Quadrant) DC outputs. Available voltage ranges are 340Vdc, 680Vdc and the same constant power range technology is used to provide a wide operating range for diverse DC voltage and current requirements. See Volt/Current Charts Figure 2 & 4 on page 4.

Transient programming covers DC levels and slew rates as is the case for AC applications but there is no frequency to program.

Programmable voltage slew rate settings may be used to control the rise and fall time of any DC voltage change. The scope images shown here capture examples of DC voltage ramps performed at a specific slew rate set on the AZX.



DC Voltage Ramp Up @ 100Vdc/ms programmed slew rate Captured



DC Voltage Transient Output Captured

Ultimate Flexibility with Six Output Configurations

Flexibly test a wide range of grid-tied conditions and EUTs with six different output configurations in either AC, DC; source or load mode. Isolated neutrals enables operation on each phase as a different function: voltage source, current source, or load (option).

- Forms 1 through 3 are common for single, split or three-phase AC connections.
- Forms 4 through 6 allow for two or three EUTs' to be tested with the same AZX source or load.
- Form 5 supports different frequencies on each phase simultaneously.

Simultaneous AC & DC Operation on Single Phases and Automatic Switching of Operation Modes

	FORM 1	FORM 2	FORM 3	FORM 4	FORM 5	FORM 6
Phase A	ONE PHASE A	SPLIT PHASE	THREE PHASE	ONE PHASE A	ONE PHASE A	SPLIT PHASE
Phase B	ONE PHASE B			ONE PHASE B	ONE PHASE B	
Phase C					ONE PHASE C	ONE PHASE C

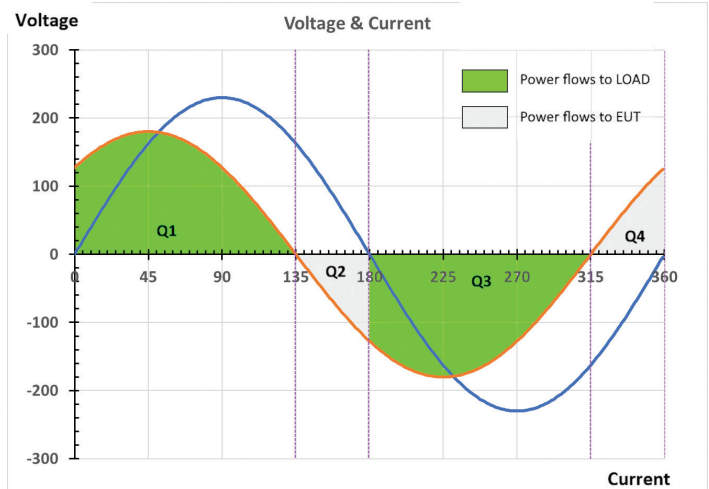
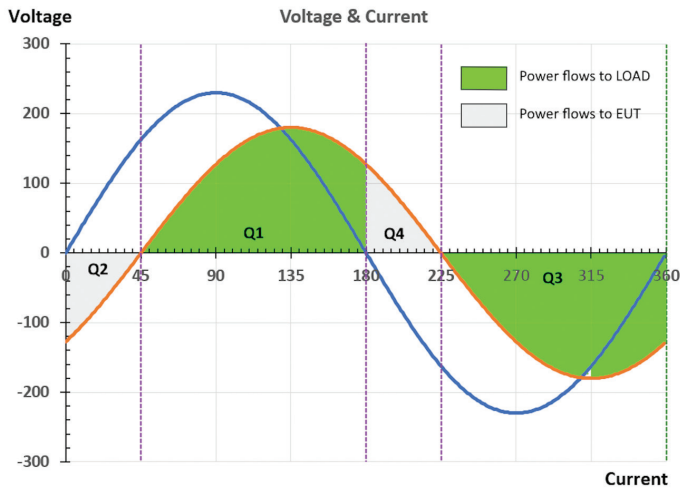
Mixed Source / Load mode combinations available in Forms 4, 5 and 6.

AC & DC Load Modes (L)

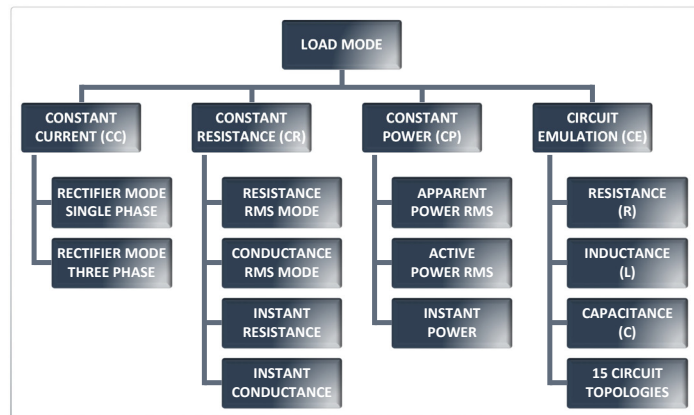
Included load feature supports testing PV inverters, V2G, EV Chargers, EVSE, batteries, UPS, and AC/DC power supplies. Fully operate in all four quadrants using programmable phase shift in CC or CS modes. Simulate AC/DC linear and non-linear loads (rectified), inductive and capacitive loads.

AC Modes: Constant Current, Constant Power & Apparent Power, Constant Resistance, Constant Voltage, CC / CS Rectifier Mode 1 ϕ & 3 ϕ , Circuit Emulation

DC Modes: Constant Current, Constant Power, Constant Resistance, Constant Voltage, Circuit Emulation



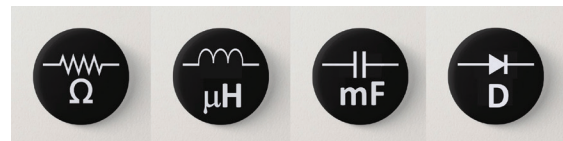
Programmable Current Phase Shift Allows for ± 1 or 0 Power Factor Control



Available AZX Load Operating Modes

Features	CC Mode	CR Mode	CP Mode	CE Mode
User Waveform	✓	✓	✓	
Rectifier Waveform	✓	✓	✓	
Current Harmonics	✓			
Current Inter Harmonic	✓			
Sync Mode	✓	✓	✓	✓
Transient Programming	✓	✓	✓	
AC, DC & AC+DC Mode	✓	✓	✓	✓
Analog Input Programming	✓	✓	✓	

Available Features for each Load Mode



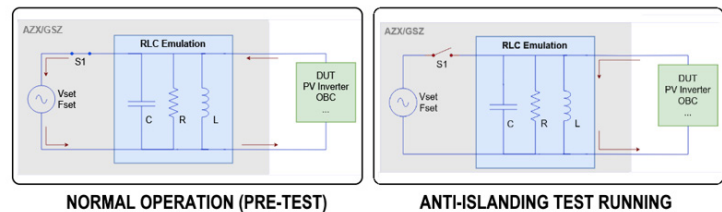
Mode	Circuit Diagram	Mode	Circuit Diagram
R		Series RLC	
Series RL		R // Series RLC	
Series RC		Series RL // Series RC	
R // Series RL		R // Series RL // Series RC	
R // Series RC		Series RL (R // C)	
R (L // C)			
L (R // C)		Rectifier Single Phase	
C (R // L)		Rectifier Three Phase	

Available Circuit Topologies in Circuit Emulation (CE) Mode

Anti-Islanding Mode (Option P)

Anti-islanding test requirements for Distributed Energy Resources such as PV inverters or bidirectional V2G EV Chargers are mandatory for regulatory approval of these energy producing devices.

Option P mode is the built-in anti-islanding test operating mode. When enabled, it configures the system to electronically emulate the resonant RLC load required for anti-islanding testing, execute the grid disconnection event, and precisely measure the inverter's response time using an internal digital storage oscilloscope. This mode allows the AZX to function as a complete anti-islanding test system—combining grid simulation, load emulation, and disconnect-time measurement in one platform—without external components, multiple instruments, or custom test software.



Safety Level D (Option D)

The D option adds performance level class D safety features in accordance with EN ISO 13849-1 for up to two AZXs.

- Remote reset - the unit's circuit breaker will not trip. It can be reset with an external 24Vdc signal.
- No Idle consumption.
- Built-in redundant contactor turn-off (required by PL class D).
- Parallel safety connection¹. Emergency shutoff will turn off the entire system.

Note 1: Requires D option on both AZX units.

Multi-Cabinet Parallel Configurations for High Power

MODEL	Output Phase Modes	Rated Power ¹ AC / DC mode	High Voltage Range Vac L-N / Vdc	Max. Current High Vrange 3 Phs / Split / 1 Phs	Low Voltage Range Vac L-N / Vdc	Max. Current ² Low Vrange 3 Phs / Split / 1 Phs	No. of Cabinets
3300AZX	3, 2 & 1	30 kVA 30 kW	0 ~ 480 Vac / 0 ~ ±680 Vdc (Source Mode)	45 / 68 / 135 Arms 30 / 45/ 90 Adc	0 ~ 240 Vac / 0 ~ ±340 Vdc (Source Mode)	90 / 117 / 270 Arms 60 / 90 / 180 Adc	One
3450AZX	3, 2 & 1	45 kVA 45 kW		65 / 72 / 195 Arms 40 / 45 / 120 Adc		110 / 125/ 330 Arms 80 / 90 / 240 Adc	One
3550AZX	3, 2 & 1	55 kVA 55 kW		75 / 75 / 225 Arms 50 / 50 / 150 Adc		130 / 130 / 390 Arms 100 / 100 / 300 Adc	One
3900AZX	3, 2 & 1	90 kVA 90 kW		130 / 144 / 390 Arms 80 / 90 / 240 Adc		220 / 250/ 660 Arms 160 / 180 / 480 Adc	Two
31100AZX	3, 2 & 1	110 kVA 110 kW		150 / 150 / 450 Arms 100 / 100 / 300 Adc		260 / 260 / 780 Arms 200 / 200 / 600 Adc	Two
31650AZX	3, 2 & 1	165 kVA 165 kW		225 / 225 / 675 Arms 150 /150 / 450 Adc		390 / 390 / 1170 Arms 300 / 300 / 900 Adc	Three
32200AZX	3, 2 & 1	220 kVA 220 kW		300 / 300 / 900 Arms 200 / 200 / 600 Adc		520 / 520 / 1560 Arms 400 / 400 / 1200 Adc	Four
Higher	For parallel system configurations above 220 kVA/kW up to 1.115MW+, contact factory						

Table 1: Model Number, Power Ratings & Current Ratings

Note 1: Rated power shown is for Three Phase or Single Phase mode operation. For Split Phase mode, rated power is 30kVA for the 3300AZX, 33kVA for the 3450AZX and 36.7kW for the 3550AZX.

Note 2: Rated current shown is per phase in Three or Two Phase mode operation. In Single Phase mode, current is three times the Three Phase mode current.

Note 3: Voltage Range values shown are for Source Mode.

Technical Specifications

OUTPUT		SPECIFICATION	
Power		See Table 1 on page 9	
Voltage	Modes	AC, DC, AC+DC, DC+AC	
Voltage Source Mode		AC Mode	DC Mode
Low Voltage Range ¹		0-240 V _{LN} / 0-415 V _{LL}	0 - ±340 V _{dc}
High Voltage Range ¹		0-480 V _{LN} / 0-830 V _{LL}	0 - ±680 V _{dc}
Current Source / Load Modes		AC Mode	DC Mode
Low Voltage Range ¹		0-220 V _{LN} / 0-390 V _{LL}	0 - ±325 V _{dc}
High Voltage Range ¹		0-440 V _{LN} / 0-760 V _{LL}	0 - ±650 V _{dc}
Programming Resolution		0.01 V	
Accuracy		±0.1%	
Waveforms (200 Max.)		Sine, Square, Triangle, Clipped (THD), Arbitrary	
DC Offset		< 20 mV	
Harmonic Distortion (V _{thd}) (full, resistive load, up to 480Vrms L-N)		< 100 Hz: < 0.2%, 100~1000 Hz: < 0.2% + 0.125%/100Hz	
Output Noise - Low/High V Range		< 250 mV RMS / < 500 mV RMS 300 kHz bandwidth (DMM measurement w/high pass filter)	
Load Regulation		± 0.02% (CSC Mode)	
Line Regulation		< 0.1% for 10% Line Change	
Voltage Sense		External Sense, max. voltage drop 5% F.S.	
Voltage Slew Rate ²		Programmable, 12.0V/μs max.	
Isolation			
Any Output Terminal to Chassis		1000 Vpk / 1000Vdc	
Frequency			
Range		DC, 1 – 15Hz ⁽³⁾ , 15 – 1000 Hz	
Programming Resolution		0.01 Hz	
Accuracy		± 0.005% / 50 ppm	
Current (See Figures 1 through 4 and Table 1)			
Ranges		See Table 1	
Max. AC Peak Current per Phase, 2 or 3 Phase Mode		Low Vac Range: 360Apk High Vac Rang: 180Apk	
Programming Resolution		0.01 Arms	
Accuracy		0.25% F.S.	
Current Protection (CP) Modes		Constant Current (CC) or Output Trip (CV)	
Phase Angle (In 3 and 2 Phase Mode)			
Programmable Phase (B, C)		0 - 359.9°	
Resolution		0.1°	
Accuracy		±0.35° / ±0.1° Phase Reg. Mode	
Programmable Impedance (Per unit, incl. paralleled)			
Available Modes		Real-time mode, RMS mode	
Phase Mode		1 Phs / 3 Phs	2 Phs
Resistance (R)		±10 Ω	± 20 Ω
Inductance (L)		0 - 2 mH	0 - 4 mH
Output Capacitance / Max RMS Ripple Current			
Operating Mode		High Range	Low Range
Voltage Source		5.5 μF / 30 Arms	22 μF / 60 Arms
Current Source / Load		1.1 μF / 6 Arms	4.4μF / 12 Arms

PROTECTION	SPECIFICATION
Types	RMS Current, DC Current, Peak Current, Peak Voltage, True Power, Apparent Power, Internal Over Temperature, Advanced protection modes for regenerative devices

Footnotes:

- 1: Voltage Range values are for Source Mode.
For F = 45Hz~1000Hz. For = 1Hz~15Hz: Vac = 225/440Vac LN. Linear interpolation of Vac max from 15Hz to 45Hz
- 2: Specified for 10%-90% or 90%-10% of Full scale voltage
- 3: Extends down to 1.0 Hz in Very Low Frequency (VLF) Mode. Derating applies

TRANSIENTS	Specification
Programming	
No. of Entries	200 Steps / 400 segments
Modes	LIST, PULSE, STEP
Parameters	Frequency, Volt AC, Volt DC, Waveform, Ramp Time, Dwell Time
Dwell Time Range	0.1 - 10000000.0 msec
Time Resolution	0.1 msec
Edit Modes	Add at end, Insert before, Delete
Execution	
Run Control	Run from step # to step # Run, Step, Restart, Stop
Execution Modes	Normal, Debug
Program Storage	
Non-volatile	100 Programs + Transients

MEASUREMENTS	SPECIFICATION
AC Voltage (Vrms)	
Single or Parallel Cab: Range	0 – 480 VLN / 0-830 VLL
Resolution	0.01 V
Accuracy	± 0.1% F.S.
Frequency (Hz)	
Fundamental Range	1 Hz - 1000 Hz
Resolution	0.01 Hz
Accuracy	± 0.1% Rdg
AC Current (Arms) - Single Cabinet	
Range ⁵	High: 0-130 Arms / Low: 0-75 Arms
Resolution	0.01 Arms
Accuracy ²	± (0.25% + f (kHz) * 0.25%) F.S.
Current Crest Factor	
Range	1.00 - 5.00
Resolution	0.01
Accuracy ²	± 2.0% F.S.
AC or DC Power (W) - Single Cabinet	
Range ⁵	0 - 55 kW
Resolution	0.01 kW
Accuracy ²	± 0.75 % F.S.
Apparent Power (VA) - Single Cabinet	
Range ⁵	0 - 55 kVA
Resolution	0.01 kVA
Accuracy ²	± 0.75 % F.S.
Power Factor	
Range	0.00 - 1.00
Resolution	0.01
DC Voltage (Vdc)	
Range ³	0 – 680 Vdc
Resolution	0.01 V
Accuracy	± 0.1% F.S.
DC Current (Adc) - Single Cabinet	
Range ⁵	High: 0 - 100 Adc / Low: 0 - 50 Adc
Resolution	0.01 Adc
Accuracy ⁴	± 0.25% F.S.

Footnotes:

- 1: Current and Power Ranges are for 3300AZX, 3450AZX and 3550AZX models
- 2: For RMS Currents above 2.0 A
- 3: Range = 0 - 1000 Vdc (w/Floating Neutral) or 0 - 1240Vdc (w/Grounded Neutral)
- 4: For DC current levels above 1.0 A
- 5: Current and Power Ranges scale with no. of units for parallel systems

Technical Specifications

WAVEFORM CAPTURE	SPECIFICATION
Parameters	VLN-A, VLN-B, VLN-C, VLL AB, VLL AC, VLL BC, IA, IB, IC
Max. Sample Rate	500 ksp/s
Samples/cycle	1024 (512 in UPC Compatibility mode)
Record Length	1 Period of fundamental Frequency
Bandwidth	100 kHz @ 500 ksp/s

HARMONICS MEAS.	SPECIFICATION
Parameters	VLN-A, VLN-B, VLN-C, VLL AB, VLL AC, VLL BC, IA, IB, IC
Harmonics Range	H1 ~ H50
Accuracy – Amplitude	± 1.0 % of RMS Reading
Phase Angle Range	0 ~ 359.9
Accuracy - Phase Angle	2 µsec
Bandwidth	100 kHz @ 500 ksp/s
Display Modes	Table format, Graph Format

AC INPUT	SPECIFICATION		
Mains Voltage Form	4 Wire, L1, L2, L3 and PE		
Frequency	47 - 63 Hz		
400V Input Setting (-4)	3300AZX	3450AZX	3550AZX
Output Power Rating	30.0 kW	45.0 kW	55.0 kW
Input Voltage Range	380 ~ 400Vac ± 10%		
Nominal Phase Current ¹	54 Arms	80 Arms	100 Arms
Max Current @ Low Line ¹	60 Arms	90 Arms	110 Arms
Peak Inrush Current ²	< 130 Apk	< 150 Apk	< 150 Apk
Input Power Factor	> 0.99 @ Full Load		
Current THDi	< 2%		
Efficiency	89 %	90 %	90 %
480V Input Setting (-8)	3300AZX	3450AZX	3550AZX
Input Voltage Range	480Vac ± 10%		
Nominal Phase Current ³	43 Arms	65 Arms	80 Arms
Max Current @ Low Line ³	47 Arms	70 Arms	88 Arms
Peak Inrush Current ²	< 110 Apk	< 120 Apk	< 120 Apk
Current THDi	< 2%		
Input Power Factor	> 0.99 @ Full Load		
Efficiency	89 %	90 %	90 %

Footnotes:

1: For nominal 3Ø, 380V input voltage. Low line voltage is 342V

2: I_{peak Inrush} = @ nominal input voltage

3: For nominal 480V input voltage. Low line voltage is 432V.

ENVIRONMENTAL	SPECIFICATION
Cooling	Variable speed fan cooled, front intake, top exhaust
Temperature Operating	0 to 40 °C / 32 to 104 °F
Storage	-20 to 70 °C / -4 to 158 °F
Humidity	< 80%, non-condensing
Altitude	2000 m / 6500 feet

INTERFACES	DESCRIPTION
Remote Control	
USB	Device Type B
RS232	1200 - 921600 baud
 LAN	LXI compliant, Ethernet, RJ45, TCP/IP Protocol, Telnet Protocol Command Line
GPIB	IEEE488.1, IEEE488.2 (2003 incl., NI H5488) IEC 60488-1, IEC 60488-2 (2004) Functions: SH1, AH1, T6, L3, SR1, RL1, DC1, DT1
 WiFi	Optional USB WiFi adaptor available

SYSTEM FEATURES	DESCRIPTION
DISPLAY	
Type	Full Color, Touch LCD Display
Size	4.3" Diagonal
Resolution	480 x 272 pixels
USB Ports	2 Front Panel, 1 Rear Panel, Type A
SD Card	32 GB max. Capacity
Video Output	Monitor Out, Front Panel

ANALOG I/O	SPECIFICATION
Analog Inputs (4)	
Modes	Amplifier, Amplitude Modulation, Int + Ext Input Summing
AI1, AI2, AI3	Programmable setting phase A, B, C
AI4	Frequency
Range	0 - 10 Vdc for 0 - F.S.
Accuracy	± 0.1% F.S.
Input Impedance	5 kOhm
Analog Outputs (4)	
AO1, AO2, AO3	Voltage Meas. phs A, B, C
AO4	Power Measurement Total
Range	0 - 10Vdc for 0 - F.S.
Accuracy	± 0.1% F.S. into > 5 kOhm load
Output Impedance	5 kOhm
Connector Type	DB25, Rear Panel

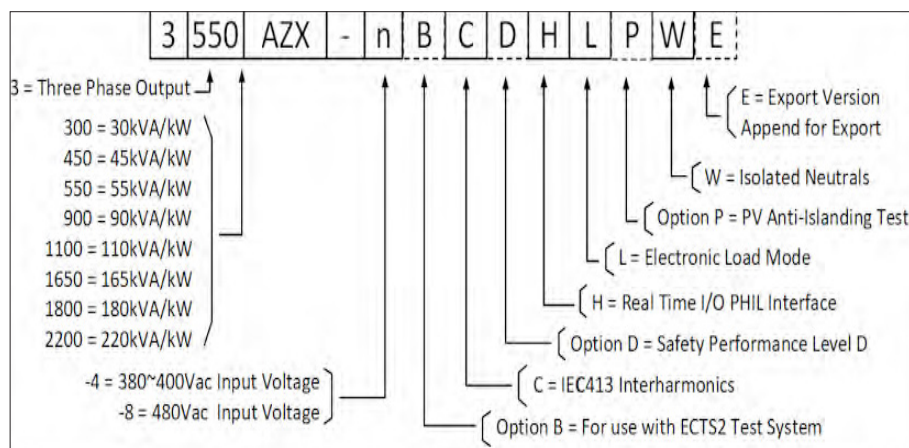
DIGITAL I/O	SPECIFICATION
Digital Inputs (6)	
Fixed (3)	Remote Inhibit, Transient Trigger, Phase Sync
User Programmable (3)	DI1, DI2, DI3
Input Levels	Low < 0.4V, High > 2.0V
Digital Outputs (6)	
Open Collector, Fixed (2)	Relay Control FORM, Relay Control T Option
TTL, Fixed (2)	Output Relay/Transient /Function Strobe Phase Sync
User Programmable (2)	DO1, DO2
Output Levels	Low < 0.4V, High > 4.6V
Connector Type	DB25, Rear Panel

MECHANICAL	SPECIFICATION
Dimensions	
H x W x D	59.8" x 24.0" x 31.9" 1520 x 610 x 810 mm
Shipping H x W x D	71" x 32" x 44" 1800 x 810 x 1120 mm
Weight	
Net	517 Kg / 1140 lbs
Shipping	592 Kg / 1305 lbs

REGULATORY	SPECIFICATION
Safety	IEC 61010-1:2010 (Edition 3)
EMC	
Emissions Standard	EN 55011:2009+A1:2010
Immunity Standard	EN 61000-4-2, -3, -4, -5, -6, -8, -11
Product Category	EN 61326-1:2013 (Measurement, Laboratory and Control Equipment)
Approvals	CE Mark
RoHS (DIRECTIVE 2011/65/EU)	
Product Category	EN50581:2012

Ordering Information

AZX Series Models



Note 1: Dashes are Options (non-standard)

Note 2: Contact Factory for higher power AZX system configurations.

Order Example 3550AZX-4CHLW

- AZX Cabinet, 55 kVA, 3-Phase, AC & DC Regenerative Power Source, 380~400Vac input, IEC413, Load Mode, Isolated Neutrals

SmartSource Suite Test Sequence Options

Test Sequences

- IEC Test Suite – Includes IEC 61000-4-11,-14,-17,-27,-28,-29,-34
- IEC 61000-4-13
- IEEE 1547.1-2020
- KS C 9610-4-11, 4-29
- DIN VDE V 0124-100-2020-06
- Eng Rec G99-1-9
- EN 50549-10-2022
- EN 62116
- Semi-F47-0706

Test Sequences - Aerospace & Defense

- Airbus ABD0100.1.8 (A380), 1.8.1 (A350), G2-1.8 C
- Airbus AMD-24C
- Boeing 787B3-0147 (787) C
- MIL-STD-1399-300-1, -B
- MIL-STD-704A, D, E, F
- MIL-STD-1275E, F
- RTCA-DO160G, E

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