EQUITECH

EquiSPEC μ™

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Miniature In-Line Process Spectrophotometer

INTRODUCTION

The Equi**SPEC μ**™ is a compact, next-generation in-line spectrophotometer system designed for real-time process monitoring in challenging industrial environments. Engineered by **Equitech Intl.**, the μ-series brings the proven performance of the EquiSPEC HP™ platform into **a smaller, lighter, and more affordable** package — perfect for applications where space, budget, or mobility are critical.

Encased in a rugged **NEMA 4X** enclosure, the EquiSPEC μ™ is both **corrosion-resistant and splash-proof**, ensuring reliable operation in demanding process areas. The system uses **fiber-optic probes** to monitor product characteristics directly in the process stream, delivering accurate chemical and color data in real-time.

While "headless" in form, the μ™ integrates seamlessly with Equitech's **web-based software suite**, providing full control and visualization through a connected smartphone, tablet, or PC. Users can view live spectra, configure parameters, and access historical data remotely — all through an intuitive web interface.

APPLICATION INSIGHT

The EquiSPEC μ™ is designed for **the same broad range of process and color measurement applications** as the Equi**SPEC HP**™ — from extrusion and compounding to coatings, films, and chemical processes — provided the application does not demand the highest levels of **repeatability or reference-path accuracy**.

For most real-world production environments, the μ™ delivers measurement precision well within acceptable limits, ensuring dependable results and real-time process control. However, for applications requiring **tight color tolerances, dual-beam**

reference stability, or absolute quantitative precision, the full-featured Equi**SPEC HP**™ remains the recommended platform.

SMALL SIZE, BIG ADVANTAGE

At only **6**" x **4**" x **4.5**", the Equi**SPEC μ**™ fits where traditional analyzers can't. Its small footprint and reduced weight make it ideal for installation on compact production lines, pilot plants, and OEM integrations — all without sacrificing measurement quality or environmental protection.

Despite its size, the μ™ maintains Equitech's hallmark **industrial reliability**, offering stable performance under conditions of heat, vibration, and moisture. Its **single-path optical design** ensures fast and consistent readings, while a **customizable 10-channel LED light source** provides broad spectral coverage from the visible range into the near infrared. UV LEDs can also be added for specific applications requiring deeper spectral analysis.

Whether for continuous color monitoring, real-time product verification, or process optimization, the EquiSPEC μ™ delivers high-value insight in a small and serviceable package.

OPTICAL

Repeatability RMS delta E (white tile)	Maximum 0.1 RMS delta E CIELAB*
Inter-Instrument Agreement (LASP)	Maximum 0.2 ave. delta E CIELAB*
Short-term repeatability (p-p of 20 consecutive measurements)	
L*a*b* white tile	0.02
L*a*b* selected high chroma BCRA II	0.04
L*a*b* selected neutral or low chroma BCRA II	0.02
Spectral 420 - 680 nm, white tile, % full scale	0.10
Spectral 400 - 420 & 680 - 700 nm, white tile, % full scale	0.15
Illumination	LED array
Detector	Hamamatsu S11639, 2048 horizonal pixels
Spectrometer Type	Symmetrical Czerny-Turner
Instrument Configurations	All fiber-optic, single spectrometer, single-beam
Signal / Noise	375:1
Spectral Range	380 - 780 (standard.); ranges customizable
Wavelength Accuracy	< ± 0.25nm
Wavelength Reproducibility	< ± 0.05nm
Wavelength Resolution	0.75nm, nominally w/25 micron slit
Photometric Range	0 - 200% reflectance
Stray Light	0.1% - 1% Typical
Measurement Time	Probe / sample dependent; as low as 0.05s

GENERAL

Interface	Headless Unit, Use Web-app with Phone, Tablet, Computer
Enclosure	NEMA 4x, IP65
Dimensions	15.25W x 10.2L x 11.4H cm (6 x 4 x 4.5 in.)
Weight	1.8 kg (4 lbs.)
Mounting Holes	4
Horizontal Spacing	17.3 cm (6.8 in.), center-to-center
Vertical Spacing	5.1cm (2 in.), center-to-center
Diameter	0.8 cm (0.3125 in.) Accepts 3/8 in. bolts
Temperature (operating)	15 - 35 °C
Electrical Requirements	7.5 VDC, 10 A
External Ports	USB (1), Ethernet (1), Digital Output (2)

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