



Culpeo[®] QCL-IR Liquid Analyzer

REAL-TIME, QUANTITATIVE ANALYSIS

It's time to reconsider mid-IR for fast high-sensitivity liquid analysis. Unlike traditional FT-IR based instruments, which are limited to path lengths less than 10 μm , the Culpeo[®] liquid analyzer leverages high-brightness quantum cascade lasers (QCL) to perform direct transmission measurements at much longer path lengths ($> 100 \mu\text{m}$) for aqueous and solvent-based solutions. The Culpeo[®] is a compact, intelligent and easy-to-operate mid-infrared spectrometer specifically designed for detection of low-concentration (ppm) analytes in standard HPLC liquid columns. The longer path length, combined with broad source tunability and a proprietary balanced detection architecture enables unprecedented sensitivity, selectivity, and speed for measurement of mixtures and separated flows.

The Culpeo[®] is an excellent tool for manufacturing process engineers. With a click of the mouse, view raw spectral data or model calibrated analyte concentration outputs. The Culpeo[®] is also equipped with an advanced software development kit (SDK), which enables easy integration of Culpeo[®] into complex laboratory workflows or process control systems.

HIGHLIGHTS

- Daylight Solutions' proprietary QCL-IR engine
- Real-time quantitative spectral data capture
- Easily configurable for continuous PAT or batch analysis
- Works with commercial HPLC and fluid handlers
- User-friendly software
- Multi-analyzer synchronization
- Network controllable
- OPC-UA enabled
- Large linear dynamic range
- Low LOD/LOQ
- Easy-to-load smart flow cell modules
- Small footprint
- Stackable
- No cryogenic cooling required

LIQUID SPECTROSCOPY TAKEN TO THE NEXT LEVEL

SPECIFICATIONS

BASE CONFIGURATION OPTIONS

	CULPEO-LA-P	CULPEO-LA-S
SPECTRAL RANGE (MINIMUM)	1400-1700 cm ⁻¹	1000-1200 cm ⁻¹
SPECTRAL RANGE (TYPICAL)	1375 - 1725 cm ⁻¹	950 - 1225 cm ⁻¹
DETECTABLE MOLECULES (SAMPLE LIST)	Proteins, Amino Acids, Amide groups, Peptides, mAbs, ADCs, Virus-like particles	Simple sugars, Polysaccharides, Bioreactor metabolites, Waste products, Peptide synthesis, Nucleic acids

Ask your sales representative about additional available spectral ranges.

LIQUID FLOW CELL MODULE OPTIONS

AVAILABLE PATH LENGTHS (µm)	FLOW CELL VOLUME (µL)	PART NUMBER
19	0.06	CULPEO-LFC-0019
30	0.09	CULPEO-LFC-0030
51	0.1	CULPEO-LFC-0051
76	0.2	CULPEO-LFC-0076
120	0.3	CULPEO-LFC-0120
500	1.5	CULPEO-LFC-0500
800	2.5	CULPEO-LFC-0800
1000	3.1	CULPEO-LFC-1000
1500	4.7	CULPEO-LFC-1500
2000	6.2	CULPEO-LFC-2000

Flow cell volume listed refers to the approximate infrared light interaction volume of the flowing liquid.

Flow Rate	0.1-1 mL/min typical (Inquire for options up to 50 mL/min)
Back Pressure	< 4 Bar

INSTRUMENT SPECIFICATIONS

Physical Dimension (LxWxH)	14.25" x 12" x 5.125"
System Control	Stand-alone or multi-instrument connectivity
User Interface	ChemDetect™ GUI or SDK
Power Requirement	100-240 Vac 50-60Hz 1.5A
Network Connectivity	USB Mini-B 5 pin
Secure Network Protocols	OPC-UA
Fluid Connections	F130 IDEX
Fluid Handling	Compatible with Ceviche™ Auto-Sampler
Operating Temp	19 - 30 °C
Storage Temp	5 - 35 °C
Tubing	IDEX 1/16" od 0.8 mm ID ETFE Tubing or PEEK (typical)
Operating System	Windows 10
Temperature Regulation	Water Chiller, Set at 20 °C
Linear Dynamic Range	> 300:1 (glycylglycine in water)
Chemical Compatibility	Aqueous or commonly used organic solvents ¹

SOFTWARE

Software Included	ChemDetect™ Software GMP Kit Option available, please inquire ²
Export Formats	.CSV, .SP, .MAT ³

SUPPORTED MODALITIES

Walk-up/Stand-alone flow injection batch analysis
In-line analysis of liquid chromatography separations
At-line/On-line bioprocess monitoring

¹Please inquire about known chemical solvent compatibilities

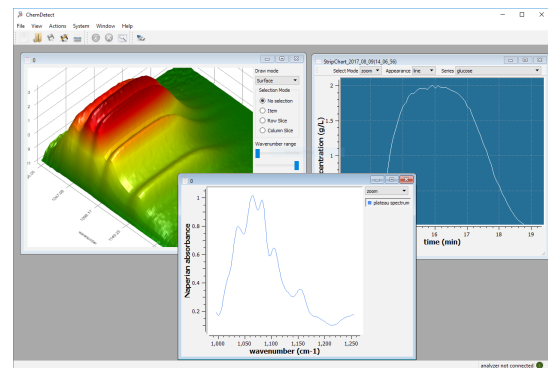
²Please contact if you require a specific format

³OPC-UA and wavelength/intensity self-check to support GMP workflows

APPLICATIONS

- Protein analysis
 - » Titer determination
 - » Secondary structure
 - » Aggregation
 - » Glycosylation
 - » Conjugation
 - » PEGylation
- Stability
 - » Liquid chromatography
 - » Chemical reactor monitoring
 - » Bioreactor monitoring
 - » Process development

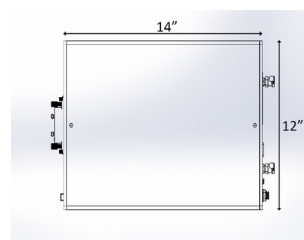
USER-FRIENDLY SOFTWARE



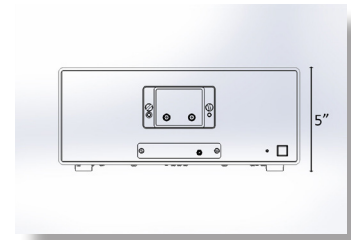
The ChemDetect™ Software is user-friendly and enables users to view raw spectra or calibrated analyte concentrations in real-time. A SDK is available to integrate Culpeo® into complex laboratory or process control systems.

PHYSICAL DIMENSIONS

TOP VIEW



FRONT VIEW



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**CLASS 1
LASER PRODUCT**



COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS
PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007. COMPLIES WITH
IEC 60825-01

REV7-2020