FAST-PS

Bipolar Multi-Interface Digital Voltage- and Current-controlled Fast Power Supply

FAST-PS

- **The FAST-PS series is a new series of fast power supplies with dual interface for standard and fast control of the output current and/or voltage**
- **Current and Voltage digital control loop for easiness of configuration on different loads**
- **Stand-alone unit with local control, extended input range and internal self-cooling by air convection**

FEATURES

- 19" – 1U stand-alone crate
- Different Current and Voltage Ratings
- True Bipolar Zero-crossing operation
- 10/100/1000 Mbit Ethernet interface
- 2x Fast SFP interface (10 kHz update)
- Current and Voltage regulation
- High bandwidth
- Analog control and Trigger - *optional*
- Low noise
- Configurable Digital control loop
- Internal protections and auxiliary readbacks
- Extended input range (90-260VAC)
- Local display and control
- **VISUAL-PS** free software available

APPLICATIONS

- Magnet Power Supplies
- Laboratory Equipment
- Current or Voltage Control

The FAST-PS series is the new generation of bipolar power supplies by CAEN ELS and it was designed in order to have state-of-the-art performances both in current- and voltage-control modes.

The 10/100/1000 Ethernet connection and the two SFP slots (which can be used as electrical or optical communication channels) allow to control the power converter in two different modes: the "standard" interface over the Ethernet (up to 1 kHz) is intended in cases where the power supply has to be controlled at lower rates and/or to set and monitor general parameters of the unit. The "fast" interface over the SFP allows to run feedback loops and fast corrections by reaching a maximum update rate of 10 kHz.

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.

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

Low noise and high bandwidth are just two of the main features of these power converters that are the ideal upgrade for the SY2604 and SY3634 system modules.

Internal protections – e.g. over-voltage, over-current - are implemented as well as external interlocks are present.

The units can be also locally controlled via a display and a local interface in order to set or monitor the main parameters and status of the power supply.

Different output current, voltage and power ratings are commercially available.

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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 Electronic Instrumentation
- FMC & MTCA.4 – MicroTCA for Physics

CAEN ELS s.r.l.
via Vetraia 11
55049 – Viareggio (LU)
Italy

info@caenels.com
www.caenels.com

www.caenels.com

Linux OS Embedded

EPICS IOC

Technical Specifications	FAST-PS Series
Regulation Type	Current- or Voltage- Control
Output current range	± 5 A ± 10 A ± 20 A ± 30 A
Output voltage range	± 20 V ± 40 V ± 80 V
Maximum output power	up to 600 W
Current setting resolution	18 bit
Voltage setting resolution	18 bit
Output current readback	24 bit
Output voltage readback	24 bit
Output current ripple*	30 ppm / FS
Output current stability	50 ppm / FS
Output voltage stability	50 ppm / FS
Switching Frequency	100 kHz
Max Current/Voltage update rate	10 kHz
Accuracy	< 0.05%
Slew Rate	up to 5 A/ms
External Interlocks/States	2 Inputs: user-configurable "dry" contacts 1 Outputs: relay (2 magnetic contacts)
Internal Interlocks	DC Link Under-Voltage Over-Temperature Over-Current Over-Voltage Earth Fault Current Regulation Fault Excessive Current Ripple
Hardware protections	Input Fuses Earth Fuse Over-Voltage
Auxiliary ADC Read-Backs	DC Link Voltage Ground Leakage Current Temperature
Cooling	On-Module Self-Regulated Fans
Connection	1 x Ethernet 10/100/100 2 x SFP ports
Extra-Features	Point-by-Point Current Waveform Loading User-definable interlock thresholds, active levels and timings Firmware Remote Updates Analog Control Input (1 kHz BW) - *optional*
Dimensions	19"– 1U – 365 mm (W x H x D)
Input Voltage	90/260 V(AC) (47-63 Hz)
Efficiency	up to 84 %
Power Factor	> 0.95
Local Control / Monitor	Graphic Display and Encoder 6 LEDs

* measured on 1mH load

Ordering Options

FASTPS052001	FAST-PS 0520-100	**FAST-PS 0520-100** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±5A@±20V (100W max)
FASTPS054002	FAST-PS 0540-200	**FAST-PS 0540-200** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±5A@±40V (200W max)
FASTPS058004	FAST-PS 0580-400	**FAST-PS 0580-400** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±5A@±80V (400W max)
FASTPS102002	FAST-PS 1020-200	**FAST-PS 1020-200** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±10A@±20V (200W max)
FASTPS104004	FAST-PS 1040-400	**FAST-PS 1040-400** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±10A@±40V (400W max)
FASTPS202004	FAST-PS 2020-400	**FAST-PS 2020-400** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±20A@±20V (400W max)
FASTPS204006	FAST-PS 2040-600	**FAST-PS 2040-600** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±20A@±40V (600W max)
FASTPS302006	FAST-PS 3020-600	**FAST-PS 3020-600** - Fast Corrector Current- and Voltage-Controlled Digital Power Supply ±30A@±20V (600W max)
FASTPSACINXA	FAST-PS-AN-IN	FAST-PS Analog Control Input (±10V) on BNC connector – *optional (1-kHz Bandwidth)*
FASTPSTRINXA	FAST-PS-TR-IN	FAST-PS Trigger Input on BNC connector – *optional*
FASTPSHSXAAA	FAST-P-HS	FAST-PS High Stability with internal DCCT – 0-FLUCS - *optional*

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