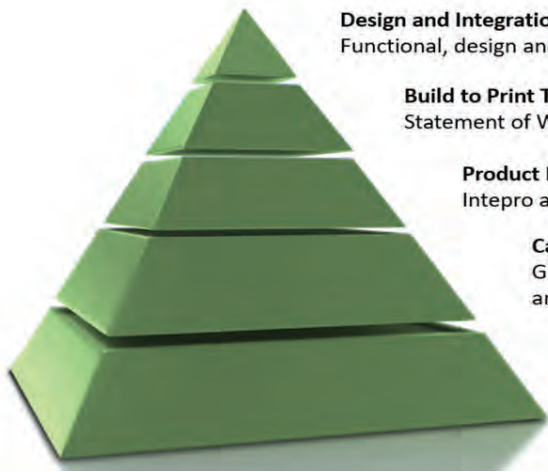


INTEPRO
SYSTEMS



Automated Test Systems & Power Test Instrumentation

www.inteprosystems.com



Design and Integration ATE
Functional, design and life cycle

Build to Print Test Systems
Statement of Work

Product Integration
Intepro and third-party equipment

Catalog Regenerative Products
Grid simulators, regenerative AC
and DC loads

Standard Catalog Product:
DC loads, DC and AC power
sources

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Custom
Solutions

The Power Test Experts

With more than 30 years of power testing expertise, Intepro Systems delivers quality solutions to your performance and delivery expectations.

From catalog products to integrated solutions, Intepro can simplify the testing of complex power devices to ensure our products meet or exceed the performance and reliability needed for demanding power applications.

*Allocate your resources to your products;
let Intepro handle your ATE needs.*

Intepro provides test solutions for a wide range of industries including:

- Aerospace
- Renewable energy
- Automotive
- Industrial
- Military
- OEM power supply
- Power components
- Telecommunications



Why Work with Intepro

Inntovative designs that drive performance

With access to thousands of catalog test and measurement instruments, we develop test solutions that are cost-effective without compromising performance. Our partnerships with leading suppliers allows us to take advantage of the latest technology and ensure long-term operability.

What Intepro Offers

Intepro Test Solutions Include:

Turn-key systems for characterization, functional and accelerated power test for the following:

- AC/DC, DC/AC, and DC/DC Power Supplies
- Electronic Loads
- Medical Power Supplies
- Battery for EV and HEV
- Aerospace components, Motor Drive Test and Semi-Conductor Power Devices
- Renewable Energy Inverters For On-Grid or Off-Grid PV and Bi-Directional EV Chargers

On-Time, On Budget

Is at the top of the list for any company. Intepro doesn't stop there. We factor in through-put, quality control, down time, servicing and expandability. Customers rely on our systems to reduce cost of ownership and provide long term operation. Let Intepro solve the problem of designing and building your ATE tester on time, on budget.





PROCYON ATE SYSTEMS

PRODUCTS AVAILABLE:
PROCYON ATE SYSTEMS

When it comes to ATE Test Systems for a for low to high volume production, Intepro has what you need. For over 30 years, Intepro has designed, built and integrated power supply test equipment for the world's largest and smallest power supply manufacturers. Our customers benefit from our fast, cost-efficient solutions that include our own specialty hardware and pre-selected commercial instruments to cut their production, design characterization, life-cycle and repair costs.

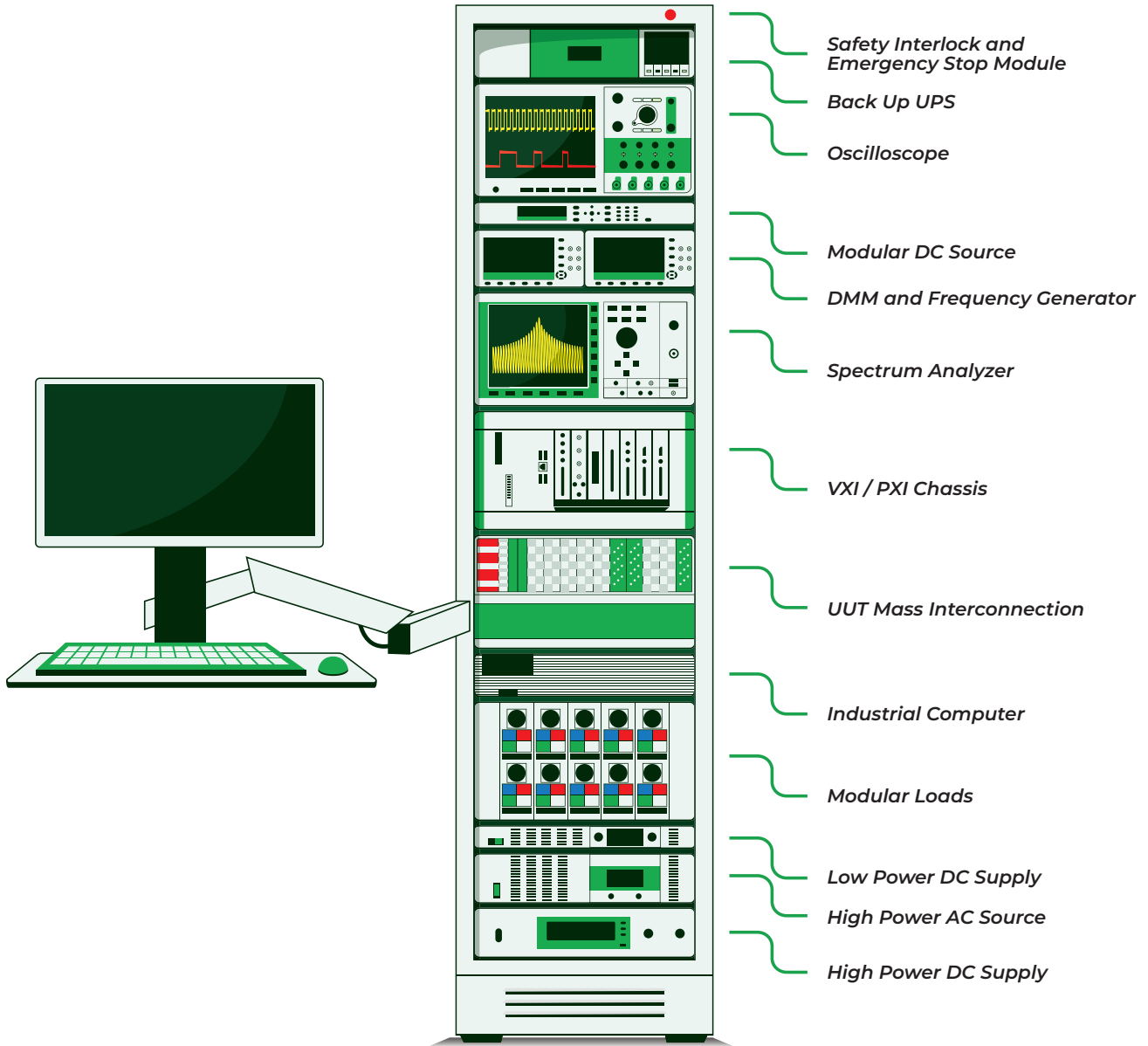


Product Management

Intepro Systems follows a structured approach in specifying and implementing test systems for its customers. Projects we manage are coordinated via a dedicated Project Engineer who works directly with your during each phase of the project from start-to-finish.



Typical PROCYON 2100-10 Test System



STANDARD LIBRARY TESTS INCLUDE:

OUTPUT PERFORMANCE	INPUT CHARACTERISTICS	REGULATION TEST
<ul style="list-style-type: none"> • DC Output Voltage • Ripple and Noise • Efficiency • Overshoot Voltage • Voltage Dropouts • Dynamic 	<ul style="list-style-type: none"> • Frequency Range • Power Analyzer Data • High Line/Low Line • Line disturbance • Safety 	<ul style="list-style-type: none"> • Cross Regulation • Load Regulation • Line Regulation
RESPONSE AND TIMING	PROTECTION TEST	SPECIAL TEST
<ul style="list-style-type: none"> • Transient Response Time • Spikes and Drops • Line Transient 	<ul style="list-style-type: none"> • Short Circuit • OC, OV and OP Protection • Remote Shutdown Protection 	<ul style="list-style-type: none"> • Communication • Status Signals

KEY FEATURES

- R&D and production ATE's
- Power from 1 W to over 1 MW
- Single and multi-channel
- Scalable solutions
- Regenerative technology
- Auto-ranging DC sources
- Open-architecture hardware supporting LXI, IEEE, VXI, PXI and AXI
- High speed data acquisition
- Powerful open frame test executive software

OUR CONFIGURABLE TEST PLATFORMS INCLUDE:

- PST2100-10 DC/DC Power Supply Test Systems
- PST2100-20 Battery Test Systems
- PTS2100-30 Electric Vehicle Test Systems
- PST2100-40 Energy Conversion Test Systems
- PTS2100-50 Life Cycle Test Stations / Burn In
- PTS2100-60 Power Semiconductor Test Systems
- PTS2100-70 DC/AC Power Supply Test System
- PTS2100-80 AC/DC Power Supply Test System

The background is a solid orange color with a complex pattern of white, glowing, and slightly blurred lines that create a sense of motion and energy, resembling light trails or data paths.

DC POWER SOURCES

PRODUCTS AVAILABLE:

PROGRAMMABLE DC POWER SUPPLIES

Intepro Systems offers a wide selection of programmable DC Power Supplies, including standard units and auto-ranging. Each DC Power Supply are MOS-FET based, resulting in a high performance power stage that offers high speed slew rates and low output ripple.



Cinergia B2C+

Regenerative DC Converter

B2C+ is CINERGIA's solution for Regenerative and Bidirectional DC Test Platforms. The efficiency, multichannel flexibility and high-resolution and dynamics of this device make it convenient in multiple applications like: Renewable Energy Sources, Energy Storage Systems, Smart grids, Battery Testing and Characterization, Electrical Vehicles, EV Charging Infrastructures, Traction Converters, Power HiL and Aeronautic.

Feature Listing:

- Bidirectional and Regenerative: Clean grid current: THDi < 3% and PF > 0.98 Same Power in DC and AC
- 13 models from 7.5kW to 160kW: Parallelization of units to increase the power
- Emulation of grid-connected devices: Loads absorbing energy from grid. Generators injecting energy to the grid. Programmable Active/Reactive consumption Non-linear currents up to CF of 3
- Independent phase configuration of: rms current, phase angle, harmonics, interharmonics, generation of fast transients ("Current Dips")
- Intuitive User Interface
- Mod bus/Ethernet Open protocol, Labview drivers d

Functionalities:

- Master / Slave parallel and series operation with voltage and current sharing
- Stacking is allowed, space between units is not required
- High power system configuration from multiple units
- 19" rack mounting or laboratory use (feet included)
- Remote sensing
- Interlock



Delta SM15K DC Power Supply

15kW Bi-directional DC Power Supplies

Introducing Intepro's latest offering, the SM15K Series 15kW Bi-directional DC Power Supplies by Delta. Featuring flexible output with constant power characteristics, the Delta SM15K offers outstanding regenerative performance, with very high efficiency to meet the demands to adapt to most applications.

Feature Listing:

- Bi-directional power supply with standard 15 kW source and sink.
- Flexible output with Constant Power characteristics
- Power Regeneration Technology: in sink mode the PSU returns the energy back into the grid
- Easy Master/Slave parallel & series operation up to 900kW
- Very low heat dissipation. Efficiency is more than 95%. No need for expensive cooling systems.
- Excellent dynamic responses to load changes including all-digital control to adapt regulation to match load type
- Designed for long life at full power
- Protected against all overload and short circuit conditions

Functionalities:

- Operation on wide range of 3 phase AC input voltages
- Master/Slave operation up to 900kW
- Large user display, menu driven operation
- EMC surpasses CE requirements: low emission and high immunity
- Low audible noise: temperature controlled cooling fans



Delta SM3300 3300W DC Power Supply

Introducing Intepro's latest offering, the SM3300 Series 3300W DC Power Supplies by Delta. Featuring flexible output with constant power characteristics, the Delta SM3300 offers long life at full power and excellent dynamic response to load changes.



Delta SM6000 DC Power Supply

6kW DC Power Supplies

Introducing Intepro's latest offering, the SM6000 Series 6kW DC Power Supplies by Delta. Featuring flexible output with constant power characteristics, the Delta SM6000 offers long life at full power and excellent dynamic response to load changes.

Feature Listing:

- Designed for long life at full power
- Excellent dynamic response to load changes
- Protected against all overload and short circuit conditions
- EMC surpasses CE requirements: low emission and high immunity
- Low audible noise: fans are temperature controlled

Functionalities:

- Master / Slave parallel and series operation with voltage and current sharing
- Stacking is allowed, space between units is not required
- High power system configuration from multiple units
- 19" rack mounting or laboratory use (feet included)
- Remote sensing
- Interlock



Delta SM1500 DC Power Supply

Introducing Intepro's latest offering, the SM1500 Series 1500W DC Power Supplies by Delta. Featuring flexible output with constant power characteristics, the Delta SM1500 offers outstanding performance, with very high efficiency to meet the demands to adapt to most applications.



Delta SM800 DC Power Supply

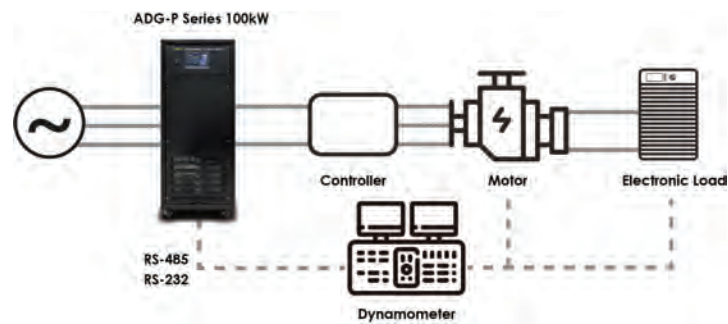
Introducing Intepro's latest offering, the SM800 Series 800W DC Power Supplies by Delta. Featuring flexible output with constant power characteristics, the Delta SM800 offers long life at full power and excellent dynamic response to load changes.



ADG-P Programmable DC Power Supply

ADG-P series is a programmable DC power supply with high power density and output power. The ADG-P series features fast response, great response time, with high precision, and low ripples. Output voltage is up to 2000V. The single unit capacity is up to 100kW and the capacity can be further extended by parallel connection. It is suitable for a variety industry uses including renewable energy, smart grid, EV (Electric Vehicle), and server power supply applications.

Ideal for EV Motor Testing



ADG-L Programmable DC Power Supply

Introducing our latest programmable DC power supply, the ADG-L Series, with 14 base models and multiple customizing options, three different output power, 4kW, 8 kW and 12 kW. Utilizing PWM technology, ADG-L delivers stable output and precise measurement.

The ADG-L features high power density, low noise, and tight regulation. The combination of DSP and PWM technologies has enabled significant advances in stability and measurements. The ADG-L series includes fourteen models with 4kW, 8kW and 12kW maximum output powers and Auto Range models available to provide a higher output current at lower output voltage.



PROGRAMMABLE AC SOURCES

The Intepro AC power sources are the value leaders in the market. From the basic programmable voltage and frequency models to the advanced bi-directional grid simulator, Intepro has the solution. Power levels from 500 VA to 2 MVA are available in single and three phase output, including independent phase control.

Applications and Features Include:

- Production Functional Testing of Power Supplies
- Value-Leaders: basic programmable voltage; frequency models; to advanced grid-simulator models
- High value / low watt-per-dollar models
- From 500 kVA to 2 MVA
- Grid Simulator with four quadrants regenerating >90% back to the grid
- Ideal for compliance or avionics testing



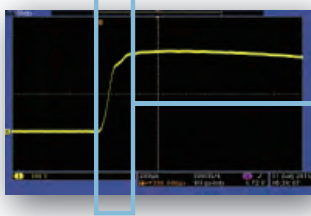
AFV-P Series

Intepro Systems' AFV-P Series is a programmable AC/DC output power source, with precision measurement and control. This compact power source offers four power levels: 600 VA; 1250 VA; 5000 VA. The AFV-P Series provides clean power with distortion measuring less than 0.3% while operating at 40 to 100 Hz.

This Series also delivers output voltage from 0 to 310 VAD, and delivers frequency from 40 to 500 Hz, as well as a high-frequency option from 15 to 1000 Hz.

The AFV-P Series is ideal in the following industries and environments:

- Commercial
- Defense
- Aerospace
- Test Applications from Design Verification; Quality Assurance; ATEs
- The AFV-P Series includes Graphical Users Interface Software to simplify complex testing of the AC Input to the UUT
- Extend the applications to DC type testing with DC Output
- 0-310 V L-N; 15-1000 Hz
- Output current maintains constant based on the load while output voltage varies
- 2U: 600 VA / 1250 VA / 2500 VA; 5U: 5000 VA
- Capable of delivering up to 4.5 times of peak current
- THD is less than 0.3% when output is less than 100 Hz



Measurement
<300 μs



GE+ vAC

GE+ vAC is a 4Q programmable AC Voltage Source designed to create both stable and distorted AC grids with a predefined IEC testing software. This cost-competitive Bidirectional and Regenerative solution allows Independent phase configuration of: voltage rms, phase angle, frequency and harmonics. It is a device suitable to perform AC testing in Applications for Industry and Education, Renewable Energy Sources, Smartgrids, IEC Testing, EV and EVSE and, PV Inverter Testing, Power HIL and, in general, grid connected devices..

- Bidirectional and Regenerative
- Clean grid current: THDi < 3% and PF > 0.98
- 13 models from 7.5kW to 160kW
- Parallelization of units to increase the power
- Generation of Worldwide electrical grids: 3-phase / 1-phase / split phase / Multichannel
- Independent phase configuration of: voltage rms, phase angle, frequency and harmonics
- Generation of disturbances: harmonics, interharmonics, subharmonics, voltage dips frequency variaton, flicker
- Disturbance Generation Editor compatible with IEC, LVRT, SEMI-F47, CBEMA test standards
- -Intuitive User Interface
- -Modbus/Ethernet Open protocol, Labview drivers

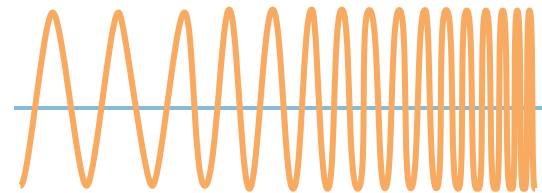
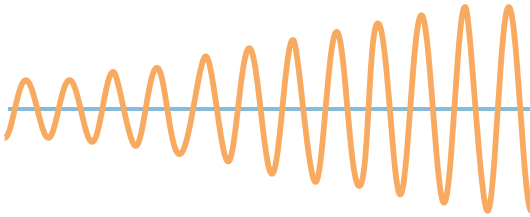
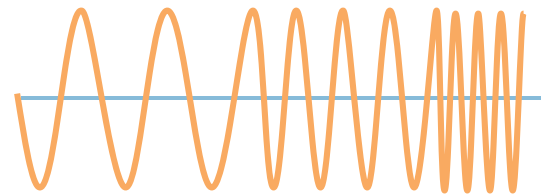
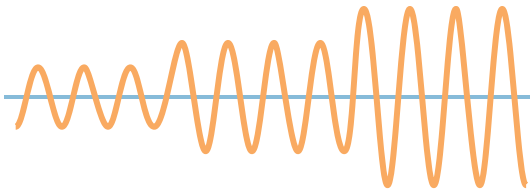


AFC Series

AFC Series products are single and 3-phase AC Power Sources ranging from 0.5 kVA to 2000 kVA. This AFC Series has a continuous, adjustable output voltage between 5 to 300 V. This feature allows for fast, convenient 3-scales of preset voltage for high- and low-voltage simulation. With up to 90% efficiency, the AFC Series minimizes heat dissipation so less infrastructure cooling is required.

- Precision frequency and load regulation
- Compact design that minimizes floor space requirements
- Low output distortion
- Integrated high accuracy measurements

Sweep & Ramp Test



AFV Series

The AFV Series is Intepro Systems' broad line of programmable 3-phase AC Power Sources. Power levels range from 15 kVA up to 2 MVA. The AFV Series' powerful FPGA+ARM-based Controller offers precise voltage and frequency conversion with power disturbance generation capabilities.

Power is supplied via state-of-the-art IGBT pulse-width-modulated amplifiers. This results in highly efficient power conversion and maximized performance—all wrapped up in a compact design.

- A running event recording function records up to 255 events
- Advanced SPWM technology and direct digital frequency synthesis (DDS) waveform technology are used.
- Self-diagnostic maintenance function which offers higher system reliability and downtime protection.
- The IPC option allows independent phase angle and voltage control for testing against phase unbalance for three phase products



PAS-F Series

Intepro Systems' PAS-F Series is a broad line of programmable 3-phase output regenerative utility, grid-simulator products. Power levels range from 45 kVA up to 1.6 MVA, meaning this series is capable of testing the largest dispersed energy inverters.

The PAS-F Series combines utility grid-simulation with regenerative, bi-directional AC source-controlled power. This Series is capable of both source and sink full-current from the Equipment-Under-Test or EUT.

- Absorbs energy from the output terminals and feeds it into the grid power, helping the industry to conserve energy and reduce carbon emission.
- Uses the most advanced PWM rectification (active rectification) technology with four-quadrant operation capability
- Very high input power factor, up to 0.99 pf
- Pure sinusoidal output voltage, THD < 1%
- Sinks 100% reactive power (kVAR)
- Independent phase control



AMF Series

Intepro Systems' AMF Series is a complete suite of single and 3-phase 400 Hz AC Frequency Converter Products.

With power levels ranging from 6 kVA to 300 kVA, the AMF Series of frequency converter products are ideal, cost-effective solutions that are ideal for precise frequency conversion in all avionics and higher-frequency electronic applications.

- Precision frequency control and load regulation
- Single- or 3-phase output
- Low-output distortion
- Integrated high-accuracy measurements
- Overload capacity of up to 200% for 15 seconds
- Isolated input and output
- Laminated bus-bar technology reduces induction and improves reliability

The background is a solid blue color with several overlapping, white, wavy lines that create a sense of motion and depth. The lines are smooth and curve across the lower half of the image.

ELECTRONIC LOADS

PRODUCTS AVAILABLE:

ELECTRONIC LOADS

CINERGIA has ingeniously combined the functionalities of several products in a single cabinet to offer the most flexible and unique testing equipment. The GE&EL product family is the aggregation of Grid Simulators, Electronic Loads and Bidirectional DC Converters in one product. The All-in-One AC GE&EL includes, in one single cabinet, an AC Grid Simulator and an AC Electronic Load without any limitation. The All-Terrain GE&EL vAC/DC is all CINERGIA catalogue in one system: Grid Simulators, Electronic Loads and Bidirectional DC.



GE&EL+ vAC/DC SiC

Regenerative DC Converter

The GE&EL+ vAC/DC SiC is the most complete and versatile converter in the regenerative energy testing market. The whole CINERGIA's catalogue in a single unit. A Grid Emulator (GE), an Electronic Load (EL) and a DC Bidirectional (B2C). This converter with SiC Technology is suitable for most test applications in Renewable Energies, Power HiL, Smartgrids, Batteries, and Electrical Vehicles..

Feature Listing:

- Higher Switching Frequency
- Higher Bandwidth
- Reduced Ripple
- Increased Efficiency
- Same Current Capacity in DC or AC
- Battery Emulation and Testing

Functionalities:

- Bidirectional and Regenerative
- Clean grid current: THDi < 3% and PF > 0.98
- Same power in DC and AC
- Operation Modes:
 - Complete DC Load/Source
 - Full 4Q AC Grid Emulator
 - Power Amplifier for Power HiL
 - Full 4Q AC Electronic Load
 - Battery Emulation and Testing
 - PV Panel Emulation
- Modbus/Ethernet Open protocol, Labview drivers



EL+ vAC Regenerative AC Electronic Load

Regenerative AC Electronic Load

EL+ vAC is a 4Q programmable AC Current Source designed to emulate the electrical behaviour of passive and active devices connected to the grid. In addition, its grid stage as an Active Rectifier produces clean sinusoidal currents with very low harmonic distortion. This cost-efficient solution is specially suitable for testing AC sources, Applications for Industry and Education, Smart grids, Aeronautic, UPS and EV Charging Infrastructure. Its Regenerative and Bidirectional Hardware allows a reduction in the total power and energy needed for the test.

Feature Listing:

- Efficiency and Flexibility
- Save Energy, Power and Time
- AC only
- Smartgrids & Electrical Vehicles
- High-Resolution and Dynamics

Functionalities:

- Bidirectional and Regenerative
- Clean grid current: THDi < 3% and PF > 0.98
- 13 models from 7.5kW to 160kW
- Parallelization of units to increase the power
- Emulation of grid-connected devices:
 - + Loads absorbing energy from grid
 - + Generators injecting energy to the grid
 - + Programmable Active/Reactive consumption
 - + Non-linear currents up to CF of 3
- Independent phase configuration of: rms current, phase angle, harmonics, interharmonics, generation of fast transients ("Current Dips")
- Intuitive User Interface
- Modbus/Ethernet Open protocol, Labview drivers



EL+ vAC/DC Full

Regenerative AC/DC Electronic Load

CINERGIA's EL+ vAC/DC is the most versatile regenerative Current Source product in the market for energy testing in AC and DC applications. Its Bidirectional and Regenerative Hardware based on a back-to-back power conversion topology allows saving energy and power. Moreover, thanks to its flexibility, this device becomes crucial in two main areas: testing and R&D. The main applications for this device are Smart grids, Renewable Energy, Storage Systems, Electromobility, Avionics and Power HiL.

Feature Listing:

- Efficiency and Flexibility
- Save Energy, Power and Time
- Full options and power in AC&DC
- Smartgrids & Electrical Vehicles
- High-Resolution and Dynamics

Functionalities:

- Bidirectional and Regenerative
- Clean grid current: THDi < 3% and PF > 0.98
- 13 models from 7.5kW to 160kW
- Parallelization of units to increase the power
- Emulation of grid-connected devices:
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 - + Programmable Active/Reactive consumption
 - + Non-linear currents up to CF of 3
- Independent phase configuration of: rms current, phase angle, harmonics, interharmonics, generation of fast transients ("Current Dips")
- Intuitive User Interface
- Modbus/Ethernet Open protocol, Labview drivers



CUSTOM SOLUTIONS

CUSTOM DESIGN LAYOUTS

Intepro Systems works can build any system to fit your needs and your testing environment depending on your volume. We can create solutions from single bay test station all the way to 5 Bay systems. We also have experience creating desk top systems.

Products Available:

CUSTOM DESIGNS

Intepro Systems works with our customers to find the ideal solution to your power testing problem. Here are some examples of custom solutions we have created for some of our customers



Power Distribution Units

Custom designed or build to print PDU manufacturing. Short design cycles for AC or DC power distribution.



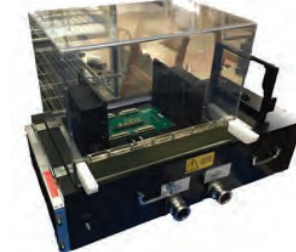
Self-Test Fixtures

A self-test fixture is available to carry out an automatic functional check on the test system hardware. The system leverages internal hardware to test functional operation of the system.



Calibration Fixture

Intepro provides breakout fixtures to simplify the calibration of the test station.



Test Fixtures

For customers who need a complete turn-key test platform, Intepro Systems provides fully integrated test fixtures and software programs with your test systems. These fixtures can be integrated with your automation systems and designed to be safely operated by operators.

Integrations

Intepro helps create efficient testing equipment to fit not only the application but your work environment as well.

The Intepro Advantage

Universal Design Grows with You

Intepro's universal hardware building block approach optimizes operation and reduces risk.

- Simple transition from R&D to production
- One system tests multiple products
- Leverage existing system designs for your next generation products
- Models or brand of hardware is easily exchangeable
- PowerStar test suites are hardware independent

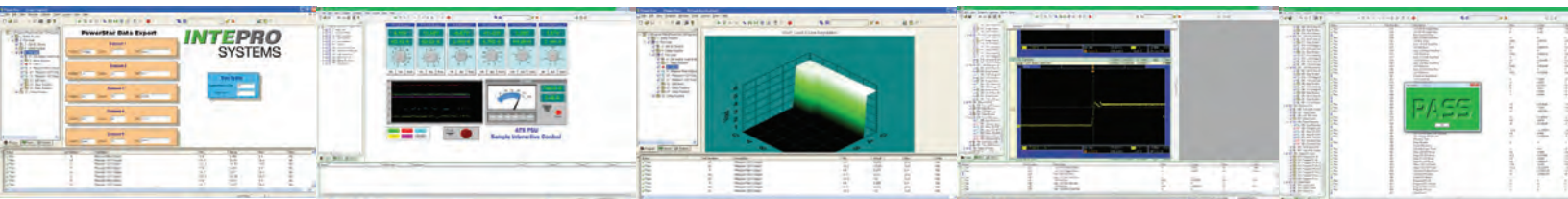


Legacy Upgrade or Replacement

- Form, fit and functional solutions to replace legacy test program sets
- Leverage existing cables and test program sets
- Repurpose operational hardware and upgrade the rest

POWERSTAR

INTEPRO'S Power Test Software

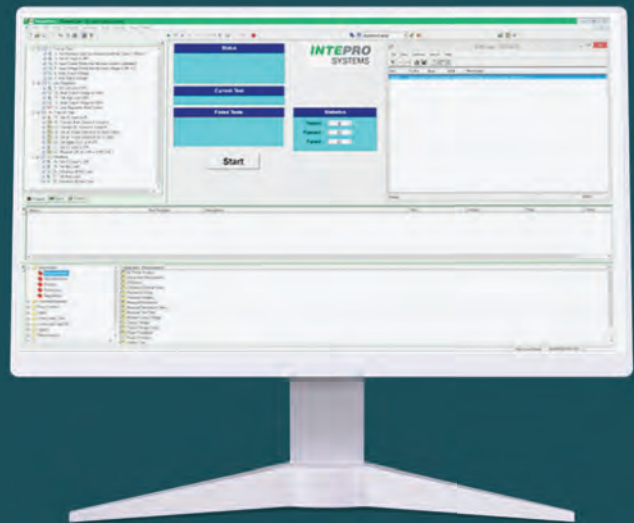


Software

PowerStar Software™

Program without Coding™

- Eliminates the need for complex programming
- Quick and simple testing
- Seamless transition from design to manufacturing
- Hardware independence test programs
- Executes LabView test sets





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