

# IRO X Intensified Relay Optics

Camera upgrade for  
„high-speed gating“,  
UV-sensitive, intensified imaging  
systems

**IRO X** is an intensified gated relay optics system equipped with an extremely fast high precision shutter control. Digital setting allows variable exposure times down to ns range. All settings (gain, delay and width of exposure) can be controlled by LaVision's DaVis software. **IRO X** can be mounted in front of almost every imaging system. Your camera becomes a „high-speed gating“, light intensified imaging system.

Thus **IRO X** is an ideal solution for taking rapid events and low light level imaging, like discharges, fluorescence phenomena or explosions.



Two versions with different optical couplings are available, depending on the size of the camera sensor.

## Applications

- ▶ fast events
- ▶ low light level imaging
- ▶ discharges
- ▶ fluorescence phenomena
- ▶ explosions

## Features

- ▶ single shot triggering
- ▶ wide range of exposure and trigger delay times (ns to ms)
- ▶ easy coupling to your imaging system
- ▶ wide spectral response
- ▶ distortion free Imaging due to MCP - image intensifier
- ▶ detached control unit with EMI - shielding
- ▶ local control via LCD keypad/display or remotely controllable by DaVis software
- ▶ appropriate mounting consisting of 500 mm optical rail with 3 clamps, posts and holders available

### LaVisionUK Ltd

2 Minton Place / Victoria Road  
Bicester, Oxon / OX26 6QB / United Kingdom  
E-mail: [sales@lavidion.com](mailto:sales@lavidion.com) / [www.lavidionuk.com](http://www.lavidionuk.com)  
Phone: +44-(0)-870-997-6532 / Fax: +44-(0)-870-762-6252

### LaVision GmbH

Anna-Vandenhoeck-Ring 19  
D-37081 Göttingen / Germany  
E-mail: [info@lavidion.com](mailto:info@lavidion.com) / [www.lavidion.com](http://www.lavidion.com)  
Tel. +49-(0)551-9004-0 / Fax +49-(0)551-9004-100

### LaVision Inc.

211 W. Michigan Ave. / Suite 100  
Ypsilanti, MI 48197 / USA  
E-mail: [sales@lavidioninc.com](mailto:sales@lavidioninc.com) / [www.lavidioninc.com](http://www.lavidioninc.com)  
Phone: (734) 485 - 0913 / Fax: (240) 465 - 4306

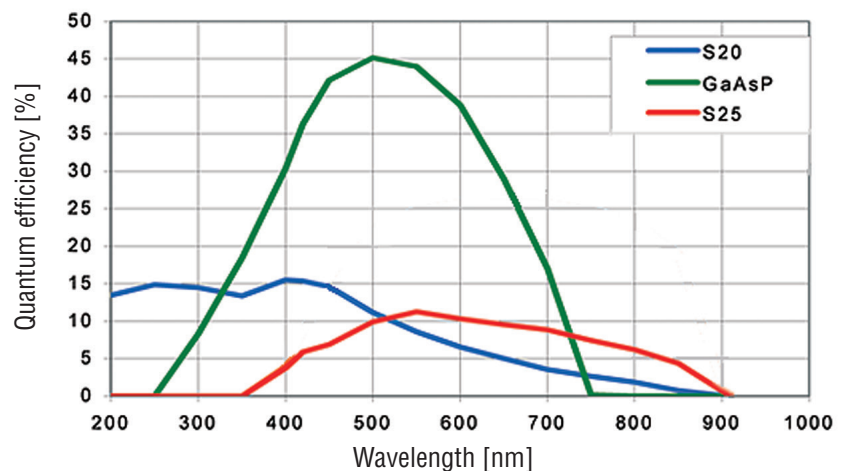
### General System Specification

<b>Spectral range</b>	190 – 900 nm (see photo cathode curves)
<b>Min. exposure time</b>	10 ns (5 ns with external gate)
<b>Camera frame rate</b>	up to 100 Hz (depending on exposure conditions)
<b>Input adapter</b>	Nikon F-mount or C-mount
<b>Lens coupling</b>	depending on camera chip size; to be used 1:1 or 2.17:1
<b>Camera mount</b>	M42 (others on request)

### Image Intensifier

<b>Intensifier type</b>	single stage MCP
<b>Diameter</b>	25 mm (others on request)
<b>Photo cathode</b>	S20, S25, GaAsP
<b>Phosphor screen</b>	P43 (others on request)
<b>Uniformity</b>	66,7%

**Spectral sensitivity (typical)**



### Intensifier Quality

#### Dark spots

Size of spot (X)	Number allowed		
	A: 7.6 mm dia.	B: 7.6-20.3 mm dia.	C: 20.3- 24.9 mm dia.
X > 305 µm	0	0	0
230 < X ≤ 305 µm	0	0	1
150 < X ≤ 230 µm	0	1	4
100 < X ≤ 150 µm	2	3	5
75 < X ≤ 100 µm	3	5	6
X < 75 µm	N / A	N / A	N / A

Note 1: spot size is defined as the diameter of the circle, with the area equal to the area of the spot.

Note 2: „N / A“ means it is not applicable.

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E-mail: info@lavision.com / www.lavision.com  
Tel. +49-(0)551-9004-0 / Fax +49-(0)551-9004-100

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**Electronics**

<b>Gating (exposure)</b>	10 ns – 80 ms, error 1ns
<b>Delay</b>	60 ns – 80 ms, error 5 ns
<b>Delay/gate resolution</b>	5 ns steps
<b>Control</b>	a) local via LCD keypad/display b) remote from PC via DaVis program:
<b>Trigger input</b>	TTL
<b>Connection cable</b>	USB
<b>Power supply</b>	230 V or 110 V

**Ordering Information:**

Part number	Description
1102560	IRO X, 25 mm, P43, S20, 10 ns, 2:1
1102561	IRO X, 25 mm, P43, S25, 10 ns, 2:1
1102563	IRO X, 25 mm, P43, GaAsP, 10 ns, 2:1
1102580	IRO X, 25 mm, P43, S20, 10 ns, 1:1
1102581	IRO X, 25 mm, P43, S25, 10 ns, 1:1
1102583	IRO X, 25 mm, P43, GaAsP, 10 ns, 1:1
1102584	IRO X, 25 mm, P43, GaAs, 10 ns, 1:1
1109924	Mounting kit for IRO X and lightweight CMOS camera consisting of 200 mm optical rail with 2 clamps, posts and holders, suitable for lightweight cameras, e.g. Imager M-lite or Imager E-lite series
1109925	Mounting kit for IRO X and midsize CMOS camera consisting of 500 mm optical rail with 4 clamps, posts and holders, suitable for midsize cameras like Imager pro X series

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