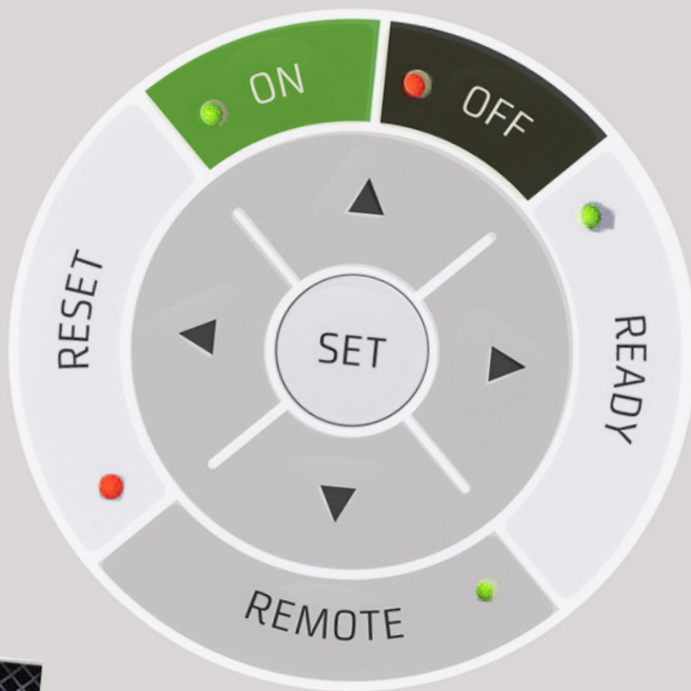


SYSTEM 7000

Magnet Power Supply



SYSTEM 7000 Magnet Power Supply

With the SYSTEM 7000 power converter program, Danfysik now offers our customers a new generation of high performance air-cooled current-controlled power converter in a 100 ppm superior price/performance class.

The SYSTEM 7000 is a compact modular design allowing very easy and fast serviceability, and incorporates a current transducer (DCCT) for superior performance.

The SYSTEM 7000 is designed with a high efficiency 100 kHz push-pull bipolar power converter with a linear bipolar transistor output stage.

System 7000 can be used in a wide range of applications:

- Field correction in accelerator beamline magnets
- Applications where very low zero crossover distortion is demanded
- Anywhere that stable bipolar current control is needed

Detailing features

- Soft start mode
- Adjustable slew rate limit
- Protected against injected inductive energy
- Programmable ramp figures
- Remote or local mode control
- RS232 is standard – analog control as option
- Parallel operation of up to 7 units

Other Danfysik Power supplies

Danfysik SYSTEM 9100 provides solutions for power requirements up to 12kW with 10ppm stability.

Danfysik SYSTEM 8500 series provides solutions for power requirements > 12kW and ultra-stable power supplies.

Performance

Warm up time (cold) : 30 min.
Warm up time (stand-by) : 15 min

Drift

Long term 8 hours stability (fwhm) : $\pm 100\text{ppm}$ @ max load current

Line regulation

$\pm 10\%$ slow, $T > 1$ min. : $\pm 50\text{ppm}$
 $\pm 1\%$ fast, $T > 3$ m sec. : $\pm 50\text{ppm}$

Load regulation

$\pm 10\%$ resistance change : $< 500\text{ppm}$

Output ripple and noise

Voltage – peak to peak : < 100 mV @ 0-100 kHz

Load range

Time Constant (L/R) : 0 – 2.5 sec
Inductance (L) : 0 – 1 H (standard)
Resistance (R) : 0.5 – 4 Ohms

Temperature coefficient

Ambient : $\pm 10\text{ppm}/^\circ\text{C}$

Accuracy

Current setting : Analog or 15 bit + sign (remote/local)
Current reproducibility : $\pm 25\text{ppm}$
Absolute current calibration : $\pm 1000\text{ppm}$ / -0ppm
Current read-back : Analog or 15 bit + sign (remote/Local)

Output characteristics

Current control range (setting range) : $\pm 100\%$
Slew rate limit : 5 A/sec (default) or 400 A/sec by factory setting
Current loop bandwidth : 0.5 Hz (default), 5 Hz or 20 Hz (jumper inside) @ 1 Ohm resistive load
Voltage loop bandwidth : 200 Hz

Isolation

Isolation test voltage (AC mains input to chassis) : 2500 VDC
Galvanic isolation : between AC input mains and output.
: Output refers to chassis

Control panel

Voltage display, 5 digits (15 bit + sign resolution)

Output voltage : [V]
Polarity : [pos/neg]

Current display, 5 digits (15 bit + sign resolution)

Current output : [A]
Current setpoint : [A]
Polarity : [pos/neg]

Push buttons and status indicators

OFF (also active on slaves) : [Button]/[LED]
Reset (interlock) : [Button]/[LED]
ON : [Button]/[LED]
Local/remote switch : [Button]/[LED]
SET (Set Output Current) : [Button]
Ready (in regulation) : [LED]

Interlock status

Output over voltage : [LED]
Output over current : [LED]
Over temperature : [LED]
Internal (Converter over voltage) : [LED]
AC fault : [LED]

Ground fault (fuse) : [LED] (can be disabled)

External interlocks (Ext.1-4) : [LED] (can be disabled via external jumpers)
Summary fault : [LED]

Local control / interfacing

Analog Input

Setpoint reference: : 0 - ±10 V

Analog Outputs

Setpoint read-back: : 0 - ±10 V
Output voltage: : 0 - ±10 V
Output current: : 0 - ±10 V
Error signal (master + slaves): : 0 - ±10 V

Remote control interface

RS232 as standard (RS422 or RS485 are available on request)

All analog input/output values (see above) can be controlled / read via the remote control interface. Besides that, the following commands/status messages are also available via the remote control interface.

Function	Command	Read-back Status
ON/OFF	Yes	Yes
Reset	Yes	
Remote status	Yes	Yes
Output current	Yes (Current set value)	Yes
Output voltage		Yes
Interlock		Over voltage
		Over current
		Over temperature
		Fan fault
		Ground fault
		AC fault
		External (1-4)
		Summary fault

Technical specifications

AC INPUT

AC Mains input voltage ($\pm 10\%$) : 190-253 VAC (208 V $\pm 10\%$) 3 phase 47-63 Hz
: 360-440 VAC (400 V $\pm 10\%$), 3 phase + neutral, 47-63 Hz
: 374-456 VAC (415 V $\pm 10\%$), 3 phase + neutral, 47-63 Hz

DC OUTPUT

Nominal output current (A) : ± 20 : ± 20
Nominal output voltage (V) : ± 35 : ± 75 (standard)

Nominal output power (W) : 750 : 1500

Regulation topology : Analog
Converter Type : Switch-mode pre-regulation with linear bipolar transistors as output stage

Temperature ratings

Operation ambient temperature : 15 - 40° C
Storage temperature : -20 - 50° C, non-condensing

Cabinet lay-out

Material : Steel
Dimensions W x D x H : 482 mm x 420 mm x 132.5 (3U) 19 inch rack mount

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