



ADF Series

AC Power Sources

Single or Three Phase AC Power Sources

All Digital Power Conversion Technology

Extensive Features:

- Single Phase or Three Phase Models
- AC Output Capability
- Constant Power Mode Voltage Range to 300Vac L-N/520Vac L-L. (Optional 333Vac L-N/576Vac L-L with V Option)
- No need to switch between high and low voltage ranges
- Frequency range 45-500Hz (Optional 15-1200Hz with F Option)
- Active Three Phase PFC input with Inrush Current Limiting
- Precise Output Voltage and Load Regulation
- Metering of Volts, RMS Current, Peak Current, Apparent Power & True Power on all Phases
- Unique Sleep Modes Save Energy, Reduces needless Heat Generation and Extends the Life of the Power Source
- Standard USB, LAN & RS232, GPIB Interfaces
- Compact size, 15kVA in 4U Rack space
- Light weight, only 51Kg per chassis
- Modular Parallel Master/Slave Systems for higher power requirements
- Energy Saving Stand-by Mode

15kVA to 150kVA

AC: 0-300 V_{AC} L-N / 0-520 V_{AC} L-L

Frequency: 45 - 500 Hz



Single Phase



Three Phase

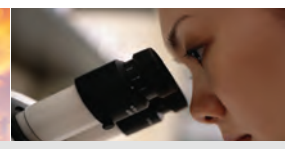
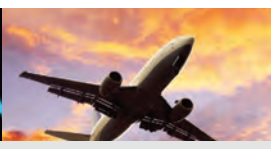


"Cost Effective Solutions for Production Power Testing"



Patented Technology

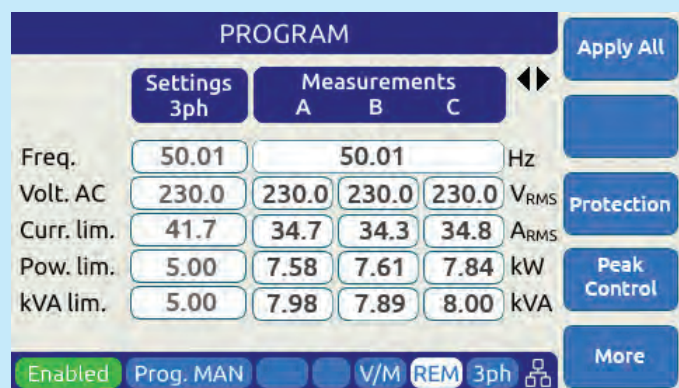
THE POWER OF EXPERTISE



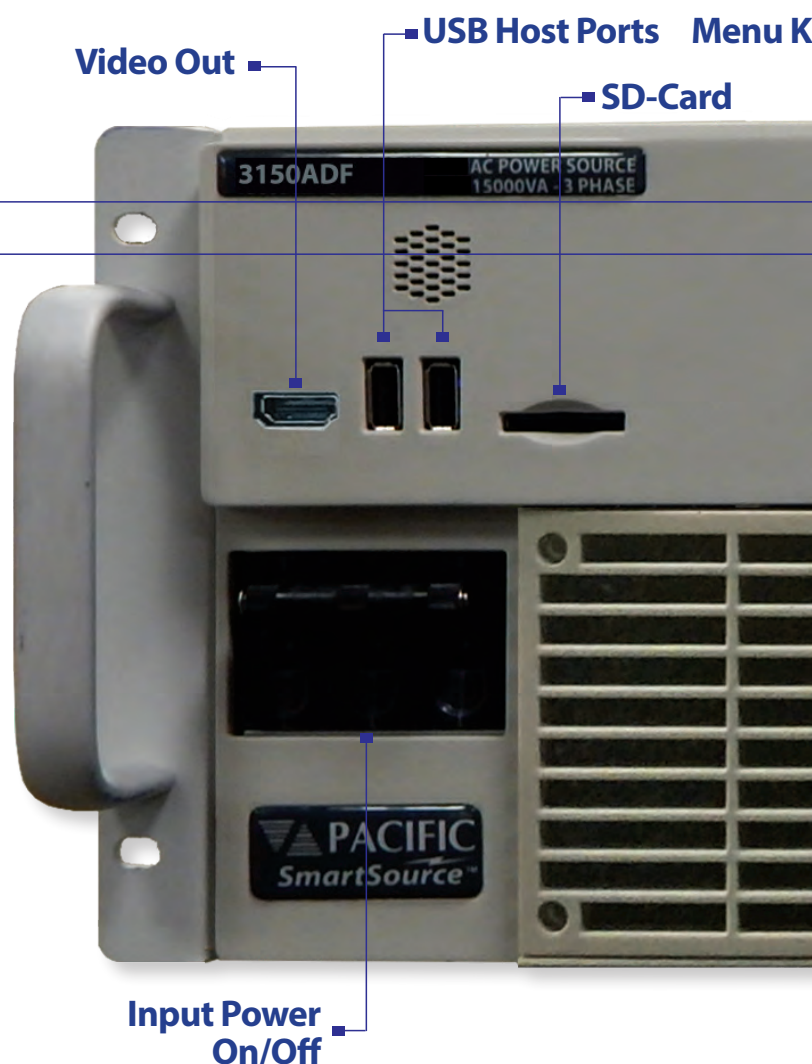
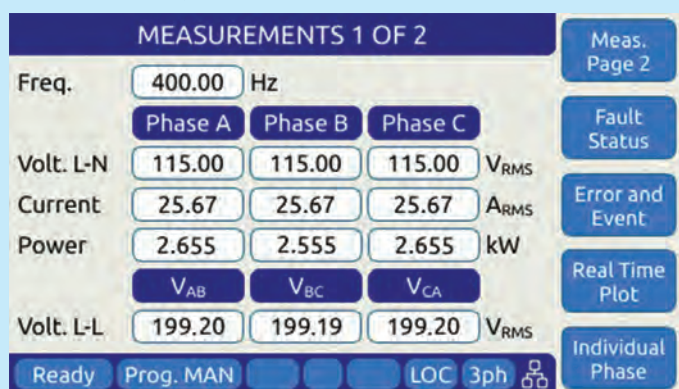
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Total Control, Metering and Analysis of AC Power. Simple

Control



Metering



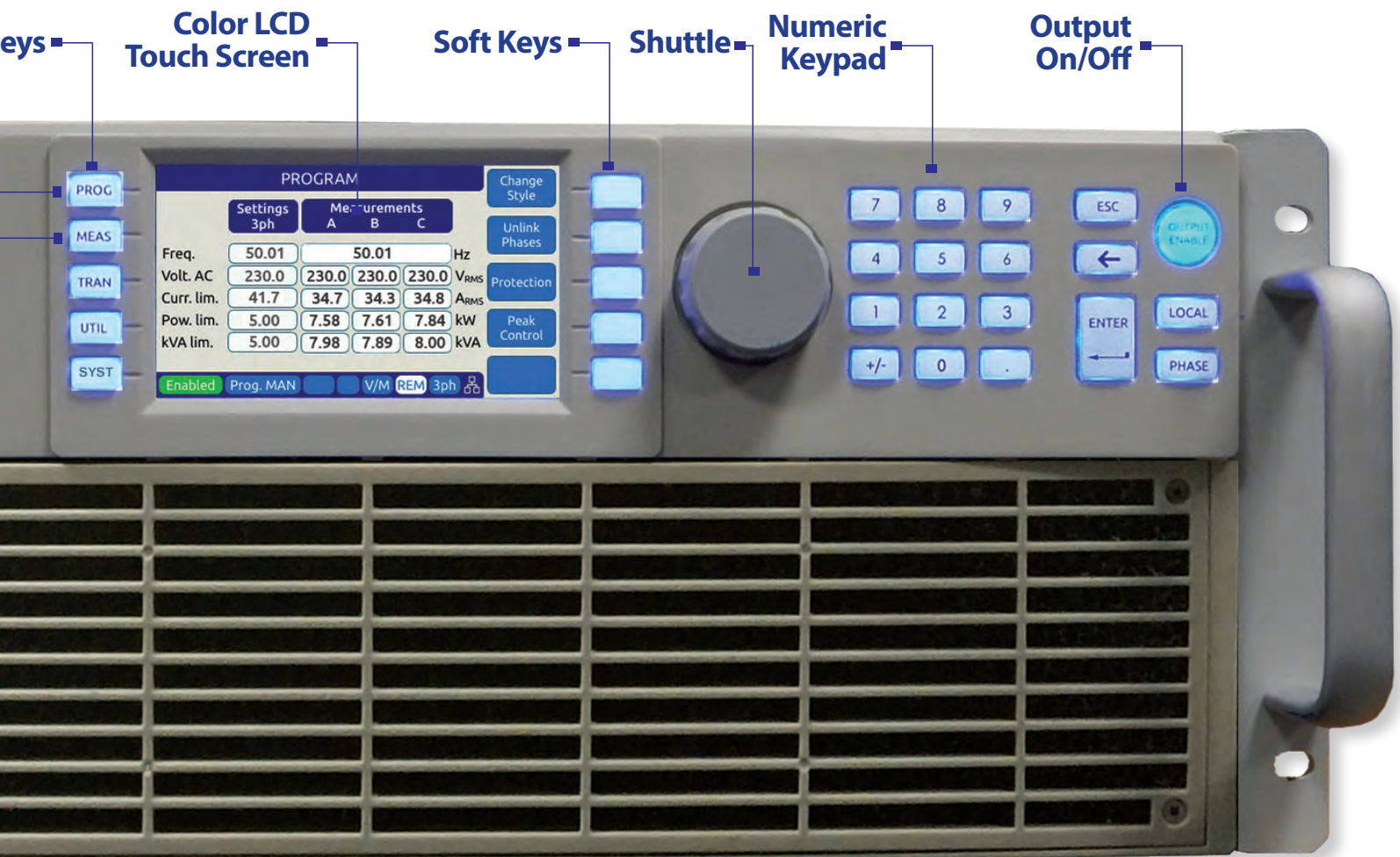
Industrial and Consumer Product Test

Growing demand for power to support increasingly complex consumer products and appliances as well as UPS, Electric Vehicle (EV) Chargers and AC/DC power supplies means more power is needed in often limited amounts of space. The ADF Series addresses this need by offering power density three times higher than its nearest competitor.

With extensive control over voltage, current and frequency, the ADF series is capable of handling demanding production test requirements with minimal programming effort.



Simple, Intuitive Operation



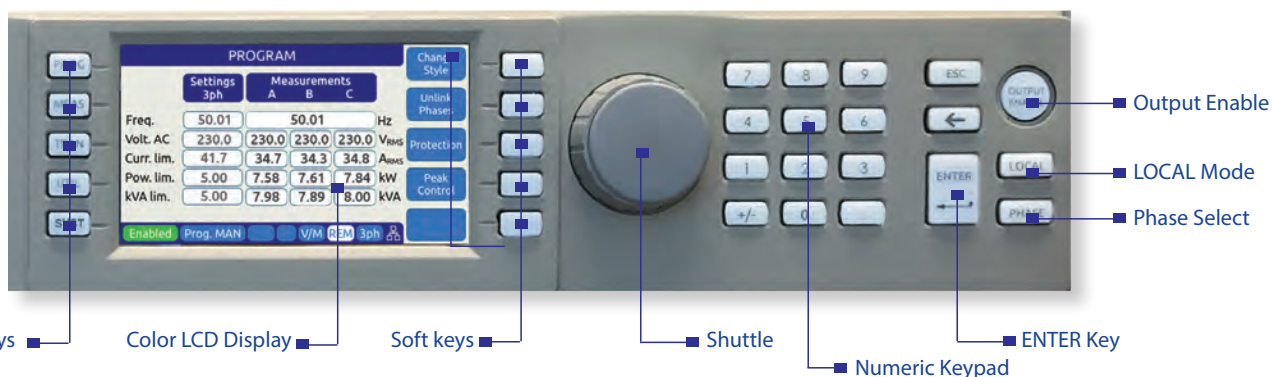
Avionics Power Test

The advanced digital power conversion technology used in the ADF Series Power Source results in higher power density than any other offering. A standard frequency range of 45Hz to 500Hz supports both 400Hz fixed frequency avionics applications. For more demanding avionics testing, the F option extends output frequency to 1200Hz to support 360Hz to 800Hz wild frequency development and test as well.

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



Powerful yet Easy to Use

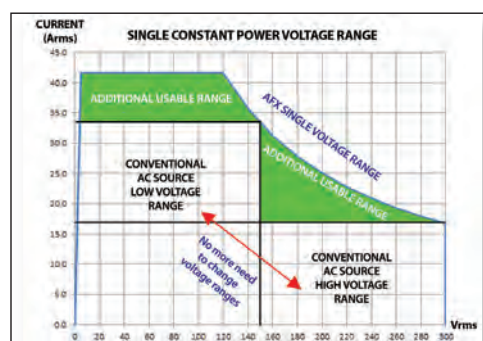


Although ADF Series power sources offer a wide range of operating modes and features, they are easy to operate through a large full color LCD display and soft key driven menus. Top level menus are always available directly by pressing any of the five menu keys on the left of the

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.

Constant Power Voltage Range

Traditional AC power sources use two voltage ranges to provide either high voltage or high current. By contrast, the ADF 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).



Available Options Extended Application Coverage

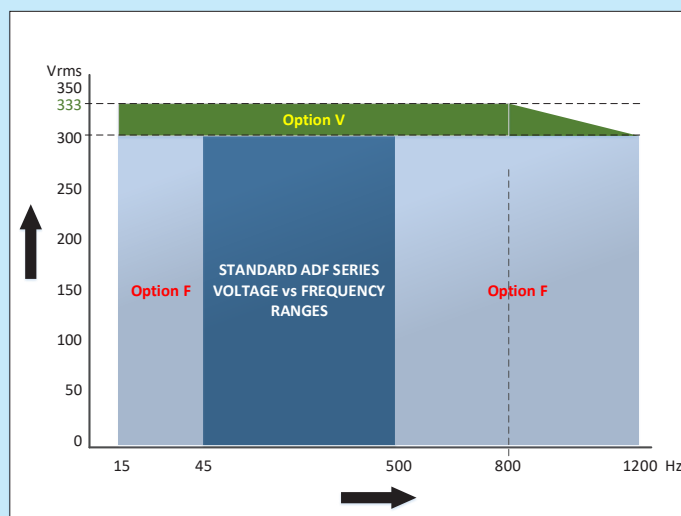
Voltage and Frequency ranges of the ADF Series can be extended if needed using the available "V" and/or "F" options.

Option V:

The extended voltage range capability allows the standard ADF power source to address additional high voltage test requirements. This extended range increases the maximum output voltage to 333Vac L-N / 576Vac L-L. This supports over voltage testing up to 20% for 480V nominal powered equipment. It also allows testing of single phase universal 90V ~ 265V AC input products to 120% of their maximum nominal input specification.

Option F:

The extended frequency range option supports testing electrical railway equipment (16.6Hz) or testing wild frequency avionics equipment (360Hz-800Hz) by extending the standard ADF Series frequency range to 15Hz-1200Hz.



Available Standard Model Configurations

ADF Series AC Sources are available with either single phase output up to 45kVA or with three phase output up to 150kVA. 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 mode	Voltage Ranges Vac L-N	Max. AC Current 3 Phase Mode	Max. AC Current 1 Phase Mode	AC Input -2 or -4	Form Factor
1150ADF	1 Phase	15 kVA	0-150V / 0-300 V	n/a	125 Arms	-2 or -4	4U Chassis, Bench or Rackmount
3150ADF	3 Phase	15 kVA	0-150V / 0-300 V	41.7 Arms	n/a		
1300ADF	1 Phase	30 kVA	0-150V / 0-300 V	n/a	250 Arms	-2 or -4	Fully wired 18U Cabinet power system or -KIT w/o 19" rack
3300ADF	3 Phase	30 kVA	0-150V / 0-300 V	83.3 Arms	n/a		
1450ADF	1 Phase	45 kVA	0-150V / 0-300 V	n/a	370 Arms		
3450ADF	3 Phase	45 kVA	0-150V / 0-300 V	125.0 Arms	n/a	-4 Only	Fully wired 28U Cabinet power system or -KIT w/o 19" rack
3600ADF	3 Phase	60 kVA	0-150V / 0-300 V	166.7 Arms	n/a		
3750ADF	3 Phase	75 kVA	0-150V / 0-300 V	208.3 Arms	n/a		
3900ADF	3 Phase	90 kVA	0-150V / 0-300 V	250.0 Arms	n/a		
Higher	For configurations up to 150kVA/kW, contact factory						

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

Note 2: AC input ratings: -2 = 208Vac Nominal, 3Ø or -4 = 380~480Vac Nominal, 3Ø. See specifications section for AC current requirements.

Cabinet Systems

The wide range of available power levels combined with the small form factor of the ADF 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 level can be shipped pre-installed and pre-wired in standard 19" heavy duty steel cabinets with casters and levelers for ease of mobility. Cabinet options such as Outlet sockets and Emergency Power Off (EPO) buttons can be ordered as options. These parallel configurations are also available in **kit form** for system integrators that are planning on using their own cabinets.

ADF User Benefits

The ADF Series is based on a truly revolutionary technology platform that enables functionality not previously found on programmable AC power sources. This results in the following user benefits:

- Small size, 15kVA/kW in 4U rack space.
- Light Weight. Easy to install, inexpensive to ship.
- Modular high power systems. Even if one power module fails, system continues to operate at reduced power.
- Multiple protections for the unit under test. Limit settings for Voltage, RMS Current, Peak Current, Power and apparent Power.
- Dual stage energy savings mode. Saves on energy cost, extends equipment lifespan.



Technical Specifications

OUTPUT	Specification
Voltage	
Output Mode	AC
1150ADF	Single Phase
3150ADF	Three Phase or Split Phase
Standard Range	0-300 Vac LN / 0-520 Vac LL
Extended Voltage Range ¹ (Option V)	Increases max output voltage to 333Vac LN / 576Vac LL
Programming Resolution	0.01 V
Accuracy	± 0.25% F.S.
Output Waveform	Sine
DC Offset	< 20 mV
Harmonic Distortion (Vthd) (full, resistive load, up to 300Vrms L-N)	< 400 Hz, < 0.5% 400 to 500 Hz, < 1.0% (Option F: > 500 Hz, < 1.5%)
Output Noise (DC to 300kHz)	< 150 mV RMS
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	AC > 1.0V/us
Output Isolation	550Vac
Frequency	
Standard Range	45.00 – 500.0 Hz
Extended Frequency Range (Option F)	15.00 – 1200.0 Hz
Programming Resolution	0.01 Hz
Accuracy	± 0.01%
Current Limit - RMS and Peak Modes	
RMS Range	See model table page 5
Crest Factor	
1150ADF	2.5:1@41.67A to 6.3:1@16.67A (104Apk/phase)
3150ADF	2.5:1@125A to 6.3:1@50A (312Apk/phase)
Programming Resolution	0.01 Arms
Accuracy	± 0.5% F.S.
Current Protection Modes	Constant Current (CC) or Output Trip (CV)
Current Overload Mode	Allows 130% of max. RMS current for up to 2.0 secs before CP is triggered when enabled
Phase Angle (3 Phase ADF Models only)	
Phase Settings	Three Phs Mode: A = 0°, B = 120°, C = 240° Split Phs Mode: A = 0°, B = 180°, C = 0°

Note 1: Supplemental specifications apply for Extended Voltage (Option V).


PROTECTION	Specification
Available Protections	Over Current fold-back or trip
	Prog. Peak Current Limit
	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%

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 5
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 5
Resolution	0.01 W
Accuracy ²	± 1.5 % F.S.
Apparent Power (VA)	
Range	See model table page 5
Resolution	0.01 VA
Accuracy ²	± 1.5 % F.S.
Power Factor	
Range ²	0.00 - 1.00
Resolution	0.01

Footnotes:

1: For RMS Currents above 2.0 A

2: For Power levels above 100 W

INTERFACES	Description
Remote Control	
USB	Device Type B
RS232	1200 - 921600 baud
LAN	LXI compliant, Ethernet, RJ45, TCP/IP Protocol, Telnet Protocol Command Line
LXI Compliant	 LAN extensions for Instrumentation
GPIO	IEEE488.1, IEEE488.2 (2003 incl., NI HS488) IEC 60488-1, IEC 60488-2 (2004) Functions: SH1, AH1, T6, L3, SR1, RL1, DC1, DT1
WiFi	Optional USB WiFi adaptor

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

Technical Specifications (continued)

AC INPUT		15 kVA Models ⁵
Mains Voltage Form		4 Wire, L1, L2, L3 and PE
Frequency		47 - 63 Hz
-2 AC Input Versions (Available for systems up to 45kVA only)		
Input Voltage Range		208Vac – 240Vac \pm 10%
Nominal Phase Current ¹		54 Arms
Peak Inrush Current ²		< 1.5 x Irms
Input Power Factor		> 0.9
Efficiency		> 85%
-4 AC Input Versions (Available for all power levels)		
Input Voltage Range		380Vac – 480Vac \pm 10%
Nominal Phase Current ³		30 Arms
Nominal Phase Current ⁴		24 Arms
Peak Inrush Current ²		< 1.5 x Irms
Input Power Factor		> 0.9
Efficiency		> 85%



Footnotes:

1: Per ADF unit, 3 ϕ , 208V nom. input voltage 3: Per ADF unit, 380V nom. input voltage
 2: Irms = Max. peak inrush current per unit 4: Per ADF unit, 480V nom. input voltage
 5: For parallel systems above 15 kVA, input current is multiplied by the number of units

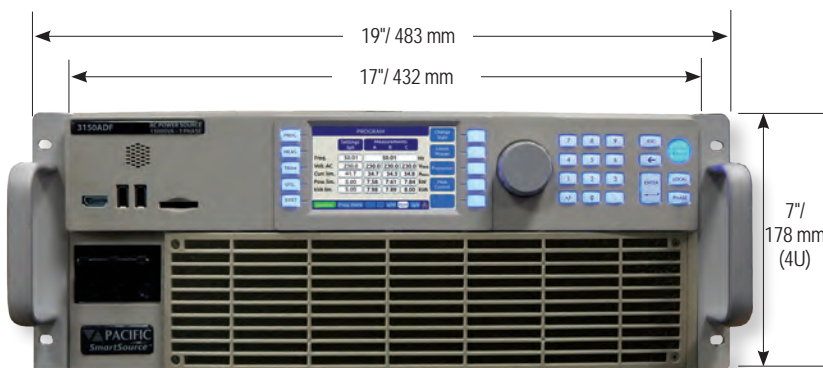
ANALOG & DIGITAL I/O		Specification
Analog Inputs (4)		Set Voltage phs A, B, C, Freq
Range		0 - 10 Vdc for 0 - F.S.
Accuracy		\pm 0.1% F.S.
Analog Outputs (4)		Meas. phs A, B, C, Power
Range		0 - 10Vdc for 0 - F.S.
Accuracy		\pm 0.1% F.S. into > 5 kOhm load
Digital Inputs (6)		Remote Inhibit, Trigger, Sync
Input Levels		Low < 0.4V, High > 2.0V
Digital Outputs (6)		Output Relay, /Function Strobe, Phase Sync
Output Levels		Low < 0.4V, High > 4.6V
Connector Type		DB25, Rear Panel

DIMENSIONS / WEIGHT		Specification
Dimensions Bench 15kVA Models (4U)		
H x W x D		7.0" x 17.0" x 25.0" 178 x 432 x 635 mm See Note 1 below
Shipping H x W x D		20" x 27" x 38" 508 x 686 x 965 mm
Weight Models up to 15 kVA		
Net		111.2 lbs. / 50.4 kg
Shipping		151 lbs / 68.5 kg
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.		

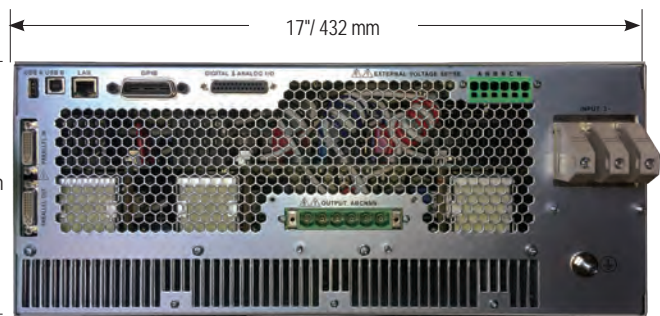
ENVIRONMENTAL		Specification
Cooling		Variable speed fan cooled, front intake with dust filter, rear exhaust
Audible Noise:		Standby: 46 dBA
At 1 meter distance		Full power: 85 dBA typical
Sleep Modes		Standby, All Power Stages off
Temperature		
Operating		0 to 40 °C / 32 to 104 °F
Storage		-20 to 70 °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, Laboratory and Control Equipment)
Approvals		CE Mark, NTRL Nemko US/Canada
 		
RoHS (DIRECTIVE 2011/65/EU)		
Product Category		EN50581:2012

Unit Dimensions¹



The ADF is designed for bench top or 19" equipment rack operation. Shown with included rack mount handles.



The ADF Rear Panel provides connections for AC Input, AC Output, External Sense, Aux 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.

Ordering Information

Standard Models and Cabinet Systems

Bench Models	Cabinet Systems ¹	Cabinet KIT Systems ¹ (x = 2 or 4)	Available Options
<input type="checkbox"/> 1150ADF <input type="checkbox"/> 3150ADF	<input type="checkbox"/> 1300ADF <input type="checkbox"/> 3600ADF <input type="checkbox"/> 3300ADF <input type="checkbox"/> 3750ADF <input type="checkbox"/> 1450ADF <input type="checkbox"/> 3900ADF <input type="checkbox"/> 3450ADF	<input type="checkbox"/> 1300ADF-xG-KIT <input type="checkbox"/> 3600ADF-4G-KIT <input type="checkbox"/> 3300ADF-xG-KIT <input type="checkbox"/> 3750ADF-4G-KIT <input type="checkbox"/> 1450ADF-xG-KIT <input type="checkbox"/> 3900ADF-4G-KIT <input type="checkbox"/> 3450ADF-xG-KIT	<input type="checkbox"/> F Extended Frequency Range <input type="checkbox"/> V Extended Voltage Range <input type="checkbox"/> O Output control switch
Auxiliary Models (No controller)	Input Voltage (V _{IN})		Export Version
<input type="checkbox"/> 1150ADF-2NC / 1150ADF-4NC <input type="checkbox"/> 3150ADF-2NC / 3150ADF-4NC	<input type="checkbox"/> -2 208V - 240Vac, 3Ø ± 10%, 47-63Hz <input type="checkbox"/> -4 380V - 480Vac, 3Ø ± 10%, 47-63Hz		<input type="checkbox"/> E Append "E" postfix or none

Note 1: Cabinet systems consist of one master unit and one or more auxiliary units integrated into a 19 inch EIA instrument grade cabinet. Includes input and output wiring to rear mounted compression terminal blocks. Other cabinet options available. Customers that require the use of their own cabinets can order system packages without cabinet (-KIT). Contact factory for ordering information.

Order Example

3150ADF-4G
Bench Model, 15 kVA, 3-Phase, AC Power Source with USB, RS232, LAN, GPIB & AUX I/O, 380~480Vac 3 Phase AC Input Voltage

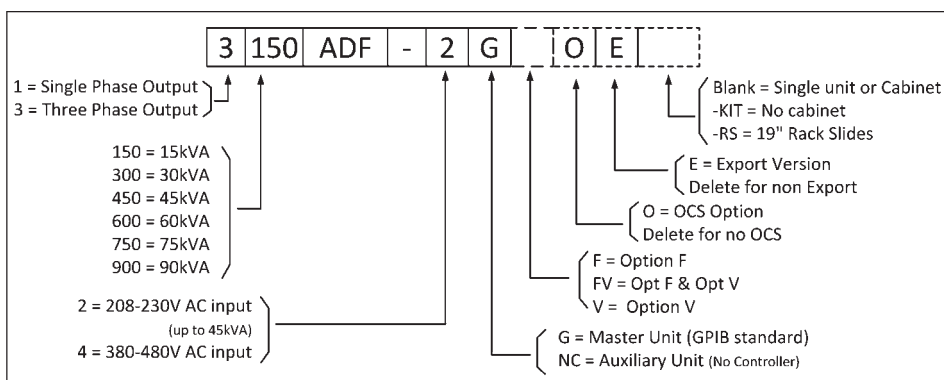
Typical Delivery Items

- AC Power Source
- English Manuals in PDF Format
- Rack Mount Handles
- Certificate of Compliance

Available Accessories

- Paralleling Cable, 1 Ft. (Included with Aux models). P/N 778036
- Rack slides. P/N 703251

ADF Model Number Encoder:



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).

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