AFX Series

Programmable AC and DC Power Sources

6 kVA/kW to 150 kVA/kW

DC, 15-1200 Hz 0-300 Vac L-N / 0-600Vac L-L / 0-520 Vac L-L / 0 - 425 VDC

Standard Features:

- Three Phase, Split Phase and Single Phase Output Modes
- AC, DC and AC+DC Output Capability
- Uninterrupted Switching between AC and DC Outputs in AC+DC mode
- Single Constant Power Voltage Range to 300Vac L-N / 520Vac L-L / 520Vac L-L or 425 Vdc. No need to switch between two voltage ranges
- Available output voltage to 312Vac L-N / 540Vac L-L up to 9kVA per unit, 45-100Hz
- DC, 15 to 1200 Hz Frequency Range
- Phase Angle Programming
- Active Three Phase PFC input with Inrush Current Limiting
- Precise Output Voltage and Load Regulation
- Metering of Volts, Current, VA and True Power on all Phases
- Standard USB, LAN & RS232 Interfaces
- Sine, Square, Triangle, Clipped Sine and Arbitrary Waveforms Selections
- Output Transient Programming
- 100 Stored Programs with Associated
- Transients for Static and Dynamic Test Applications
- Large Color LCD and Easy Front Panel Menu Driven Operation
- Shuttle Allows Easy Slewing of Output
 Parameters
- Unique Sleep Modes Save Energy, Reduces Needless Heat Generation and Extends the Life of the Power Source





MADE IN USA

Patents Pending



AFX Series

The AFX-Series represents a break-through in solid state power conversion that reduces the size and weight of programmable AC and DC power sources dramatically. Housed in 4U 19" rack mount chassis, the 3150AFX delivers an astounding 15,000 VA of output power. Made possible by extensive use of advanced digital signal processor control of all internal power stages, the AFX delivers the highest density programmable AC and DC power capability on the market today.

Convenient to operate from the front panel keypad or remote interface, the AFX Series models are ideal for AC Power simulation, automated testing, frequency conversion, laboratory, and bench-top power applications.

Modular Higher Power Systems

By paralleling master and auxiliary AFX units, higher power systems can be configured easily to provide more than 15kVA of power. Pre-configured cabinet systems containing multiple AFX Master/Aux units are available as catalog items.



The Leader in AC Power Technology

An early pioneer in the development of solid-state power conversion equipment, Pacific Power Source continues to develop, manufacture, and market both linear and switched mode AC Power Sources. Pacific's reputation as a market and technology leader is achieved through continuing investment in both research and development and world-wide customer support. With corporate owned offices in the United States, Germany, the United Kingdom and China, local personalized support is always nearby.



THE POWER OF EXPERTISE



FREQUENCY CONVERSION

R&D

MILITARY

MANUFACTURING

CUSTOM

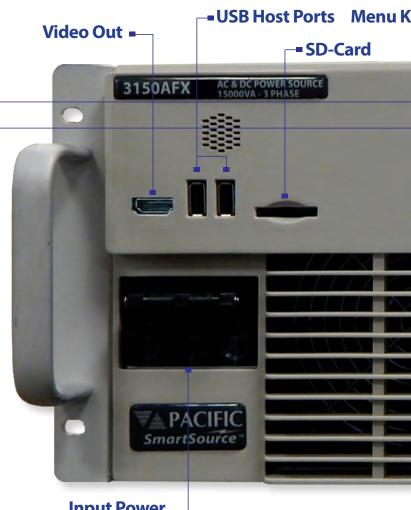


Total Control, Metering and Analysis of AC or DC Power.

| ê | PF | ROGRAM | | | Apply All |
|------------|---------|---------|---------|------|------------|
| Freq. | 400.00 | Hz | - | | Apply All |
| | Phase A | Phase B | Phase C | | Unlink |
| Phase | 0.00 | 120.0 | 240.0 | Deg | Phases |
| Volt. AC | 115.00 | 115.00 | 115.00 | VRMS | Protection |
| Volt. DC | 0.00 | 0.00 | 0.00 | VDC | Protection |
| Curr. lim. | 41.67 | 41.67 | 41.67 | ARMS | Peak |
| Pow. lim. | 4.60 | 4.60 | 4.60 | kW | Control |
| kVA lim. | 5.00 | 5.00 | 5.00 | kVA | |

Metering •

| Freq. | 400.00 | Hz | | | Page 2 |
|-----------|-----------------|-----------------|-----------------|------|--------------------|
| | Phase A | Phase B | Phase C | | Fault Status |
| Volt. L-N | 115.00 | 115.00 | 115.00 | VRMS | Status |
| Current | 25.67 | 25.67 | 25.67 | ARMS | Error and Event |
| Power | 2.655 | 2.555 | 2.655 |) kW | |
| | V _{AB} | V _{BC} | V _{CA} | | Real Time Plot |
| Volt. L-L | 199.20 | 199.19 | 199.20 | VRMS | Individual |



Input Power On/Off

Automated Test Equipment Power for Defense Applications

Growing demand for power to support increasingly complex avionics, radar and weapons systems means more power is needed in less available space. The new AFX Series addresses this need by offering power density three times higher than it's nearest competitor.

With extensive control over voltage, current, frequency, phase angles and transients, the AFX series is capable of handling complex Test Program Sets (TPS's) with minimal programming effort. It's AC and DC operating modes provide support for both AC and DC powered equipment providing greater flexibility.



AFX SERIES

Simple, Intuitive Operation



Commercial Avionics Power Test

The advanced digital power conversion technology used in the AFX Series Power Source results in higher power density than any other offering. A wide frequency range of 15Hz to 1200Hz supports both 400Hz fixed frequency as well as 360Hz to 800Hz wild frequency development and test. For DC power systems, multiple 270Vdc outputs can be used to simulate at 540Vdc aviation DC power bus.

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



www.pacificpower.com sales@pacificpower.com Toll Free: 1.800.854-2433 Tel: +1.949.251-1800

Page 3 of 12

AFX SERIES



Traditional AC power sources use two voltage ranges to provide either high voltage or high current. By contrast, the AFX Series uses a unique single voltage range that operates along a constant power curve. This provides more current at low voltages, eliminating the need to switch between voltage ranges and provides a much wider operating range (demonstrated as green in the figure to the right). Switching voltage ranges on other AC sources causes the output to be turned off and the EUT to shut down. This makes it difficult to test universal wide input range AC products. The blue line and green shaded area in the chart shows the additional operating range available compared to a conventional AC power source with a 150V/300V range pair.

The same applies to DC mode of operation where a single 425Vdc voltage range is used to provide both high DC current and DC voltage.

In addition to sinewave, the AFX Series offers multiple

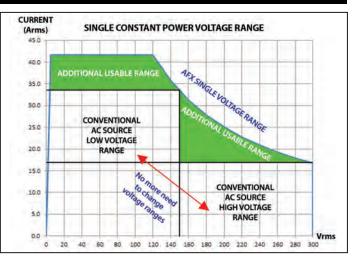
selectable AC waveforms such as clipped sinewave at various distortion levels, square, triangle and stepped

squares. The user can also create arbitrary waveforms using Pacific Power's UPC Studio Windows software

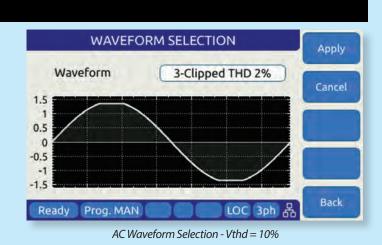
and download these to the power source. A graphical

representation (preview) of each waveform is shown on

screen so the user can be sure the correct waveform is



Extended Operating Range for model 3150AFX along Constant 5 kVA per Phase Power Curve. Other models have same profile but other current levels.



Powerful yet Easy to Use

applied to the unit under test.

Selectable AC Waveforms

Although AFX Series sources offer a wide range of operating modes and features, they are easy to operate through a large 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.



Page 4 of 12

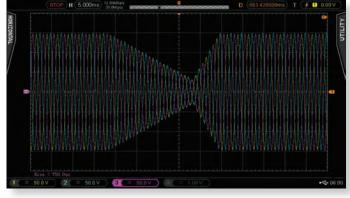


AC Power Test Applications

Voltage and Frequency output transient sequences 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.

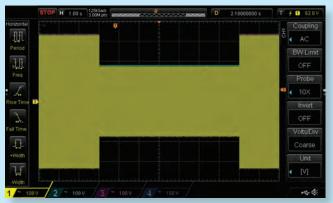
Transient functions include ramps for slewing and programmable dwell times for each step. Transient sequences can be stored in non-volatile memory and easily edited as needed on screen.

If preferred, transient programming and execution can be also be accomplished via the build-in web server using any browser over the USB or optional LAN interface, or using the provided Windows control software.



AC Transient Output Captured on Digital Scope

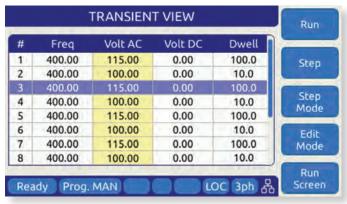
The AFX Series' rich feature set supports a wide variety of AC power test applications. With full control over voltage, current, frequency, power, slew rates and phase angles, no test requirement is too challenging for the AFX to handle. This includes AC power compliance testing, transformer testing, appliance testing, DC charger testing, UPS testing and more. With scalable power configurations, test needs can grow over time without having to re-invest in new AC power sources as auxiliary units can be added to an existing AFX system at any time. The scope images shown here capture several examples of AC power test waveforms generated by a 3150AFX.



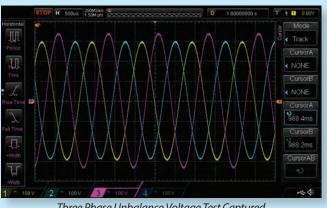
Three Phase Voltage Drop Test Captured

| - | Dwell | Volt DC | Volt AC | Freq | # |
|--------|-------|---------|---------|--------|---|
| Insert | 100.0 | 0.00 | 115.00 | 400.00 | 1 |
| before | 10.0 | 0.00 | 100.00 | 400.00 | 2 |
| - | 100.0 | 0.00 | 115.00 | 400.00 | 3 |
| Delete | 10.0 | 0.00 | 100.00 | 400.00 | 4 |
| - | 100.0 | 0.00 | 115.00 | 400.00 | 5 |
| Debug | 10.0 | 0.00 | 100.00 | 400.00 | 6 |
| Mode | 100.0 | 0.00 | 115.00 | 400.00 | 7 |
| - | 10.0 | 0.00 | 100.00 | 400.00 | 8 |

Transient Screen in Data Entry Mode



Transient Executing in Debug Mode



Three Phase Unbalance Voltage Test Captured



Voltage Modulation Test @ 1Hz Captured

www.pacificpower.com

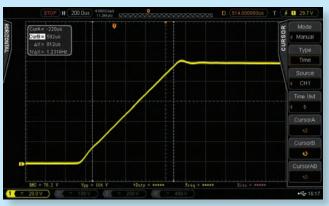
sales@pacificpower.com

Toll Free: 1.800.854-2433



DC Power Test Applications

The AFX Series doubles as a DC power supply with either a single DC output (FORM1) or up to three individual bipolar (2-Quadrant) DC outputs. Available voltage range is 425Vdc 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 Chart on the right.



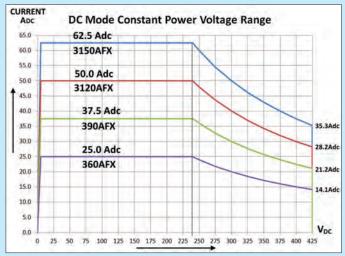
DC Voltage Ramp Up @ 100Vdc/ms programmed slew rate Captured

DC Voltage Transient Output Captured

H 500.0ms 12.50MSa/s 75Mpts 75Mpts

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 3150AFX.



DC current vs. Voltage for 360AFX ~ 3150AFX models in single phase mode



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





IORIZONTAL

Unique AFX Features & Benefits

The AFX Series is based on a truly revolutionary technology platform that enables functionality not previously found on programmable AC and DC source products from any other manufacturer. These features help address a wide range of applications while at the same time providing a higher level of protection for the unit under test.

Compact Size

Featuring the highest power density available today, the AFX fits in small spaces allowing power upgrades of existing power test stations without the need to deploy more cabinets or floor space. In today's environment of space efficiency and optimal resource utilization, this is a significant benefit.



Light Weight

The 15 kVA 3150AFX weighs in at less than 51 Kg offering an incredible 295 VA of power output per kilogram. This not only saves a significant amount of money on shipping cost, it also makes the power source easy to install in a cabinet or move from one bench to another. For facilities



that have a maximum floor weight rating, higher power systems can be configured using multiple AFX units that any other AC power system available today without exceeding floor loading limitations.

Small LRU Size

The unit size of a single AFX unit offers a Line Replaceable Unit size of only 15 kVA. This means enhanced flexibility in critical higher power uptime applications as the LRU replacement size is relatively small compared to typical 45 kVA or 90 kVA cabinet systems. The Mean-Time-To-



Repair (MTTR) for an AFX system is low which ensures less down time and provides greater productivity while minimizing lost revenue.

Single Voltage Range

The single 300V AC or 425V DC range of the AFX allows continuous operation of wide AC input EUTs without the need to switch voltage ranges on the power source. This means no loss of output during range changing. For applications where more than 150Vac or 212Vdc are



required, there is no need to give up half the available AC or DC current as it typical of conventional power sources. For example, DO160, section 16 test 16.5.2.3.1 abnormal surge voltage to 180Vac L-N can support almost twice the current compared to other manufacturer's power sources of the same VA rating.

Enhanced Protection Modes

Not only does the AFX offer programmable current limit protection mode, it goes far beyond this by adding:

- Constant Voltage Protection
- Constant Current Protection
- Peak Current Protection
- True Power Protection
- Apparent Power Protection
- Over Voltage Protection
- Internal DC Bus Voltage Protection
- Over Temperature Protection

The power protection modes found on the AFX support unusual applications like Capacitor testing, Inductor testing or testing of EUT with a constant power input profile.

Legacy Software Support

To ensure our customers retain their investment in test software, the AFX Series supports a UPC controller compatibility mode that allows legacy test software to run with a new AFX power source. This includes the ability to use the existing UPC Studio Windows control software and



UPC Test Manager as well as the AFX specific PPSC Studio software.

| Frequency - 50 - 60 - 400 - 400.00 | | Form C Single Phase C Split Phase | 1.0 | AC DC | | | |
|--|-------------|---|---------|-----------|----------------------|-------------------|---------|
| 15 Phase III Volts (AC) @ | 1200 Way | eform | egree @ | CO FOR | mps - SIM::PPS,3150. | AFX-2L,1001,9.1-1 | |
| A 🗆 115 00000 🗹 | 2 SINET | 0 0 | X E | Function | Phase A | Phase B | Phase C |
| AL ST | 2 SINET | | | V(ACDC) | 115.000 | 115.000 | 115.00 |
| B 115.000000 2 | 2 SINE | | 120.0 E | V(DC) | 0.020 | 0.020 | 0.02 |
| C 11500000 2 | 2-SNET | | 240.0 2 | V(L-L) | 199.068 | 199.421 | 199.06 |
| | Current | | Curren | Irms | 19.167 | 19.167 | 19.16 |
| | 213.333 | | F O | Ipeak | 27.109 | 27.109 | 27.10 |
| | | (41,301 | 41.6 | Icrest | 1.414 | 1.414 | 1.41 |
| | | | | KW | 2.204 | 2.204 | 2.20 |
| | 0 | - | 0 | KVA | 2.204 | 2.204 | 2.20 |
| A second second second | | | - | PF | 1.000 | 1.000 | 1.00 |
| PS 31504FX-2, 1001 9 1 14 7 INT | | MODENARX | | Frequency | 400,000 | 400,000 | 400,000 |

Energy Savings Modes

The unique two-stage sleep mode supported on the AFX not only save on energy costs, they also benefit the environment, ensure whisper quiet operation during periods of inactivity between tests, and prolong the life of the power source.



sales@pacificpower.com



Test System Integration

With a long standing history and reputation for supplying system integrators and primes with reliable, precision programmable AC power sources, we made sure to equip the AFX Series with key technologies that facilitate modern test system integration. Specifically, the AFX Series offer the following benefits to system integrators:

- LAN Interface with LXI¹ Compliance
- IVI² Compliant AC Source Class Instruments Driver
- Industry standard SCPI³ command syntax for remote control
- Available auxiliary units to easily upgrade or expand systems for higher power requirements
- Space saving design allowing higher levels of integration and smaller system foot prints
- Software Compatibility mode with legacy PPS products

Embedded Web Server & LXI LAN Interface

The AFX has a built-in web server that supports a user friendly user interface from any web browser like Google Chrome[™], Mozilla Firefox[™], Apple Safari[™] or Microsoft Edge[™]. This feature can be used on AFX models with the LAB/Ethernet option and is also supported via the standard USB interface. Connect the AFX to your PC using a USB cable, install the provided virtual LAN driver and you are good to go.

The web server supports the following functions using a variety of clearly laid out screens:

- Home page with system information and interactive command line for sending SCPI³ commands
- Program settings for steady state and measurement readback for all phases
- Protection mode setting page
- Waveform selection page with graphical preview mode
- Transient data entry and Execution screen using spreadsheet style layout
- Real-time scalar measurements graphs
- Configuration settings page
- Program memory control page
- Faults and Events display pages
- User Limit settings page
- Interface setup page
- Calibration display page
- Firmware update page

If you are a system integrator looking to expand your business, contact Pacific Power Source to discuss your requirements with our power application engineers.



| 13 | _ | _ | | | | | Q.1 | 2 A. | | □ @ ± @ |
|------------------|--------|------|---|----------------------|------------|------------------------|----------|-------|--------------|---------|
| PACI | FIC | | | HO | ME CONTROL | MEASUREMENT | CONFIGUR | NOTA | SYSTEM | 00 |
| PROGRAM | | | | | | | | | | |
| OUTPUT BNARLE | (0) | 1. T | 9 | 077 | 58 | LECTED PHASE | ABC | A | | c |
| REQUENCY | 401.00 | Re | | | 0 | RIENTLINIT | 41.67 | he | | * |
| AC VOLTAGE | 95.00 | Yes | | | 10 | WER LIMIT | 5.0000 | HT. | | |
| DC VOLTAGE | 8.00 | 10 | | | KY. | AUMT | 5,0000 | KIA - | | |
| | | | | J APPLY | | CANCEL | | | | |
| MEASUREMENTS | | | | | | | | | | |
| I NERSONCHERIS | | | | Plane A | | Parel | | | PhaseC | |
| FREQUENCY | | | | 100.00 Hz | | 400.00 Hz | | | 400.00 Hz | |
| VOLTAGE L N ACOC | | | | 1162 Vent | | 125.20 Years | | | 6776Vmm | |
| VOLINE LIN AC | | | 1 | 11.62 Vent | | 125 20 Vers | | | 67.16Ymm | |
| VOLUMELNDC | | | | 6:00 V _{2C} | | 6:00 V _{2C} | | | 0.00¥10 | |
| CLERENT RMS | | | 1 | 1.48 Anns | | 2116 Amet | | | 19.Just | |
| CURSONT DC | | | | 0.30 Apr | | #69 Acc | | | 4744.00 | |
| POWER | | | 1 | 3062 kW | | 26433 KW | | | 0.0000 kW | |
| APPINER | | | 1 | AVA 2015. | | 26492888 | | | 0.7797858 | |
| POWER INCIDE | | | | 100 | | 100 | | | | |
| CIRCENT OF | | | | 146 | | 145 | | | 148 | |
| | | | | No | | Ye | | | ¥a. | |
| VILINELLADC | | | 1 | HE 46 Verst. | | 103.56 V _{mm} | | | 198.45 V mm. | |
| VILINELLAC | | | 1 | HE 46 Vant | | 163.56 Van | | | 138.45 V INC | |
| WHINEILOC | | | | 1.00 Vest | | 0.00 Yest | | | EEOVer. | |

Control and Measurements Page shows settings and read backs

| | | PACIFIC | | | IOME CONTROL | MEASUREMEN | T CONFIGURATIO | N SYSTEM | 00 |
|------|--------|--------------|-------------|-------------|---------------------|-------------|-----------------|--------------------|--------|
| TR | ANSIE | NT EXECUTION | Coloral | | | | | | |
| | + RU | sto | P N STEP | H RESTART | RUN FR | IM STEP # | | 0 + | |
| 7800 | RAM ST | IE E | TRANSENT ST | 09950 | RUN TO | STEP # | | | |
| PROC | RESS | 10 | | | REPEAT | TIMES | ide | | |
| | | | | | | | Y APPLY | * 0 | ANCEL |
| | | | | | | | T OWNER | | ourse. |
| I TR | ANSIE | NT TABLE | _ | | | | | | |
| TRAN | SENT M | WE. | ATEP | SEGMENT | | | | | |
| I | | RAMP [ms] | DWELL(ms) | FIRED CHell | Vac IVanes A/B/C | 1 | Inc (V) VB/C | Phase Idegi B/C | 101 |
| | 1 | 02 | 1900.0 | 400.00 | 15.00/115.00/ | 15.00 0.00/ | 0.00/0.00 | 0.00/240.00 | + × |
| | 2 | 82 | 23 | 400.00 | 0 00/0 00/0 | 00 0.00/ | 0.00/0.00 | 0 00/240 00 | + * |
| * | 3 | 02 | 100.0 | 400.00 | 15,00/115.00/ | 15.00 0.00/ | 0.00/0.00 | 0.00/240.00 | + * |
| * | 4 | 50 | 800.0 | 400.00 | 135.00/15.00/1 | 35,00 0.00/ | 0.00/0.00 12 | 0.00/240.00 | + * |
| > | 5 | 10 | 999999.0 | 400.00 | 115 00/135.00/ | 15.00 0.00/ | 0.00/0.00 1 | 0.00/240.00 | + * |
| * | 6 | 25 | 100.0 | 400.00 | 15,00/115.00/ | 15.00 0.00/ | 0.00/0.00 | 0.00/240.00 | ** |
| | | | | | | | | | |
| | | | | | | | ADD ROW | - DELET | |

information. Transient Edit and Execution Control Screen

Toll Free: 1.800.854-2433

Note 1: LXI = LAN eXtensions for Instrumentation. Refer to www.lxistandard.org for more information. ITANSI **Note 2:** IVI = Interchangalble Virtual Instrument. Refer to IVI Foundation at www.ivifoundation.org

Note 3: SCPI = Standard Commands for Programmable Instruments. Refer to www.ivifoundation.org/scpi for additional information.



Available Model Configurations

AFX Series AC & DC Sources are available in several power levels. Models listed in the table below are rack mount or bench units. Cabinet systems are pre-wired for both input and output power. For other configurations or power levels and cabinet options, contact factory. All models shown here require three phase AC input power.

| MODEL | Phase Mode | Rated Power ¹ AC / DC mode | Voltage Ranges Vac L-N / Vdc | Max. AC/DC Current 3 & 2 Phase Mode | Max. AC/DC Current 1 Phase Mode | Form Factor |
|---------|----------------|--|---------------------------------|--|------------------------------------|-------------|
| 360AFX | 1, 2 & 3 Phase | 6 kVA, kW / 6 kW | 0-300 Vac / 0-425Vdc | 16.7 Arms / 8.3 Adc | 50 Arms / 25.0 Adc | 4U Chassis |
| 390AFX | 1, 2 & 3 Phase | 9 kVA, kW / 9 kW | 0-300 Vac / 0-425Vdc | 25.0 Arms / 12.9 Adc | 75 Arms / 37.9 Adc | 4U Chassis |
| 3120AFX | 1, 2 & 3 Phase | 12 kVA, kW / 12 kW | 0-300 Vac / 0-425Vdc | 33.3 Arms / 16.7 Adc | 100 Arms / 50.0 Adc | 4U Chassis |
| 3150AFX | 1, 2 & 3 Phase | 15 kVA, kW / 15 kW | 0-300 Vac / 0-425Vdc | 41.7 Arms / 21.0 Adc | 125 Arms / 63.0Adc | 4U Chassis |
| 3180AFX | 1, 2 & 3 Phase | 18 kVA, kW / 18 kW | 0-300 Vac / 0-425Vdc | 50.0 Arms / 27.8 Adc | 150 Arms / 75.0 Adc | 15U Cabinet |
| 3240AFX | 1, 2 & 3 Phase | 24 kVA, kW / 24 kW | 0-300 Vac / 0-425Vdc | 66.7 Arms / 33.4 Adc | 200 Arms / 100.0 Adc | 15U Cabinet |
| 3300AFX | 1, 2 & 3 Phase | 30 kVA, kW / 30 kW | 0-300 Vac / 0-425Vdc | 83.3 Arms / 41.7 Adc | 250 Arms / 125.0 Adc | 15U Cabinet |
| 3450AFX | 1, 2 & 3 Phase | 45 kVA, kW / 45 kW | 0-300 Vac / 0-425Vdc | 125.0 Arms / 62.5 Adc | 375 Arms / 189.0 Adc | 15U Cabinet |
| 3600AFX | 1, 2 & 3 Phase | 60 kVA, kW / 60 kW | 0-300 Vac / 0-425Vdc | 166.7 Arms / 83.3 Adc | 500 Arms / 250.0 Adc | 28U Cabinet |
| 3750AFX | 1, 2 & 3 Phase | 75 kVA, kW / 75 kW | 0-300 Vac / 0-425Vdc | 208.3 Arms / 104 Adc | 625 Arms / 312.5 Adc | 28U Cabinet |
| 3900AFX | 1, 2 & 3 Phase | 90 kVA, kW / 90 kW | 0-300 Vac / 0-425Vdc | 250.0 Arms / 125 Adc | 750 Arms / 375.0 Adc | 28U Cabinet |
| Higher | | F | or configurations up to | 150kVA/kW, contact factor | у | |

Note 1: Rated power shown is for Three Phase or Single Phase mode operation. For Split Phase mode, rated power is 2/3.

Bench and Cabinet Configurations

The wide range of available power levels combined with the small form factor of the AFX Series allows these power systems to be deployed in small spaces if needed. This feature reduces required floor space and eliminates most load bearing floor issues that can be associated with raised floors. Systems above a 15 kVA power can be shipped pre-installed and pre-wired in standard 19" heavy duty steel cabinets with casters and levelers for ease of mobility. Cabinet level options such as Outlet sockets and Emergency Power Off (EPO) buttons can be ordered as options. Contact factory for available options and configurations.



AFX Series Bench Models 6 kVA, 9kVA, 12kVA and 15 kVA



Note: Actual cabinet appearance may vary slightly from samples shown here.



Technical Specifications

| OUTPUT | Specification |
|------------------------------------|--------------------------------|
| Voltage | - |
| Modes | AC, DC, AC+DC, DC+AC |
| Range | AC: 0-300 Vac LN / 0-520Vac LL |
| 5 | DC: 0 - 425 Vdc |
| Extended V Range | 0-312 Vac LN / 540 Vac LL |
| 3 | (Power < 9kVA, 45-100Hz) |
| Programming Resolution | 0.01 V |
| Accuracy | ± 0.25% F.S. |
| Waveforms | Sine, Square, Triangle, |
| | Clipped (THD), Arbitrary |
| | Max. waveforms: 128 |
| DC Offset | < 20 mV |
| Harmonic Distortion (Vthd) | < 400 Hz, < 0.5% |
| (full, resistive load) | 400 to 1000 Hz, < 1.0% |
| | > 1000 Hz, < 1.5% |
| Output Noise (DC to 300kHz) | < 150 mV RMS |
| Load Regulation | AC Mode: ± 0.02% (CSC Mode) |
| | DC Mode: ± 0.02% |
| Line Regulation | < 0.1% for 10% Line Change |
| Voltage Sense | External Sense, max. voltage |
| _ | drop 5% F.S. |
| Voltage Slew Rate | Programmable, > 1.0V/us max. |
| Output Isolation | 550Vac |
| Frequency | |
| Range | DC, 15.00 – 1200.0 Hz |
| Programming Resolution | 0.01 Hz |
| Accuracy | ± 0.01% |
| Current Limit - RMS and Pea | |
| RMS Range | See model table page 9 |
| Crest Factor | 2.5:1 @ 41.67 to 6.3:1 @ 16.67 |
| (data shown for 3150AFX) | (104Apk/phase) |
| Programming Resolution | 0.01 Arms |
| Accuracy | ± 0.5% F.S. |
| Modes | Constant Current Mode or |
| | Output Trip |
| Phase Angle (In 3 and 2 Phase | |
| Programmable Phase (B, C) | 0 - 359.9° |
| PROTECTION | Specification |
| | Over Current fold-back or trip |
| | Progr. Peak Current Limit |
| | Power fold-back or trip |

| | Over Current fold-back or trip |
|-----------------------|--------------------------------|
| | Progr. Peak Current Limit |
| Available Protections | Power fold-back or trip |
| | App.Power fold-back or trip |
| | Over Voltage trip |
| | Over Temperature trip |
| OVP Programming Range | 0 ~ 105% of voltage range |
| AC Input Voltage | Over and Under Voltage, 15% |

| SYSTEM FEATURES | Description |
|-----------------|-------------------------------------|
| DISPLAY | |
| Туре | 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 |

| TRANSIENTS | Specification |
|------------------|---|
| Programming | |
| No. of Entries | 200 Steps / 400 segments |
| Parameters | Voltage, Frequency, Phase B & C, Ramp Time, Dwell Time |
| Dwell Time Range | 0.0002 - 99999 sec |
| Time Resolution | 0.2 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 |
|-----------------------|-------------------------|
| Voltage (Vrms) | |
| Range | 0 – 350 Vln / 0-600 Vll |
| Resolution | 0.01 V |
| Accuracy | ± 0.25% F.S. |
| Current (Arms) | |
| Range | See model table page 9 |
| Resolution | 0.01 Arms |
| Accuracy ¹ | ± 0.5% F.S. |
| Current Crest Factor | |
| Range | 1.00 - 5.00 |
| Resolution | 0.01 |
| Accuracy ¹ | ± 2.0% F.S. |
| Power (W) | |
| Range | See model table page 9 |
| Resolution | 0.01 W |
| Accuracy ¹ | ± 1.5 % F.S. |
| Apparent Power (VA) | |
| Range | See model table page 9 |
| Resolution | 0.01 VA |
| Accuracy ¹ | ± 1.5 % F.S. |
| Power Factor | |
| Range ² | 0.00 - 1.00 |
| Resolution | 0.01 |
| | |
| Voltage (Vdc) | |
| Range | 0 – 440 Vdc |
| Resolution | 0.01 V |
| Accuracy | ± 0.25% F.S. |
| Current (Adc) | |
| Range | See model table page 9 |
| Resolution | 0.01 Adc |
| Accuracy ¹ | ± 0.5% F.S. |

Footnotes:

1: For RMS Currents above 2.0 A 2: For Power levels above 100 W



Technical Specifications (continued)

| AC INPUT | 6 kVA | 9 kVA | 12 kVA | 15 kVA⁵ |
|------------------------------------|---------------------------|---------|---------|---------|
| Mains Voltage Form | 4 Wire, L1, L2, L3 and PE | | | |
| Frequency | 47 - 63 Hz | | | |
| -2 AC Input Versions | | | | |
| Input Voltage Range | 208Vac – 240Vac ± 10% | | | |
| Nominal Phase Current ¹ | 23 Arms | 33 Arms | 43 Arms | 54 Arms |
| Peak Inrush Current ² | < 1.5 x lrms | | | |
| Input Power Factor | > 0.9 | | | |
| Efficiency | > 85% | | | |
| -4 AC Input Versions | | | | |
| Input Voltage Range | 380Vac – 480Vac ± 10% | | | |
| Nominal Phase Current ³ | 18 Arms | 18 Arms | 24 Arms | 30 Arms |
| Nominal Phase Current ⁴ | 14 Arms | 14 Arms | 19 Arms | 24 Arms |
| Peak Inrush Current ² | < 1.5 x lrms | | | |
| Input Power Factor | > 0.9 | | | |
| Efficiency | > 85% | | | |

Footnotes:

1: For nominal 3ø, 208V input voltage 3: For nominal 380V input voltage 2: Irms = AC input current @ rated power 4: For nominal 480V input voltage 5: For systems above 15 kVA, input current is multiplied by the number of units

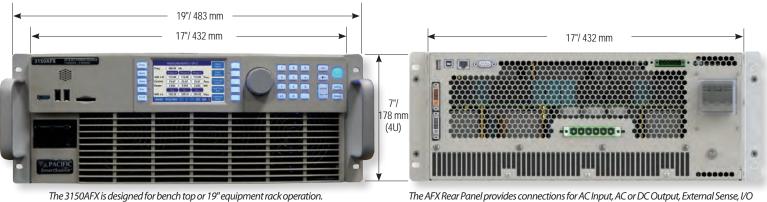
| Specification | | | | |
|--------------------------------------|--|--|--|--|
| Dimensions Bench Models up to 15 kVA | | | | |
| 7.0″ / 178 mm (4U) | | | | |
| See Note 1 below | | | | |
| 17.0" / 432 mm - w/o rack handles | | | | |
| 19.0" / 483 mm - with rack handles | | | | |
| 25.0″/635 mm | | | | |
| Weight Models up to 15 kVA | | | | |
| 111.2 lbs. / 50.4 kg | | | | |
| | | | | |

| INTERFACES | Description | | |
|----------------|------------------------------------|--|--|
| Remote Control | | | |
| USB | Device Type B | | |
| RS232 | DB9, 9600 - 460800 baud | | |
| LAN | LXI compliant, Ethernet, RJ45 | | |
| | LAN eXtensions for Instrumentation | | |
| Output Relay | Remote Inhibit Input | | |
| Remote Inhibit | | | |
| Input | Rear Panel | | |

| ENVIRONMENTAL | Specification | |
|---------------------|--|--|
| Cooling | Variable speed fan cooled, front intake, | |
| | rear exhaust | |
| Audible Noise: | Standby: 46 dBA | |
| At 1 meter distance | Full power: 85 dBA typical | |
| Sleep Modes | Standby, All Power Stages off | |
| Temperature | | |
| Operating | 0 to 40 °C / 32 to 104 °F | |
| Storage | e -20 to 70 °C / -4 to 158 °F | |
| Humidity | < 80%, non-condensing | |
| Altitude | 2000 m / 6500 feet | |

| REGULATORY | Specification | | |
|---------------------------|---------------------------------------|--|--|
| Safety | | | |
| Standard | 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, Labo- | | |
| | ratory and Control Equipment) | | |
| Approvals | CE Mark, NTRL Nemko US/Canada | | |
| | | | |

Unit Dimensions¹



Shown with included rack mount handles.

The AFX Rear Panel provides connections for AC Input, AC or DC Output, External Sense, I/O and remote control interfaces.

Note 1: Units can be zero-stacked in 19" EIA cabinet when using optional rack-slides. When using L-brackets, allow 1U space between units.



AFX SERIES

Ordering Information

Standard Models and Cabinets

| 3150AFX-2L • AC Power Source • Output shorti | Cabinet Systems1 Input Voltage (V _{IN}) Auxiliary Models (No controller) 3180AFX 3600AFX 3600AFX 390AFX-2NC / 390AFX-4NC 3240AFX 3750AFX -4 380V - 480Vac, 3Ø ± 10%, 47-63Hz 3120AFX-2NC / 3120AFX-4NC 3300AFX 3900AFX 3900AFX 3450AFX Systems to 150kVA available Interface L LAN, USB & RS232 Interface |
|---|--|
| Source with USB, RS232, LAN• Rack Mount Handles• Paralleling Ca• 208Vac 3 Phase Input Voltage• Certificate of Compliancemodels). P/N 7• Rack slides. P/ | AC Power Source English Manuals in PDF Format Rack Mount Handles Output shorting adaptor for single phase output mode use. P/N 160086 Paralleling Cable, 1 Ft. (Included with Aux |

mounted compression terminal blocks. Shown with optional Emergency Power Off (EPO). Other cabinet options available. Customers that require the use of their own cabinets can order system packages without cabinet. Contact factory for ordering information.

| Software Options | | |
|---|--|---|
| Windows 10 Software - 64 Bit | Test Sequences - Avionics ² | Test Sequences - Other ² |
| PPSC Studio Control Software PPSC Test Manager | ABD0100.1.8 - Airbus A380, AC & DC Power Groups ABD0100.1.8.1 - Airbus A350, AC & DC Power Groups AMD24C - Airbus A400M, AC & DC Power Groups Boeing 787B3-0147 - B787, AC & DC Power Groups MIL-STD704 - US DoD, AC & DC Power Groups RTCA-D0160 Section B, AC & DC Power Groups | IEC Test Suite - Includes IEC 61000-4- 11, IEC 61000-4-14, IEC 61000-4-27, IEC 61000-4-28, IEC 61000-4-29p and IEC 61000-4-34 MIL-STD 1399-300B - US DoD, Ship- board Power, AC Power Groups |

Note 2: Test Sequence Options require PPSC Studio and PPSC Test Manager

Service and Support

Pacific Power Source's customer support is second to none. Our Customer Support Program provides the training, repair, calibration, and technical support services that our customers value. In addition to receiving the right test equipment, our customers can also count on excellent support before, during and after the sale. With company owned support and service centers around the world, support is never far away. Complete calibration and repair services are offered at our US, European and Chinese manufacturing facilities (see contact info below). Calibrations are to original factory specifications and are traceable to NIST (National Institute of Standards and Technology).

NORTH AMERICA

Pacific Power Source, Inc. Irvine, USA Phone: +1(949) 251-1800 Fax: +1 (949) 756-0756 Sales: sales@pacificpower.com Service: support@pacificpower.com

Proudly Represented by:

EUROPE

Caltest Instruments Ltd. Guildford, United Kingdom Phone: +44(0)1483 302 700 Fax: +44(0)1483 300 562 Sales: sales@pacificpower.com Service: support@pacificpower.com

CHINA

PPST Shanghai Co. Ltd. Shanghai, China Phone: +86-21-6763-9223 Fax: +86-21-5763-8240 Sales: sales@pacificpower.com Service: support@pacificpower.com



17692 Fitch, Irvine, CA 92614 USA Phone: +1 949.251.1800 Fax: +1 949.756.0756 Toll Free: 800.854.2433 E-mail: sales@pacificpower.com www.pacificpower.com

© 2016 Pacific Power Source, Inc. All information subject to change without notice. AFX-CAT 0717 Patents Pending