

i-Spec® Series (17, 17B, 22)

Portable Broadband Transmittance / Reflectance / Absorption Spectrometers



The i-Spec® series is a group of portable broadband fiber-optic coupled spectrometer systems for field, laboratory, and at-line use. The spectrometers cover 350 – 2200 nm and employ CCD, Si Array, InGaAs array, and/or extended InGaAs array detectors for optimal sensitivity and dynamic range in the Vis and NIR range. The i-Spec features a standard external triggering port with flexible fiber optic coupling of reflectance/transmittance fiber optic probes (standard) or other sampling accessories. Optimal transmittance or reflectance measurements are taken using long-lifetime 5 or 20 watt tungsten halogen sources. High speed detection systems enable fast spectral capturing of 20 to >100 spectra per second, making the i-Spec ideal for studies where high- speed spectrum capture rates are essential.

The system includes a fiber optic probe for easy diffuse reflectance and transmittance measurements of solids, liquids, gels and slurries. The iSpec 4 software provides an easy user interface to control and optimize measurements with each of the system's spectrometers.

Applications:

- **Chemical analysis of clear liquids, opaque liquids, and gels**
- **Diffuse reflectance material property measurements of solids**
- **Measurement of moisture, fat, and protein in feed & forage**
- **Chemical analysis of foods**
- **Quantitative analysis of textiles and fibers**
- **Composition of food and pharmaceutical formulations**
- **OEM building blocks for PAT instrumentation**

Features:

- Portable, lightweight, rugged, turnkey design
- Flexible fiber coupling of sampling accessories
- USB 2.0 connectivity for simple computer operation
- Battery option available

Sampling Accessories:

- Fiber-optic probes
- Cuvette holder and connecting fibers
- Sapphire ball probe



Common Specifications (Typical):

System		
Measurements	Transmittance, reflectance, absorbance with included fiber optic probes	
Connections	Illumination and collection SMA905 ports for fiber optic coupling	
Triggering	Front panel connection for use with sampling probes with triggering feature	
Computer Interface	USB 2.0/1.1	
Software	iSpec® 4	
Software Options	Software Developer's Kit (SDK) Sample code: C#, C++, Visual C++, Visual Basic, VBA, Labview, VB.NET	
Instrument Dimensions	9.5 (H) x 6.7 (W) x 13.7 (D) in	242 (H) x 170 (W) x 347 (D) mm
Weight (Model Dependant)	7.9 - 10.8 lbs	3.6 - 4.9 kg
Power Adaptor	12V DC @ 10.8 Amps, battery option available	
Operating Temperature	0°C to 35°C	
Spectrometer		
Optical Design	Crossed Czerny Turner spectrographs	
Digitization Resolution	16-bit or 65,535 to 1	
Minimum Integration Time	200µs / 250µs	
Light Source	Tungsten Halogen 5W	Tungsten Halogen 20W
Spectral Output Range	350 to > 2200nm	350 to > 2200nm
Color Temperature	2800 K	2900 K
Warm Up Time	~40 Minutes	~40 Minutes
Rated Life	10,000 Hours	2,000 Hours

Ordering Guidelines:

Product Name	Model Number	Tungsten Halogen Light Source (W)	Wavelength Range (nm)	Spectral Resolution (nm FWHM) & Detector Array
i-Spec 17	BWS035-05	5	900-1700	~4 (900-1700nm) TE-cooled InGaAs linear array
	BWS035-20	20		
i-Spec 17B	BWS015-05	5	350 - 1700	~2 (350-1050nm) TE-cooled silicon CCD array ~4 (900-1700nm) TE-cooled InGaAs linear array
	BWS015-20	20		
i-Spec 22	BWS005A-05	5	400 - 2200	~6 (400-1100nm) Silicon photodiode linear array ~13 (1100-2200nm) TE-cooled extended InGaAs array
	BWS005A-20	20		
Contact B&W Tek for more information on these and other custom configurations				