LaVision

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HighSpeed IRO X

Lens coupled image intensifier module for high-speed camera systems

The **HighSpeed IRO X** is an **Intensified Relay Optic** system, equipped with an extremely fast-gated high precision shutter control. It improves the performance of LaVision's high-speed camera series or other commonly used CMOS cameras.

The **HighSpeed IRO X** offers:

- Highest UV sensitivity
- Sensitivity peak within visible range
- Short gating times down to 10 ns
- Enhanced lens coupling unit resulting in reduced vignetting (signal decrease to the rim)

The **HighSpeed IRO X** is a modular lens-coupled system to be mounted in front of high-speed cameras. It has an optimized image intensifier system with fast P46 phosphors for high frame-rate recording without ghosting into subsequent frames.
LaVision **HighSpeed IRO X** is available as single-stage (MCP) system or 2-stage (MCP and booster) system. The 2-stage intensifier system configuration yields approx. 10 times higher signal output compared to single-stage system.
For highest frame rates a 2-stage system is required to get adequate dynamic behavior, for moderate frame rates up to approx. 20 kHz a single-stage system can be sufficient. The max. achievable frame-rate when using a single-stage system is also dependent on the parameters of the high-speed camera in use.
The IRO controller ensures optimized synchronization to the camera offering various timing modes and automatic enabling/disabling synchronous to the camera recording. Controlling is done via local keypad or remote by the IRO App or by LaVision DaVis program via USB interface. The controller offers the timing modes: Internal, Direct and Burst Seq.
The **HighSpeed IRO X** lens system is a 1:1 coupling optics optimized for highest collection efficiency, resolution and minimized shading (center to rim) for object diameter of 25 mm. The 1:1 coupling matches optimal typical large CMOS high-speed camera sensors, as this way the whole sensor is illuminated by the image of the 25 mm intensifier.
An optional add on "**HighSpeed IRO** Focusing Base Mount" allows easy focusing of the **HighSpeed IRO X** to the CMOS camera.

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General System Specification

Spectral range	190 – 800 nm (depending on photo cathode)
Max. repetition rate	up to 300 kHz with 10 ns gate for 2-stage systems up to 20 kHz with 10 ns gate for single-stage systems depending on camera model used
Min. exposure time	10 ns in internal mode
Lens coupling	1:1, η~ 12%
Input adapter	Nikon F-mount
Vignetting	< 10% (center to rim)

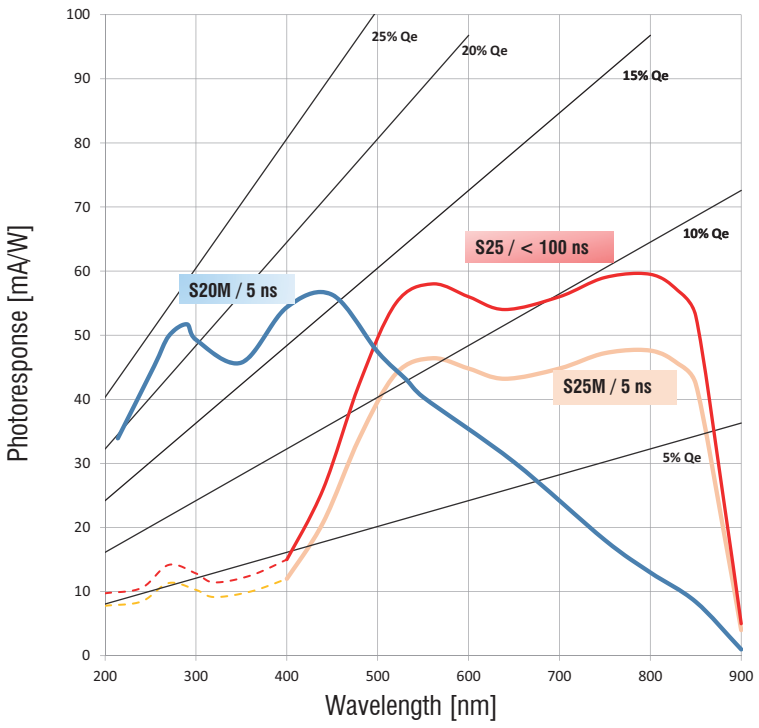
Image Intensifier

2-stage system	intensifier type: 1st stage: Gen 2 proximity focused MCP 2nd stage: Gen 1 proximity tube (booster)
Single-stage system	intensifier type 1st stage: Gen 2 proximity focused MCP
Diameter	25 mm
Input window	quartz (other on request)
Photo cathode	S20 (S25), minimum gate 10 ns
Phosphor screen	P46, decay time < 3 µs (to 1%)

Dimensions

Size (L x W x H)	300 x 135 x 155 mm³
Weight	~ 6 kg

Cathode Sensitivity



May-26

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