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Miniature Xenon Flashlamp System

RSL3100 Preliminary Data

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Description

One of the smallest pulsed Xenon sources on the market today is now EVEN BETTER!! The compact, low cost RSL3100 light source from PerkinElmer Optoelectronics provides all the benefits of the original RSL2100 plus, we have added all the features that customers have been asking for.

The RSL3100 offers SMA connector flexibility, intensity control and reduced EMI, all in a small package designed to meet CE directives. Along with a standardized "D-Sub" connector, various window options and optimized lamp alignment, the new RSL3100 is expected to meet the most demanding system requirements.

The RSL3100 operates at up to 2 watts and offers high radiant, broad-band optical energy with the long life customers have grown to expect.

Similar to all PerkinElmer Optoelectronics pulsed xenon systems, the RSL3100 offers exceptional arc stability, microsecond flash durations and long life making it an excellent choice for analytical instruments, military systems and portable instrument applications where LED's and other light sources fail.

Features or Applications

- Small size
- High radiant intensity
- Continuous spectrum UV-VIS-IR
- Long life
- Adjustable intensity control
- Ozone free windows, collimating lens and focussing lens options
- Metal enclosure for improved EMI performance
- Optional SMA fiber optic connector
- Customization is available for specific OEM needs



RSL3100

Input Specifications

Parameter	Specification
Voltage	11 - 28 VDC
DC current	0.2 amps RMS
Peak current	1.0 amps
Trigger (1)	TTL
Vref(Vo/Vref = 127.5)	3.14 - 4.7 VDC
Internal/external intensity adjust	Switch selectable
Input Connector	9-Pin sub-D

1) Opto-isolated, +5V TTL compatible, 20-50 mA peak input, 10-100 μ sec pulse width, leading edge trigger, internal resistor 150 ohms.

Electrical Output

Parameter	Specification
Voltage	400 - 600 VDC adjustable
Power (Joules/sec)	2 watts max (power = joules x flash rate)
Standard discharge capacitor	0.047, 0.10 or 0.22 μ fd
Flash rate (Hz)	$F_{MAX} = 2/E$ where $E = 1/2CV^2$

Discharge Capacitor Options

Capacitor (μ fd)	Max Input/Flash (mJ)	Max Flash Rate @ 600 VDC (Hz)	Max Flash Rate @ 400 VDC (Hz)
0.22	40	50	115
0.10	18	111	250
0.047	8.5	235	530

Light Output

Parameter	Specification
Spectral range	160nm - 4+ microns
Stability (CV)(2)	< 3%
Lifetime	>1 x 10 ⁹ Flashes
Collimating lens	(see chart page 3)
Focussing lens	(see chart page 3)

2) CV or Coefficient of variation is defined as: $CV\% = (\text{Standard deviation of 20 flashes}) \div (\text{Mean of 20 flashes})$

Environmental

Parameter	Specification
Operating temperature	32 to 104°F (0 to 40°C)
Storage temperature	-40 to 194°F (-40 to 90°C)
Humidity	95% RH, non-condensing
Shock and vibration	1.5G, 5 - 200 Hz (Mil-STD-810C)
Safety and EMI compliance	Designed to meet EN60950

Optical Output - Standard Window

Distance	0.047µF cap	0.10µF cap	0.22µF cap
1 inch	3.30 µJ/cm ²	7.00 µJ/cm ²	16.0 µJ/cm ²
2 inches	1.15 µJ/cm ²	2.50 µJ/cm ²	5.75 µJ/cm ²
4 inches	0.35 µJ/cm ²	0.75 µJ/cm ²	1.70 µJ/cm ²

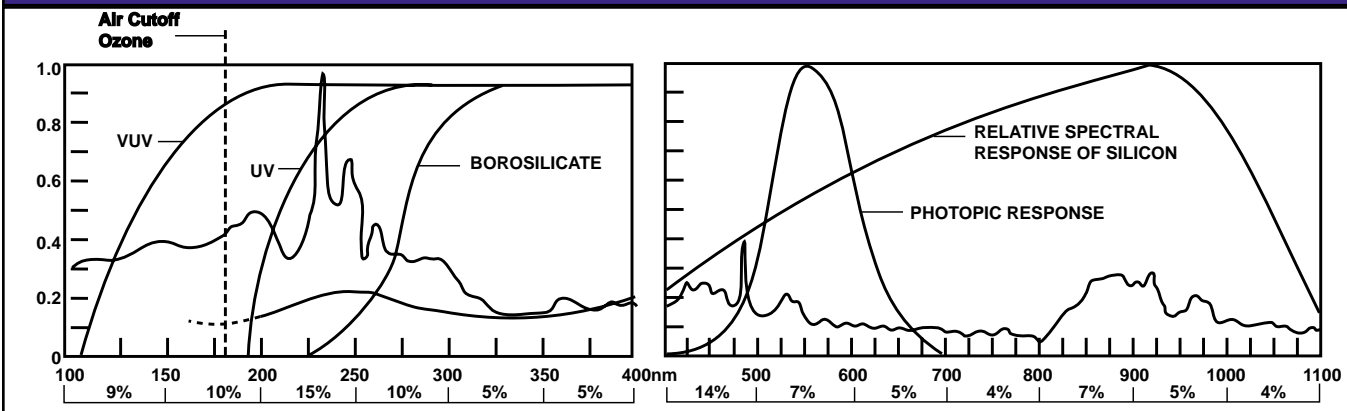
Optical Output - Collimating Lens

Distance	0.047µF cap	0.10µF cap	0.22µF cap
1 inch	31.5 µJ/cm ²	67.5 µJ/cm ²	115 µJ/cm ²
2 inches	12.5 µJ/cm ²	27.5 µJ/cm ²	47.5 µJ/cm ²
4 inches	4.20 µJ/cm ²	9.00 µJ/cm ²	14.5 µJ/cm ²

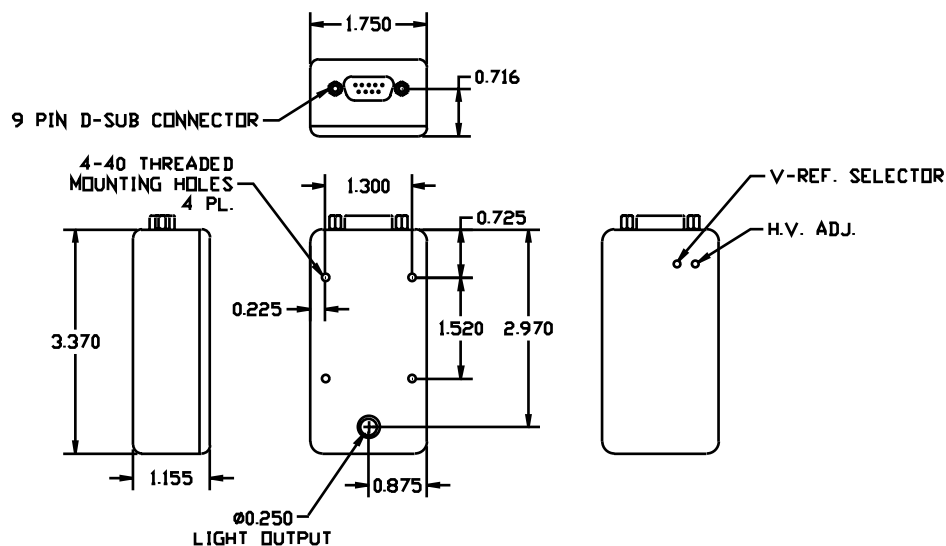
Optical Output - Focusing Lens

Fiber Size	0.047µF cap	0.10µF cap	0.22µF cap
400 Micron	1.50 µJ/cm ²	3.30 µJ/cm ²	7.50 µJ/cm ²
600 Micron	2.10 µJ/cm ²	4.50 µJ/cm ²	10.0 µJ/cm ²

Spectral Output

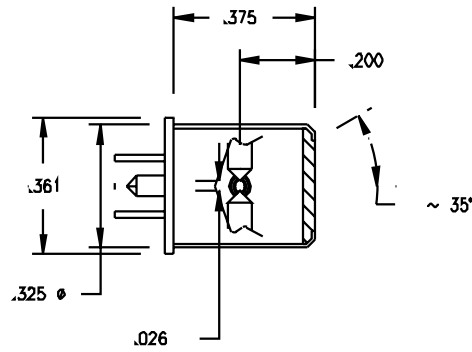
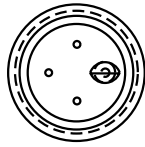


Mechanical Dimensions - Module

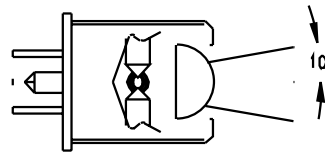
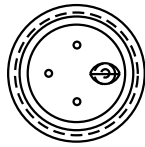


Mechanical Dimensions - Flashlamps

Standard

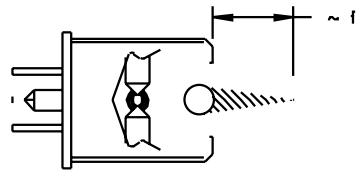
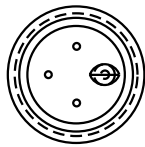


Collimated



5 mm
Hemisphere

Focused



2 mm Sphere

Ordering Information - RSL-31AB-CD

Where:

A = Lens Type	(0 = no lens, 1 = collimating lens, 2 = focusing lens)
B = Spectral Distribution	(0 = 250 nm to 4 microns, 1 = 190 nm to 4 microns, 2 = 160 nm - 4 microns)
C = Discharge Capacitor	(1 = 0.22 μ fd, 2 = 0.10 μ fd, 3 = 0.047 μ fd)
D = Fiberoptic Adapter	(0 = no adapter, 1 = bulkhead SMA)

For more information email us at opto@perkinelmer.com or visit our web site at www.perkinelmer.com/opto

Note: All specifications subject to change without notice.

USA:

PerkinElmer Optoelectronics
2175 Mission College Blvd
Santa Clara, CA 95054
Phone: (408) 565-0830
Fax: (408) 565-0703

EUROPE:

PerkinElmer Optoelectronics GmbH
Wenzel-Jaksch-Str. 31
65199 Wiesbaden
Germany
Phone: +49 611 492 534
Fax: +49 611 492 578

ASIA:

PerkinElmer Optoelectronics
47 Ayer Rajah Crescent #06-12
Singapore 139947
Phone: +65 775 2022
Fax: +65 775 1008

