

# LUMA™ Laboratory Preparation, Requirements, Specifications



**LUMA MULTI-CHANNEL VACUUM  
ULTRAVIOLET DETECTOR**

SENSITIVE. SELECTIVE. SIMPLE.

## LUMA™ Laboratory and Instrument Requirements

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The requirements in this document must be in place to ensure that the product described herein can be installed properly and safely. Failure to comply with the defined requirements may delay the installation and proper operation of your LUMA detector.

### Introduction

This document provides the laboratory requirements and specifications needed to prepare your site for the installation of your LUMA Multi-Channel Vacuum Ultraviolet Detector. Including:

- Laboratory space requirements
- Supported gas chromatographs
- GC Hardware requirements
- Software requirements for digital data acquisition
- Additional Resources
- LUMA Product Specifications

### Crated Dimensions and Contents

The LUMA Multi-Channel Vacuum Ultraviolet Detector is shipped in a single box. Use the following dimensions to determine the minimum door width required to accommodate the shipping container.

Measurement	Packaged Dimensions
Height	30 in. (76.2 cm)
Width	24 in. (60.96 cm)
Depth	20 in. (50.8 cm)
Weight	42 lbs. (20kg)

#### LUMA will come in a single box with the following components:

- LUMA Multi-channel Vacuum Ultraviolet Detector
- GC-specific interface module
- LUMA power supply module
- Power cord
- Lamp power supply cable
- Qualification and Accessories kit:
  - 15-meter column
  - Chemical standards for initial instrument qualification

### Supported Gas Chromatographs

The LUMA Multi-Channel Vacuum Ultraviolet detector uses an innovative Interface Module to connect to supported GC. The LUMA Interface Module is GC specific. At the time of this publication, Interface Modules are available for the following supported gas chromatographs:

Manufacturer	Supported Models
Agilent Technologies	6890, 7890, 8860, 8890
Shimadzu	Nexus GC-2030v

As additional GC interface modules are made available this table will be updated to reflect currently supported GC models.

## GC Hardware Requirements

The LUMA Multi-Channel Vacuum Ultraviolet detector requires both a purge and make-up gas to ensure proper operation. Providing these gases to LUMA requires the GC in use to be equipped with an Auxiliary Electronic Pneumatic Controller (AUX EPC). LUMA requires two channels of the Aux EPC – one for the makeup gas and the other for the purge gas.

It is highly recommended to replace the O-ring whenever changing the frit.

Please refer to the table below for a list of manufacturer part numbers for the required AUX EPC, O-rings, and frits to be used. Please note that this information can change so it is important that you verify these part numbers with your GC provider.

Item/GC Model	Agilent Technologies		
	6890	7890	8860/8890
AUX EPC P/N	G1570-64000	G3470-60501	G3526-60100
High vResistance Frit	19234-60660 (Blue Dot)	G3430-80063 (Three Blue Rings)	
Medium Resistance Frit	19231-60770 (Red Dot)	G3430-80062 (Two Red Rings)	
Item/GC Model	Shimadzu		
	Nexus GC-2030		
AUX APC P/N	221-78820-83		

## Software Requirements for Digital Data Acquisition

LUMA provides up to 12 channels of digital data acquisition simultaneously depending on the chromatography data system (CDS) in use. The table below outlines the currently supported CDS software that will be required for digital data acquisition.

Manufacturer	CDS Software Name	Version(s) Supported
Agilent Technologies	OpenLab CDS	Ver. 2.7 or later
Shimadzu Corporation	Labsolutions	
Waters Corporation	Empower 3	
Data Apex	Clarity	Ver. 8.0 or later
Chromperfect	Chromperfect	

As additional CDS software packages are supported this table will be updated.

## Additional Resources

The following documentation is available from VUV Analytics.

Resource	Description
LUMA Installation Guide	Provides detailed installation instructions.
LUMA Operators Manual	Provides instructions for operating the instrument and general maintenance procedures.

## LUMA Product Specifications

Parameter	LUMA Detector	Comments
Light Source	Deuterium lamp	2000 Hrs Lifetime
Wavelength Range	118 - 1050 nm; 12 Operating Bands	Band 1 (118 – 130nm) Band 2 (130 – 143nm) Band 3 (143 – 154nm) Band 4 (154 – 165nm) Band 5 (165 – 172nm) Band 6 (173 – 181nm) Band 7 (182 – 193nm) Band 8 (194 – 208nm) Band 9 (210 – 229nm) Band 10 (232 – 261nm) Band 11 (265 – 317nm) Band 12 (325 – 1050nm)
Type of Response	Universal Detection via Absorbance	H <sub>2</sub> , He, and Ar are transparent
Detector	Photodiode Array	
Acquisition Rate	1 - 100 Hz	On All Channels
Typical IDLs (pg on Column)	Benzene: 0.5	Analyte dependent
Linear Range	5-6 orders of magnitude	Analyte dependent
Temperature Range	Ambient - 300° C	
Carrier Gases	H <sub>2</sub> , N <sub>2</sub> , Ar, or He	99.999% Purity
Makeup gas	H <sub>2</sub> , N <sub>2</sub> , Ar, or He	99.999% Purity
Flow Cell Dimensions	10 cm path length, <80 µL cell volume	
Dimensions	19" x 6" x 9" (48.3 x 15.2 x 22.9 cm)	
Weight	24.25 lbs. (11 kg)	
Supported Chromatography Data System Software	OpenLab CDS (v. 2.7 or later) Empower 3 Clarity (v. 8.0 or later) Labsolutions Chromperfect	
Additional Facilities Requirements	Aux EPC 99.999% gas connection, @ 100 PSI	GC model and manufacturer specific
Compatible GCs	Agilent 6890, 7820, 7890, 8860, 8890 Shimadzu Nexis GC-2030	

Power Supply Module		
Dimensions	12" x 6" x 4.5" (30.5 x 15.2 x 11.4 cm)	
Weight	4.4lbs (2 kg)	
Power Input Voltage	100-240VAC, 50/60 Hz 350 VA	

<b>GC Interface Module</b>	
<b>Agilent GC Interface Module</b>	
<b>Dimensions</b>	10" x 6" x 5" (25.4 x 15.2 x 12.7 cm)
<b>Weight</b>	8.8 lbs. (4 kg)
<b>Shimadzu Nexus GC 2030</b>	
<b>Dimensions</b>	10" x 6" x 6" (25.4 x 15.2 x 15.2 cm)
<b>Weight</b>	8.8 lbs. (4 kg)



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