

All Digital  
Time Domain Imaging™

# Microdisplays / SLMs

Ferroelectric Liquid Crystal on Silicon (FLCoS)

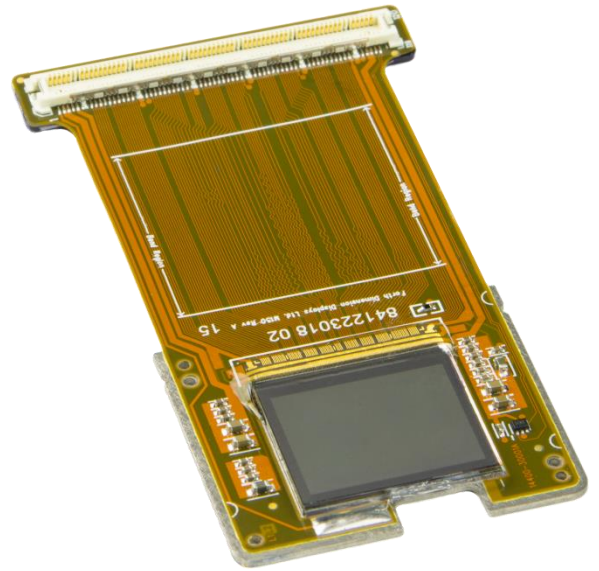
Forth Dimension Displays develops, manufactures, and supplies ferroelectric liquid crystal on silicon devices (FLCoS) for applications as microdisplays and spatial light modulators (SLM).

The FLCoS devices can be operated as amplitude modulators using Time Domain Imaging (TDI™) to produce full colour, high resolution images. Alternatively, Forth Dimension Displays' FLCoS can operate as binary phase modulators in applications that require a fast and stable programmable 2D diffraction grating.

Forth Dimension Displays offers plug & play board level products which include application-dedicated interface boards. The board level products can either accept video data (R3 – R10) or show pre-loaded images as required for structured light synchronized with a camera (3DM: R11 – R12).

## FEATURES common to all products

- Fully digital, fast binary FLC microdisplay
- Optimised for visible light
- 32 pixel border
- Square pixels
- No Sub-pixels
- > 94 % fill factor
- 40 µs liquid crystal switching time
- 0.83" to 0.94" diagonal active area
- > 2 kHz frame rate for binary images
- Up to 550 Hz frame-rate at 8-bit greyscale
- Accurate, linear greyscale reproduction
- Different customisable display/SLM addressing sequences available
- Proven technology with long term availability
- On-board temperature sensor
- RGB LED illuminator + LED driver options



## APPLICATIONS

- Monocular /binocular (Stereoscopic) viewers
- Bi-ocular viewers
- Head Mounted Displays (HMD)
- Head Up Displays (HUD)
- Helmet Mounted Visual systems (HMVS)
- Image injection for surgical microscopy
- Ophthalmic metrology
- 3D Optical metrology
- Structured light projection
- 3D Automated optical inspection
- Super resolution microscopy
- Optical computing



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Product		M108	M249	M349	M150	M180	M190
Resolution Standard		WXGA	SXGA	SXGA	QXGA	2K	WQHD
Active Area Diagonal	Inch	0.8	0.88	0.88	0.83	0.94	0.95
Resolution	H x V	1280 x 768	1280 x 1024	1280 x 1024	2048 x 1536	2048 x 2048	2560 x 1440
Pixel Pitch	µm	13.62	13.62	13.62	8.2	8.2	8.2
Pixel Form Factor		Square					
Fill Factor		>96%	>96%	>96%	>94%	>94%	>94%
Light Modulation		Binary Amplitude / Binary Phase					
Wavelength Range	nm	430-700					
Operational Temp Range	°C	-10 - +50	-10 - +50	-10 - +65	-10 - +50	-10 - +50	-10 - +65
Storage Temp Range	°C	-30 - +70	-30 - +70	-40 - +80	-30 - +70	-30 - +70	-40 - +80
Integrated Temp Sensor		Y	N	N	Y	Y	Y
Frame & Mask		Y	N	N	Y	Y	Y
Max Video Frame-rate 1	Hz	120	85	85	100	75	TBA
Max Binary Frame-rate 2	kHz	3.2	3.2	3.2	5.76	3.6	TBA
Compatible Interfaces	Video 3DM	R3, R5 R12	R3, R5 R12	R3, R5, R12	R10 R11	R10 R11	R14 N/A



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