DATA SHEET

Illumination Systems

High-optical output illumination systems for accurate DIC measurements



Figure 1 – SXR -LED Illumination System with X-Illumination Controller

The ability of Digital Image Correlation (DIC) system to accurately measure contour (shape), displacement, and strain can be achieved by using an illumination system that has the following properties; high-intensity brightness, homogenous distribution, chromatic wavelength, and continuous (flicker-free) operation.

Dantec Dynamics has a large portfolio of illumination solutions for Digital Image Correlation (DIC) systems that differ according to; illuminance optical output, colour wavelength, and illumination triggering mode.

The selection of the most appropriate illumination system for a materials testing application is dependent on the; required acquisition frame rate, minimum (usable) shutter time, distance-to-object (DtO), speckle contrast, and test temperature.

Key benefits

- Flicker-free, medium- and high-intensity illumination system
- High optical output, flicker-free, medium- and high-intensity illumination systems
- Clear & consistent application-based segmentation of illumination system performance
- Modular & multi-system functionality with the X-Illumination Controller
- Exchangable diffuse filters
- Standardized safety eyewear
- (Standard) Photo Red (650–670 nm) wavelength illumination for optimum camera spectral (quantum) efficiency
- (Optional) blue (440–460 nm) wavelength for fluroescent speckling & high-temperature testing applications

Article Number	Name	Wavelength	App. DIC System	Illumination Triggering	Lumens	Max Use. Distance	Application & Solutions
DSM 47000	LED Illumination System	White	EduDIC	Continuous (Constant)	6,240	1.5 m	Low-Speed (Quasi-Static Testing) Applications
DSM 47100	XR-LED Illumination System	Red (650 nm – 670 nm)	FlexDIC, MulticamDIC, MSpeedDIC, or ThermechDIC	Continuous (Constant) or Strobe (Stroboscopic)	12,600	3 m	Low- or Medium-Speed Applications *High-Temperature **Fluroescent Speckling
DSM 47120	XB-LED Illumination System*/**	Blue*/** (440 nm – 460 nm)					
DSM 47130	SXR-LED Illumination System	Red (650 nm – 670 nm)	MSpeedDIC or HSpeedDIC		20,800	12 m	Medium- or High Speed (Fatigue or Dynamic) Applications *High-Temperature **Fluroescent Speckling
DSM 47140	SXB-LED Illumination System*/**	Blue*/** (440 nm – 460 nm)					
DSM 46060	HP-LED Illumination System	White	HSpeedDIC	Continuous (Constant)	25,530	5 m	Medium- or High Speed (Fatigue or Dynamic) Applications

Table 1 – Illumination solutions portfolio

X- Illumination Controller

Multi-system functionality can be achieved using the (optional) X-Illumination Controller, which allows up to 8x XR, XB, SXR, or SXB-LED illumination systems to be connected.

Each connected unit can operate independently or together in unison, in either; continuous (constant) or in strobe (pulsed) triggered mode.



Polarization Filters

The XR/XB-LED and the SXR/SXB-LED Polarization Filters are high-temperature, linear polarizing glass filters that can be attached to the mounting bracket of the respective illumination system.
They can be used to manage reflections and suppress glare that may occur when working through mediums (ie. glass windows) or with shiny-coated objects.



DSM 47180: XR/XB-LED Polarization Filter

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