

## FEATURES:

- **Output Rating:**  
Power: 500VA (31005A), 1000VA (31010A), 1500VA (31015A), 2000VA (31020A), 4000VA (31040A)
- **Voltage Range: 0-150V/0-300 V/Auto**
- **Compact size and weight attributable to advance PWM technology**
- **AC + DC output mode for voltage DC offset simulation**
- **Programmable slew rate setting for changing voltage and frequency**
- **Low output impedance for testing IEC 61000-3-2 (31040A)**
- **Programmable output impedance for testing IEC 61000-3-3**
- **LIST, PULSE, STEP mode function for testing power line disturbance (PLD) simulation capability**
- **IEC 61000-4-11 voltage dips, short and variation simulation**
- **Harmonics, inter-harmonics waveform synthesizer for testing IEC 61000-4-13**
- **Programmable voltage, current limit**
- **Comprehensive measurement capability, including current harmonics**
- **High output current crest factor, ideal for inrush current testing**
- **Turn on, turn off phase angle control**
- **TTL signal, which indicates output transient**
- **Analog programmable interface**
- **3 units combined for 3-phase power output**
- **Easy-to-use software for operation and IEC regulation testing**
- **Optional GPIB and RS-232C Interface Standard**



## 31000A Series©

# Programmable AC Power Supply With Transient Generator

### Introduction

The QuadTech, Inc. AC power source 31000A series sets the new standard for high-performance AC power sources. The instrument is equipped with powerful features such as, power line disturbance (PLD) simulation, programmable output impedance, comprehensive measurement functions, wave-shape synthesis and regulation test software. These features make the 31000A series ideal for commercial use, power electronics, avionics, military and regulation test applications from bench-top testing to mass production.

Using the state-of-the art PWM technology, the 31000A series is capable of delivering up to six times the peak current compared to its maximum-rated current, which makes it ideal for inrush current testing.

### Description

The AC+DC modes not only extend the applications pure AC voltage, but also, DC components for testing DC offset in the laboratory. Applying the advanced DSP technology, the 31000A series is able to provide precision and transient voltage waveform, as well as, measurements including: RMS voltage, RMS current, true power, power factor, current crest factor and up to 40 orders of current harmonic components.

The 31000A series allows users to compose different harmonic components to synthesize their own harmonic distorted wave-shapes. To simulate the natural waveform, the 31000A series also provides an external analog input to amplify the analog signal from an arbitrary signal generator. Thus, the instrument is capable of simulating the unique waveform observed in the field.

The source provides versatile programmable voltage functions and easy-to-use operation software. This gives users of the 31000A series the ability to perform the pre-compliance tests against IEC 61000-4-11 and compliance test against IEC 61000-4-13/-4-14/-4-28 immunity test regulations. Due to low impedance and low voltage harmonic character, model 31000A can be a standard source for 230V/16A, IEC 61000-3-2 testing. The 31000A series also contains a programmable output impedance function, providing a solution for testing IEC 61000-3-3 regulations by incorporating a flicker meter.



*For more detailed information on specifications, pricing and special purchase, rent and lease options, contact us at:*

**[www.quadtech.com](http://www.quadtech.com)**

**800-253-1230**

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## 1. ADVANCED PWM TECHNOLOGY

QuadTech's AC power source 31000A series is able to provide high power density with its superior PWM mode design and incorporates a power factor correction function.

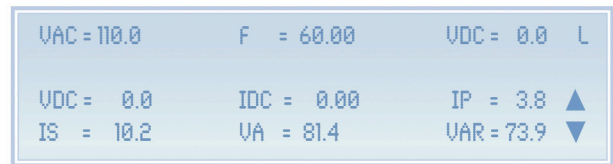
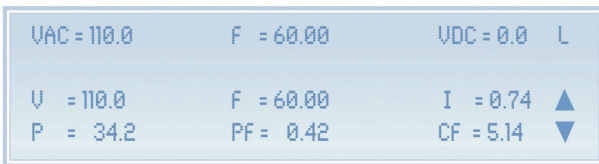


## 2. AC/ DC OUTPUT CAPABILITY

The QuadTech AC power source 31000A series provides a DC component for simulating AC voltage with DC offset condition. The instrument can test an unbalanced input current for rectified loads. Users can also use an optional DC noise filter to reduce noise and provide additional DC stability.

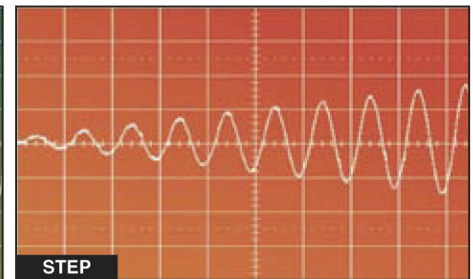
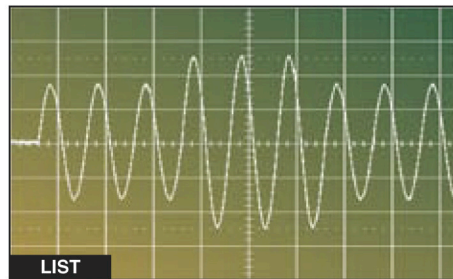
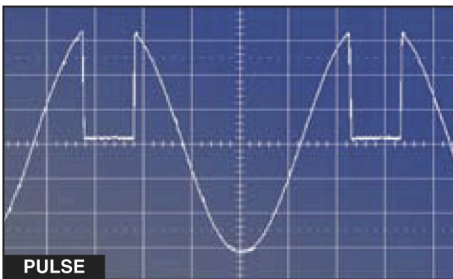
## 3. COMPREHENSIVE MEASUREMENTS

The QuadTech AC power source 31000A series has a built-in 16-bit measurement circuit and firmware utilities to measure the steady and transient responses of true RMS voltage, current, true power, VA(apparent power), VAR(reactive power), power factor, current crest factor, peak repetitive current and inrush current. Using the advanced DSP technology, the source can measure up to 40 orders of current harmonics. This technology makes the 31000A series not only a power source, but also a powerful analyzer.



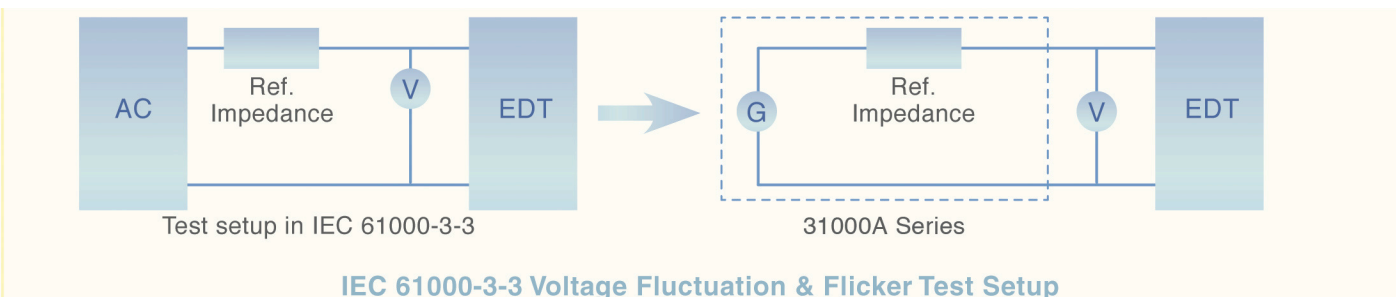
## 4. POWER LINE DISTURBANCE SIMULATION

In addition to the steady output voltage and frequency programming, QuadTech's AC power source 31000A series provides powerful functions to simulate several kinds of power line disturbance conditions. The STEP and PULSE modes offer an easy, convenient method to execute single step or continuous output changes. The changes may be triggered by an internal or external event. With this capability, the source can easily simulate power line disturbances including: cycle dropout, transient spike, brown out and etc. The LIST Mode extends this function for more complex waveform generator needs. Up to 100 sequences with different start-end conditions, which can perform almost any waveform by AC and DC components. This technology also allows users to synchronize external events, as well as, measurement devices with output changes.



## 5. PROGRAMMABLE OUTPUT IMPEDANCE

The QuadTech AC source 31000A series allows users to program output impedance. A current feedback control circuit makes the output voltage change with the load. This feature is suitable for IEC 61000-3-3 Flicker testing or other test conditions with particular output impedance requirements. This feature provides users a convenient and cost effective way to implement the reference impedance.



# 31000 Series Specifications

Model	31005A	31010A	31015A	31020A	31040A
Output Phase	1	1	1	1	1
<b>Output Rating-AC</b>					
Power	500VA	1000VA	1500VA	2000VA	4000VA
<b>Voltage</b>					
Range/Phase	150V/300V/Auto	150V/300V/Auto	150V/300V/Auto	150V/300V/Auto	150V/300V/Auto
Accuracy	0.2%+0.2%F.S.	0.2%+0.2%F.S.	0.2%+0.2%F.S.	0.2%+0.2%F.S.	0.2%+0.2%F.S.
Resolution	0.1V	0.1V	0.1V	0.1V	0.1V
Distortion*1	0.3% @ 50/60Hz, 1%, 15-1KHz (Typical)	0.3% @ 50/60Hz, 1%, 15-1KHz (Typical)	0.3% @ 50/60Hz, 1%, 15-1KHz (Typical)	0.3% @ 50/60Hz, 1%, 15-1KHz (Typical)	0.3% @ 50/60Hz, 1%, 15-1KHz (Typical)
Line Regulation	0.1%	0.1%	0.1%	0.1%	0.1%
Load Regulation *2	0.2%	0.2%	0.2%	0.2%	0.2%
<b>Max. Current/Phase</b>					
R.m.s.	4A/2A (150V/300V)	8A/4A (150V/300V)	12A/6A (150V/300V)	16A/8A (150V/300V)	32A/20A (150V/300V)
Peak	24A/12A (150V/300V)	48A/24A (150V/300V)	72A/36A (150V/300V)	96A/48A (150V/300V)	192A/96A (50V/300V)
<b>Frequency</b>					
Range	DC, 15-1KHz	DC, 15-1KHz	DC, 15-1KHz	DC, 15-1KHz	DC, 15-1KHz
Accuracy	0.15%	0.15%	0.15%	0.15%	0.15%
<b>Output Rating-DC</b>					
Power	250W	500W	750W	1000W	2000W
Voltage	212V/424V	212V/424V	212V/424V	212V/424V	212V/424V
Current (per phase)	2A/1A (212V/424V)	4A/2A (212V/424V)	6A/3A (212V/424V)	8A/4A (212V/424V)	16A/8A (212V/424V)
<b>Programmable Output Impedance</b>					
Range	0Ω + 200μH ~ 1Ω + 1mH				
<b>Harmonics &amp; Inter-Harmonics Simulation</b>					
Bandwidth	2400Hz	2400Hz	2400Hz	2400Hz	2400Hz
<b>Input Rating</b>					
Voltage Range	9~250V, 1Ø	9~250V, 1Ø	9~250V, 1Ø	9~250V, 1Ø	190~250V, 3Ø*3
Frequency Range	47-63Hz	47-63Hz	47-63Hz	47-63Hz	47-63Hz
Current (per phase)	10A Max. @ 90V	18A Max. @ 90V	22A Max. @ 90V	28A Max. @ 90V	14A Max. @ 190V
Power Factor *3	0.97 Min.	0.97 Min.	0.98 Min.	0.98 Min.	0.98 Min.
<b>Measurement</b>					
<b>Voltage</b>					
Range	150V/300V	150V/300V	150V/300V	150V/300V	150V/300V
Accuracy	0.2%+0.2%F.S.	0.2%+0.2%F.S.	0.2%+0.2%F.S.	0.2%+0.2%F.S.	0.2%+0.2%F.S.
Resolution	0.1V	0.1V	0.1V	0.1V	0.1V
<b>Current</b>					
Range(peak)	24A	48A	72A	96A	192A
Accuracy(r.m.s.)	0.4%+0.3%F.S.	0.4%+0.3%F.S.	0.4%+0.3%F.S.	0.4%+0.3%F.S.	0.4%+0.3%F.S.
Accuracy(peak)	0.4%+0.6%F.S.	0.4%+0.6%F.S.	0.4%+0.6%F.S.	0.4%+0.6%F.S.	0.4%+0.6%F.S.
<b>Power</b>					
Accuracy	0.4%+0.4%F.S.	0.4%+0.4%F.S.	0.4%+0.4%F.S.	0.4%+0.4%F.S.	0.4%+0.4%F.S.
Resolution	0.1W	0.1W	0.1W	0.1W	0.1W
<b>Harmonics</b>					
Range	2~40 orders	2~40 orders	2~40 orders	2~40 orders	2~40 orders
<b>Others</b>					
Interface	GPIB, RS-232(Optional)				
<b>Temperature</b>					
Operating	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C
Storage	-40~+85°C	-40~+85°C	-40~+85°C	-40~+85°C	-40~+85°C
<b>Safety &amp; EMC</b>					
CE (Include EMC & LVD)					
Dimensions(WxHxD)	133.35 x 482.6 x 569.5mm 5.25 x 19 x 22.42 inches	133.35 x 482.6 x 569.5mm 5.25 x 19 x 22.42 inches	133.35 x 482.6 x 569.5mm 5.25 x 19 x 22.42 inches	133.35 x 482.6 x 569.5mm 5.25 x 19 x 22.42 inches	266.7 x 482.6 x 569.5mm 10.5 x 19 x 22.42 inches
Weight	20 kg/44.05 lbs	20 kg/44.05 lbs	21 kg/44.05 lbs	21 kg/44.05 lbs	41 kg/90.31 lbs.

All specifications are subject to change without notice. Please visit our Website for the most up to date specs. **Note 1:** Maximum distortion is tested on output 125VAC (150V RANGE) and 250VAC (300V RANGE) with maximum current to linear load. **Note 2:** Load regulation is tested with sinewave and remote sense. **Note 3:** Model 31000A can also use simple-phase connecting method of input AC power, the maximum input current is 28A @ 190V. **Note 4:** Input power factor is tested on input 220V, full load condition.

**Ordering Information** 31005A: Programmable AC Source 0~300V, 15~1KHz / 500VA 31010A: Programmable AC Source 0~300V, 15~1KHz / 1KVA 31000A Series, 31015A: Programmable AC Source 0~300V, 15~1KHz / 1.5KVA, 31020A: Programmable AC Source 0~300V, 15~1KHz / 2KVA, 31040A: Programmable AC Source 0~300V, 15~1KHz / 4KVA, A610004: Universal Socket Center for Model 31000A, 31000 Softpanel: Softpanel for Model 31000A Series, A615008 : DC Noise Filter for Model 31000A Series

For more detailed information on specifications, pricing and special purchase, rent and lease options, contact us at:

**www.quadtech.com or 800-253-1230**

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