LNG-Series

Pulsed Switched Mode Power Supply for High-Power Diode Lasers

Picture without cover

- **Input voltage range:**
  380 VAC ~ 528 VAC, 3 Ph 47 ~ 63 Hz
- **Output:**
  18 VDC ~ 70 VDC,
  250 ADC max. (17 kW max.)
- **Isolation voltage I/O 3750 VAC**
- **Continuous short circuit protection**
- **19" chassis, water-cooled cold plate**
- **Fast turn-off by interlock**
  (output current <500mA after 50ms)
- **50ms turn-off if grid power fails**
- **Performance Level D and Safety Cat. 3**
  according to DIN/EN/ISO13849-1 and -2
- **Customizable for your application**

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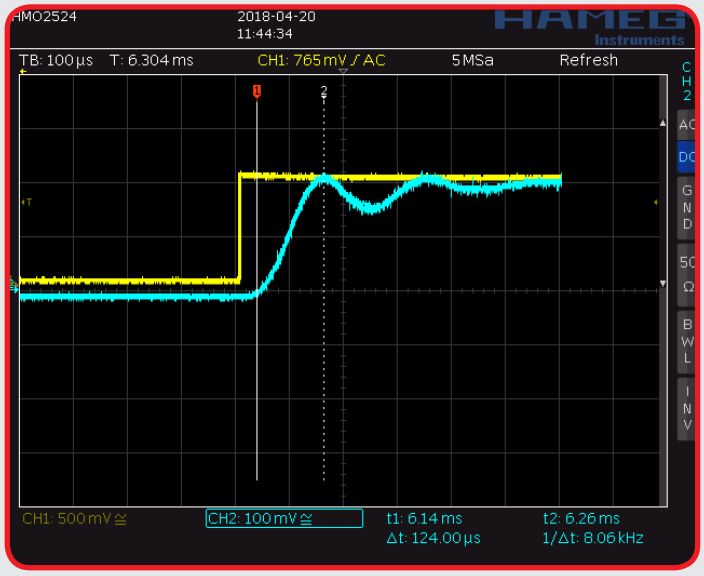
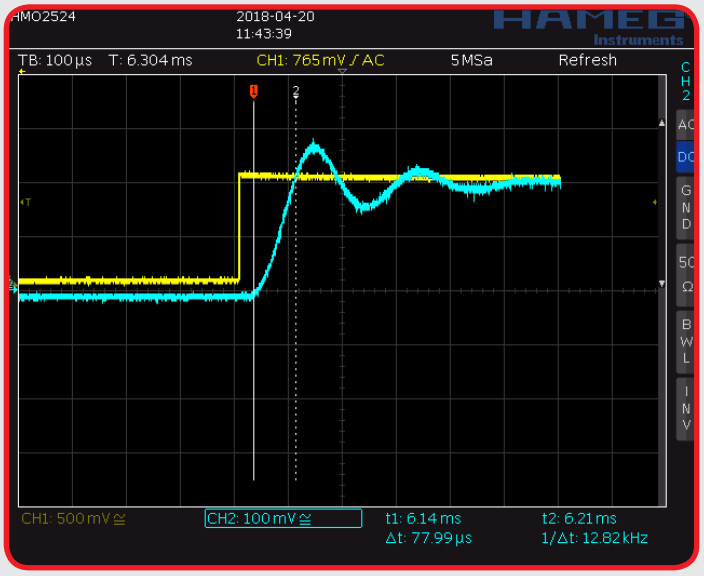
Rise-Time and Overshoots

Rise-time and overshoots can be traded off by potentiometer adjustment to optimize the output current for your specific application:



Example 1: very low overshoots with 124µs rise-time



Example 2: very short rise-time (78µs) with adequate overshoots

- **The steep I-V curve of laser diodes demands a very precise output current with very low ripple and minimal overhoots over the entire output voltage range**
- **The LNG laser power supply provides an output current of up to 250A with ripple currents less than 300mA (0,12%)**
- **Very short rise-time from 0A to 250A output current: below 100µs possible over the entire output voltage range**
- **A complex regulation keeps overshoots at a minimum**
- **Output current can be set by analog or digital signal (RS485)**

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Technical Data

Input	
Input voltage	380 VAC ~ 528 VAC (nom. 400 VAC), 47 ~ 63 Hz, 3 ph (incl. interlock)
Input current	Max. 32 A @ full load
Input apparent power	20 kVA max.
Hold up time	> 10 ms @ 400 VAC & full load
Power factor	0.9 typ.
Efficiency	> 90 % typ.
Inrush current	< 300 A_{peak} (cold)
Leakage current	< 3.5 mA max.

Output	
Output voltage	18 ~ 70 VDC
Output current	250 ADC max.
Output power	17 kW_{peak}
Initial tolerance	70 V ± 0.5 %
Initial tolerance	225 A ± 0.5 % @ 10 V Input
Voltage accuracy	1 % typ.
Dynamic Load regulation	1.8 V_{peak} (I = 235 A ~ 12.5 A)
Transient time	1 ms max. up to initial tolerance
Ripple & noise (20 MHz BW)	500 mV max.
Static Line regulation	± 0.5 % max. (380 VAC ~ 528 VAC)
Static Load regulation	± 0.5 % max. (I = 0 A ~ 250 A)

Auxiliary Output	
Aux. Output voltage	13,8 VDC ± 3 % standard setting
Aux. Output current	0.05 ADC min.

Environmental Specifications	
Operating temperature range (ambient)	0 °C ~ +35 °C (no derating), overtemperature with shutdown or alarm.
Storage temperature range	–20 °C ~ +50 °C (10 ~ 95 % RH)

Safety	
Protection class	I
Protection category	IP20
Isolation Voltage (I/O)	3,750 VAC (only if output is not connected to PE)
Isolation Voltage (I/PE)	2,000 VAC
EMC	EN61204-3 / EN 61000-4-2,-3,-4,-5,-6,-11 EN61204-3 Kl. A / EN55011 / EN55022 / CISPR 11 / CISPR 22
Input filter	EN55022 Level A
Short circuit protection	Continuous (U/I characteristic)
Others	Fast turn-off controlled by interlock signal (output current <500mA after 50ms) 50 ms turn-off time in case of grid failure Performance Level D and Safety Category 3 according to DIN/EN/ISO 13849-1 and -2

General Specifications	
Dimensions	19" rack, 3 RU
Weight	31 kg
Cooling	Water-cooled cold plate
Heatsink plate temperature	30 °C max. @ full load
Fuse	As device protection use external 3-phase circuit breaker (3 x 32 A / 480 VAC) with characteristic C.

All specifications typical at nominal line, full load and 25 °C, unless otherwise noted. Dynamic measurement with nominal output voltage of 70 VDC. All data specified is believed to be correct at time of publication. However, we accept no responsibility for printing errors or inaccuracies. Subject to change without notice.

RSG Electronic Components GmbH
Sprendlinger Landstr. 115
D-63069 Offenbach, Germany

Tel. +49 69 984047-0
Fax +49 69 984047-77
info@rsg-electronic.de
www.rsg-electronic.de