

Linux OS



Embedded EPICS IOC



Waveform Generation



Embedded Oscilloscope



10-kW New Generation  
High-Stability Digital Controlled  
Power Supply Series



**NGPS**

Your **DIGITAL**  
**POWER ELECTRONICS**  
Partner.

- Digital control loop - adapt the power supply to any load condition in both Current- and Voltage-controlled modes
- Best-in-Class Temperature Coefficient combined with fast dynamic response
- Easy paralleling via front-panel SFP links
- Embedded Web-Server, 4-channel Oscilloscope and Waveform Generation for easy remote operation

## FEATURES

- 19"-3U stand-alone crate
- 100 A-100 V, 200 A-50 V, 300 A-30 V
- Configurable digital control loop
- **PARALLEL operation up to 40 kW**
- Current or Voltage regulation
- 1 ppm/°C temperature dependence
- Excellent long-term stability
- External Analog Control and Auxiliary Analog Inputs
- Waveform Generation at 40 kps
- Embedded 4-channel Oscilloscope
- **Embedded Web-Server**
- External Interlock and Status Signals
- Local Display and Controls
- 10/100/1000 Mbit Ethernet
- Fast SFP interface (10 kHz update)
- **Water-cooled models available**
- Co-designed with **OCEM** POWER ELECTRONICS

## APPLICATIONS

- Particle Accelerators
- Medical Accelerators
- Industrial / Plant Operation
- Battery, Supercapacitor, Fuel Cell Testing
- PV Cell Testing
- Medical Imaging

**NGPS.** The NGPS - New Generation Power Supply - series is a set of power converters that combines know-how and technology to a power supply with outstanding performance and functionalities. Models rated at **100 A / 100 V, 140 A / 50 V, 200 A / 50 V** and **300 A / 30 V** are commercially available and can be paralleled up to **40 kW** - e.g. 400 A / 100 V or 800 A / 50 V. Different ratings as well as water-cooled versions are available upon request.

The use of a 0-FLUCS DCCT as the sensing element, combined with thermal stabilized electronic sections, make this power supply have the lowest temperature dependence on the market at less than 1 ppm/K.

The **10/100/1000 Ethernet** connection and the two SFP slots allow controlling the power converter in different modes. The paralleling of the units can be also performed via the fast SFP links

on the front panel (accessories are available for ordering).

The control loop, as for most of CAEN ELS power supplies, is digital in order to obtain the maximum flexibility and easiness of configuration to any connected load - e.g. resistive, capacitive or inductive.

The NGPS can be controlled either in **current-** or **voltage-control** modes and both control loops can be remotely configured.

Several **internal protections** are implemented and can be configured depending on the application.

Features like **waveform**, triggers, etc. are also present in these state-of-the-art units that also embed a Linux OS to give the maximum flexibility.

The units can be also locally controlled via a display and a local interface. performance and functionalities.

The units also have an **embedded oscilloscope** function that allows

### About Us

CAEN ELS is a leading company in the design of power supplies and state-of-the-art complete electronic systems for the Physics research world, having its main focus on dedicated solutions for the particle accelerator community and high-end industrial applications.

- Power Supply Systems
- Precision Current Measurements
- Beamline Electronics Instrumentation
- FMC and MicroTCA

### CAEN ELS s.r.l.

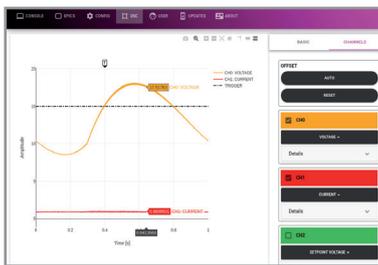
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Embedded WAVEFORM GENERATOR



Embedded 4-channel OSCILLOSCOPE



monitoring up to four (4) different values - e.g. current, voltage, etc. - with a sampling rate of 40 kHz by using an internal DMA.

An extra analog input on a BNC, spanning from 0 V to 10 V and with a bandwidth of 1 kHz, is also

provided for compatibility with older systems where a DAC was used in order to control the power unit. These units can be operated with the **Polarity Inverters** by CAEN ELS rated at 200 A, 420 A and 630 A (please visit [www.caenels.com](http://www.caenels.com) for more information).

### Technical Specifications

### NGPS

	100-100E	140-50E	200-50E	300-30E
<b>Output Current Range</b>	100 A	140 A	200 A	300 A
<b>Output Voltage Range</b>	100 V	50 V	50 V	30 V
<b>Rated Output Power</b>	10 kW	7 kW	10 kW	9 kW
<b>Regulation Type</b>	Constant Current (CC) or Constant Voltage (CV)			
<b>Output Insulation</b>	500 V			
<b>Output Setting Resolution - CC/CV</b>	> 19 bit			
<b>Output Readout Resolution</b>	24 bit			
<b>CC Closed Loop Bandwidth (-3 dB)</b>	> 100 Hz			
<b>CV Closed Loop Bandwidth (-3 dB)</b>	> 200 Hz			
<b>Output Accuracy in CC</b>	< 0.01 %			
<b>Output Accuracy in CV</b>	< 0.05 %			
<b>Remote Sensing Compensation</b>	up to 2 V			
<b>Operating Current Range</b>	2 - 100 %			
<b>Temperature Stability</b>	< 0.0002 %/K in CC mode < 0.005 %/K in CV mode			
<b>Cooling</b>	Forced air convection (optional water-cooling available)			
<b>Efficiency</b>	> 90 %			
<b>Power Factor (at full-load)</b>	> 0.92			
<b>PARALLELING Option</b>	up to 4 modules - via front SFP optical links			
<b>Input Ratings</b>	Three-phase 400 VAC ± 10 %, 50/60 Hz			
<b>Operating Ambient Temperature</b>	0 ... 40 °C			
<b>Mechanical Dimensions</b>	19" x 3U x 647 mm (including connectors)			
<b>Weight</b>	< 28 kg			
<b>Communication Interfaces</b>	1 x Ethernet 10/100/1000 Mbit TCP-IP and UDP 2 x SFP/SFP+ ports			
<b>Internal Interlocks</b>	Over-Temperature MOV Input Over-Voltage Main circuit-breaker for Over-Current Output Free-Wheeling Diodes Output Over-Current and Over-Voltage Earth Current Leakage Input Phase-Loss (DC-Link Under-Voltage)			
<b>External Interlock/States</b>	Input: 4 x user-configurable dry-contacts Output: 1 x solid-state relay + 1 x magnetic relay			
<b>External Signals</b>	Analog Control Input (0-10 V) Trigger Input			

Ordering Options - please refer to [www.caenels.com](http://www.caenels.com) for additional models and/or options

Ordering Code	Model	Description
NGPS100100EX	<b>NGPS 100-100E</b>	NGPS 100-100 - 10-kW, High-stability Digital PS 100A@100V (10 kW) - 400VAC
NGPS140050EX	<b>NGPS 140-50E</b>	NGPS 140-50 - 7-kW, High-stability Digital PS 140A@50V (7 kW) - 400VAC
NGPS200050EX	<b>NGPS 200-50E</b>	NGPS 200-50 - 10-kW, High-stability Digital PS 200A@50V (10 kW) - 400VAC
NGPS300030EX	<b>NGPS 300-30E</b>	NGPS 300-30 - 9-kW, High-stability Digital PS 300A@30V (9 kW) - 400VAC