

μPAX-2

2-Watt Pulsed Xenon Light Source - Preliminary



μPAX-2 Pulsed Xenon Light Source for UV/Vis/NIR Applications

The μPAX-2 from Excelitas Technologies is a 2 Watt Pulsed Xenon Light Source which has been designed to combine an innovative new lamp design with state-of-the-art circuitry and components into a packaged light source which provides microsecond-duration pulses of broadband light with exceptional arc stability. The compact, integrated solution contains the flash lamp, trigger circuit, and power supply in an EMI-suppressant enclosure.

The μPAX-2 offers a wide range of flash energy levels and 2 watts maximum power in a compact, pre-aligned module. It utilizes Excelitas' high stability short arc Xenon flash lamps. Known for their stability and long life characteristics, these Xenon lamps generate light over a continuous spectrum from ultraviolet to infrared.

The compactness, low power level with controlled peak and in-rush currents, excellent stability and small form factor make the μPAX-2 family an ideal choice for UV/Vis Spectrophotometers and Point-of-Care Analytical Instruments.

Features

- High radiant intensity
- Continuous spectrum UV-VIS-IR
- High Stability , <0.5% CV typical
- Long life expectation: 1.0×10^9 flashes
- External and internal reference voltage control
- Regulated trigger voltage
- Battery operable
- Precision alignment
- Integrated package—flash lamp, trigger circuit and power supply, all in a compact, EMI suppressant enclosure
- CE marked and RoHS compliant

Applications

- UV/Vis Spectrophotometer
- Point-of-care Analytics
- Environmental Analysis
- Absorption Analysis
- Fluorescence Trigger
- Immunoassays
- Microplate Readers

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Electrical Input Specifications	
Parameter	Specification
Voltage	11 to 15 VDC
DC Current	<1 Amp avg.
Inrush Current	1.5 Amps peak
Trigger	+5V, 20-50mA peak input, rising edge trigger. Optically isolated internal series resistor = 150Ω.
V _{ref} (External Intensity Adjust)	0 to 5VDC = 600 to 400VDC
Internal/External Intensity Selection	Automatic Selection; no V _{ref} input applied = Internal, valid V _{ref} input applied = External
Mating Input Connector	Hirose Electric Co. Ltd 354-10P-CV(50)

Electrical Output	
Parameter	Specification
Voltage	400-600 ± 2% VDC adjustable
Power (Joules/sec)	2 watts max (power = joules x flash rate)
Standard Discharge Capacitor	0.022, 0.047, 0.094, 0.141 μF
Flash Rate (Hz)	$F_{max} = 2/E$, where $E=1/2CV^2$

Light Output	
Parameter	Specification
Spectral Range	120-2000+ nm
Stability ¹	<1% CV (<0.5% typical)
Lifetime	>1x10 ⁹ Flashes expected lifetime

¹ CV or Coefficient of variation is defined as: $CV\% = (\text{Standard Deviation of 20 Flashes})/(\text{Mean of 20 Flashes})$. Operating conditions: 0.141 μF discharge capacitor. Maximum discharge voltage, 20 Hz flash rate, 335-345nm, average of 50 CV measurements (i.e. total of 1000 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
Safety Compliance	CE Marked

Operating Conditions					
Part Number	Main Discharge Capacitor (μF)	Main Discharge Voltage (V)	Max. Average Input Energy per Flash (mJ)	Max. Repetition Rate (Hz)	Max. Average Power (W)
μPAX-2A1-C	0.022*	400	1.76	1100	2
		600	3.96	505	2
μPAX-2A2-C	0.047	400	3.76	532	2
		600	8.46	236	2
μPAX-2A3-C	0.094	400	7.52	266	2
		600	16.92	118	2
μPAX-2A4-C	0.141	400	11.28	177	2
		600	25.38	79	2

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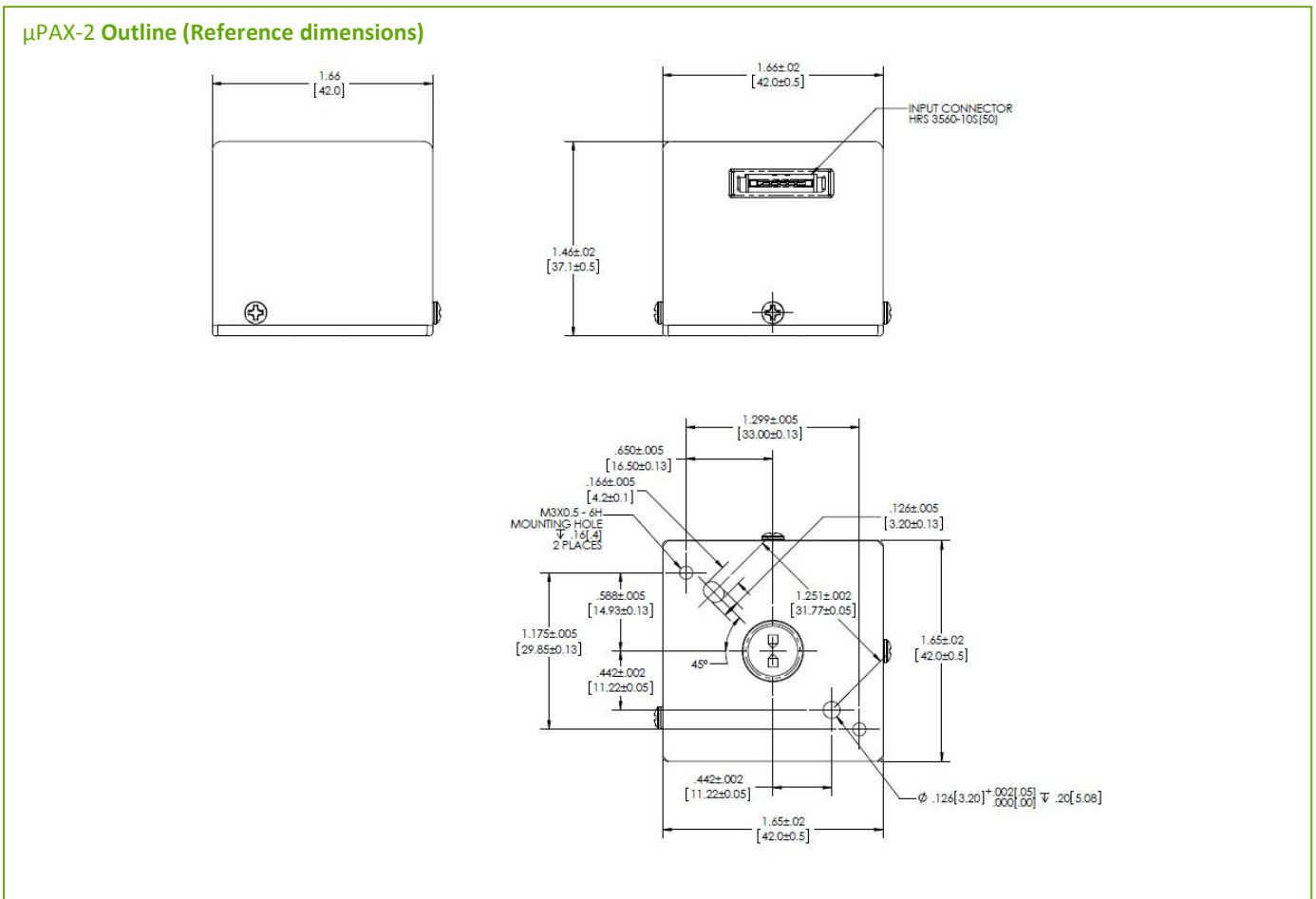
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Part Number Configuration: μPAX-2AB-C	
Where:	
A = Lamp Type	1 - 225-2000+ nm (Borosilicate)
	2 - 190-2000+ nm (UV Glass)
	3 - 120-2000+ nm (MgF2)
	4 - 160-2000+ nm (Sapphire)
B = Discharge Capacitor	1 - 0.022 μF*
	2 - 0.047 μF
	3 - 0.094 μF
	4 - 0.141 μF
C = Future Use	0

* Available on request

Example: **μPAX-224-0** UV glass window and 0.141 μF capacitor

Mechanical Dimensions

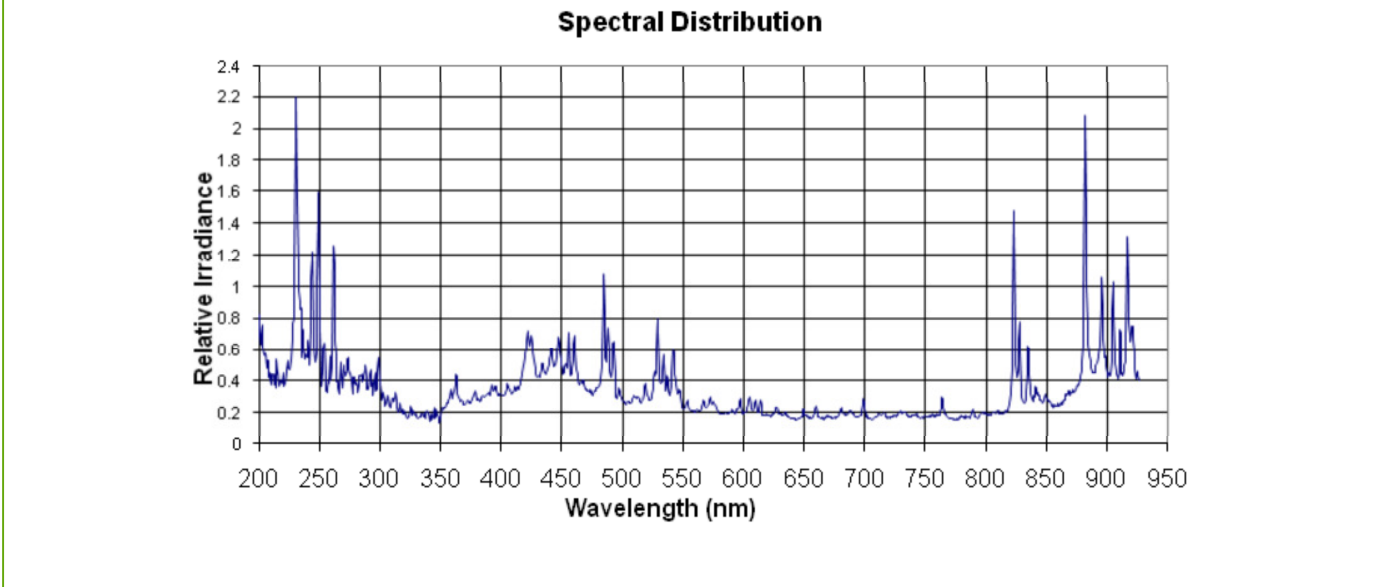


NOTE: All values are nominal; specifications subject to change without notice.

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Spectral Resolution (Reference)



About Excelitas Technologies

Excelitas Technologies is a global technology leader focused on delivering innovative, customized solutions to meet the lighting, detection and other high-performance technology needs of OEM customers.

From analytical instrumentation to medical lighting clinical diagnostics, industrial, safety and security, and aerospace and defense applications, Excelitas Technologies is committed to enabling our customers' success in their specialty end-markets. Excelitas Technologies has approximately 5,000 employees in North America, Europe and Asia, serving customers across the world.

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