# CSE-EQ-99-VIS-NIR

## Chromatiq Spectral Engine™

## Overview

The Chromatiq Spectral Engine™ (CSE) is a system-level light source providing precision control over the spectral content of emitted light. Users can emulate real-world lighting conditions, combine spectra from multiple sources and shape custom spectra to meet specific test and calibration needs.

The CSE offers unparalleled spectral match accuracy, repeatability, and speed to optimize optical testing and calibration procedures in the production environment. Spectra can be switched in less than 10 ms to save time and increase process throughput.

## Principle of Operation
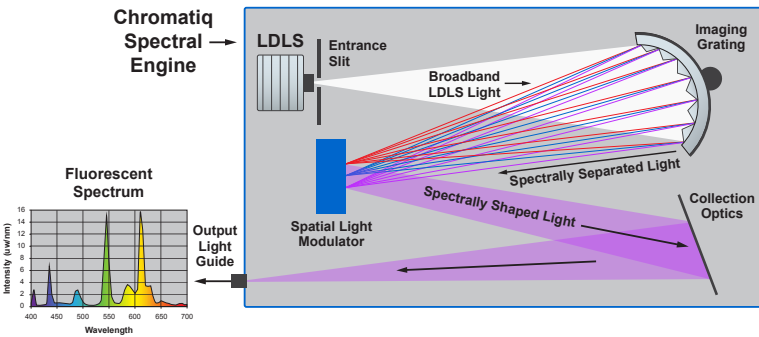


## Properties

| Wavelength Range | 380 nm – 1,100 nm |
|---|---|
| Spectral Resolution, VIS 380 nm – 780 nm (FWHM) | ≤ 5 nm |
| Spectral Resolution, VIS-NIR 780 nm – 1,100 nm (FWHM) | ≤ 15 nm |
| Switching Time (TTL trigger) | ≤ 10 ms |
| Output Type | Liquid Light Guide (6.5 mm diameter) |
| Bulb Lifetime | 10,000 hours |
| Laser Class | Class 1 (IEC 60825: 2014) |

## Wavelength Range



380 nm – 1,100 nm

## System Throughput



Total Flux (380 - 1,100 nm): 12.4 mW
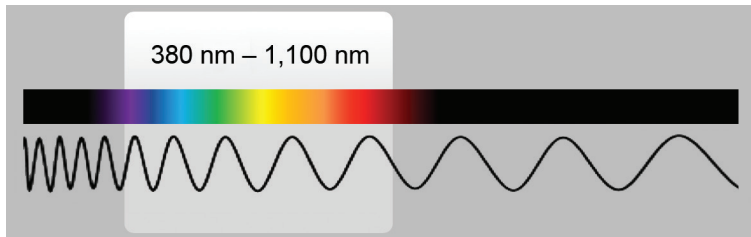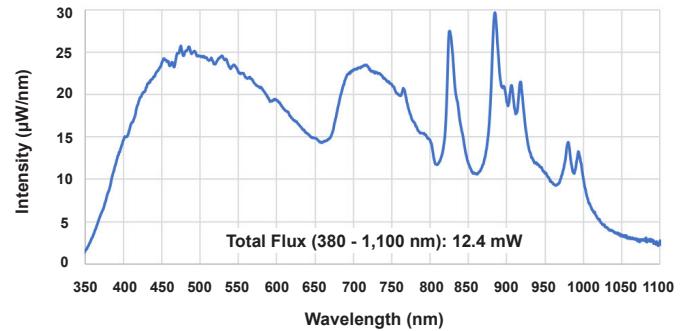
*Performance data is typical - not intended for system design use.*

## Example Spectral Match – 5000 CCT
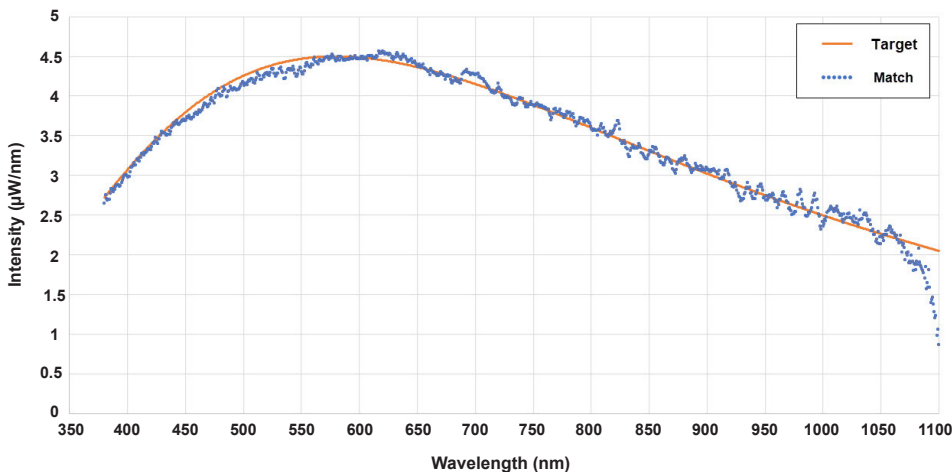


|  | Target | Match | Abs. Err. |
|---|---|---|---|
| **CCT** | 4999.86 | 4884.5 | 115.36 |
| **u** | 0.211426 | 0.213568 | 0.002142 |
| **v** | 0.484663 | 0.484978 | 0.000315 |
| **x** | 0.345094 | 0.348099 | 0.003005 |
| **y** | 0.35159 | 0.351322 | 0.000268 |
| **Duv** | 6.23E-06 | 0.001343 | 0.001337 |
| **RMS** |  |  | 0.036478 |

| **Flux** |  | 2503 µW |
|---|---|---|

*Performance data is typical - not intended for system design use.*

## Models

*The recommended service interval is 10,000 hours.*

| Part Number | Description | Wavelength Range |
|---|---|---|
| CSE-EQ-99-VIS | Chromatiq Spectral Engine, Visible | 380 nm – 780 nm |
| CSE-EQ-99-VIS-NIR | Chromatiq Spectral Engine, Visible – Near Infrared | 380 nm – 1,100 nm |

## Accessories

| Part Number | Description |
|---|---|
| CSE-LLG-VIS-NIR-65-1M | Liquid Light Guide, 6.5 mm diameter, 1 m length |
| CSE-LLG-VIS-NIR-65-3M | Liquid Light Guide, 6.5 mm diameter, 3 m length |
| CSE-HM-GR-13 | Glass Rod Homogenizer |

## Facility Requirements

| | |
|---|---|
| Electrical | 100-240 VAC, single phase, 50/60 Hz 390 W max. |
| Nitrogen Purge | Recommended. Grade 4.8 or higher, filtered to 5 µm; 0.14 MPa pressure |
| Ambient Temperature | 15-35 °C |

## Physical Specifications

| | |
|---|---|
| Lamphead Dimensions (H x W x D) | 221 x 484 x 538 mm |
| System Weight | 7.6 kg |

## User Interface

The CSE Host Application includes automated spectrum matching algorithms and a flexible user interface that enables system configuration, spectrum matching, creation of custom spectra, and definition of trigger sequences. The CSE Host Application runs on a standard PC with the Microsoft Windows operating system.

The CSE Host Application includes an automated System Characterization process that adjusts the output of the CSE based on feedback from a calibrated spectrometer. Characterization is typically performed during system installation and periodically thereafter (typically every month or every several months). An individual spectrometer can support a fleet of any number of CSE systems. One of the following spectrometer models is required for characterization.

| Spectrometer Name | Model Number |
|---|---|
| Ocean Insight QE Pro | XQEPRO-EQT (VIS, VIS-NIR, Energetiq-specific configuration) QEPRO-ABS (VIS only, internal shutter option required) |
| Instrument Systems CAS140 | CAS140CT-156 (UV, VIS, NIR, discontinued model) CAS140D-156 (UV, VIS, NIR, current model) |

## Chromatiq Spectral Engine Dimensions (Unit: mm)

*Drawings are for reference only and are not to scale.*
*STEP-File available.*
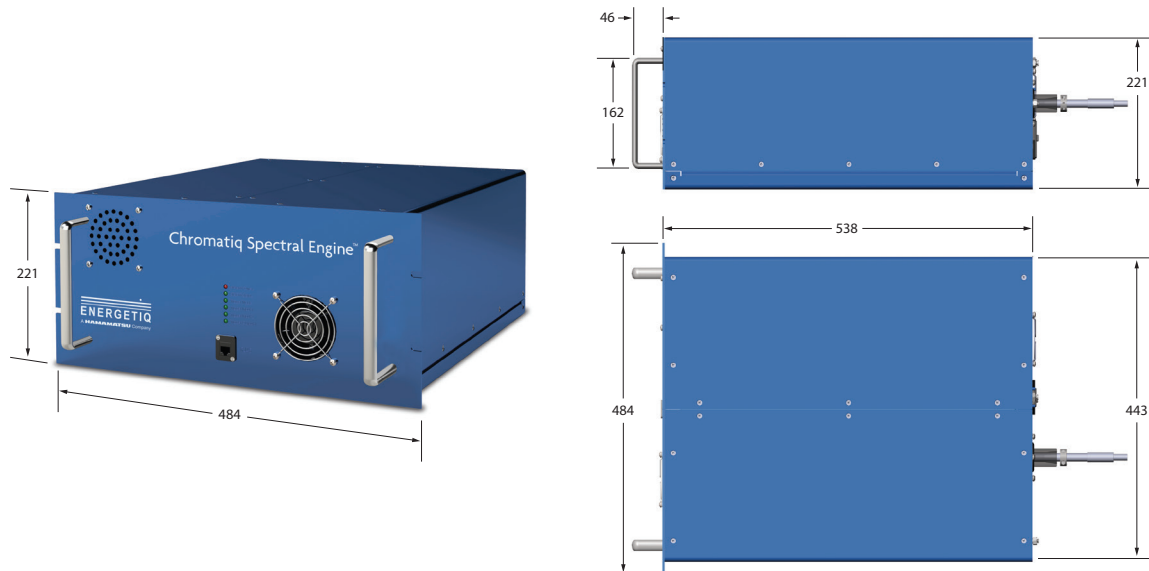
Specifications are typical and subject to change without notice.
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## ENERGETIQ
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